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Read more on page 02

A century of healthcare excellence for women and children

KK Women's and Children's Hospital reaches a significant milestone



07

InFocus

SGH and NNI identify possible cause of scoliosis



12

BeWellwithSingHealth

Common language reduces choking risks



14

HealthWatch

The case for careful management of unplanned pregnancies



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A century of excellent care for women and children

100 years of maternal and child health: a vision for the future of population health.

by Goh Bee Lian



KKH is Singapore's sole dedicated healthcare institution specialising in women's and children's health.

In 2024, KK Women's and Children's Hospital (KKH) celebrates 100 years of excellence in maternity care.

Founded in 1858 as a general hospital, KKH converted to a maternity hospital and reopened on 1 October 1924 with 30 beds and 12 children's cots. Since then, the hospital has delivered over 1.6 million babies and even garnered a place in the *Guinness Book of Records* for having the largest number of births (39,835) in a single maternity facility in a year (1966), a record it held for a decade.

KKH is also Singapore's sole dedicated healthcare institution specialising in women's and children's health, seamlessly integrating education, translational research, advanced clinical practices, innovation, and community engagement.

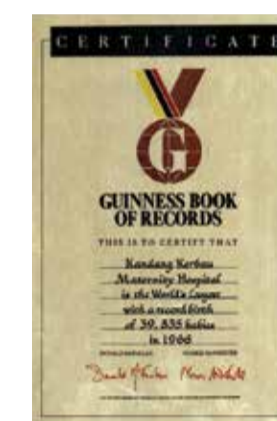
"As Singapore progressed over the decades, KKH's focus evolved in tandem with the nation's health concerns. Maternity care has evolved over the century, but KKH remains committed to addressing the health needs of women, children and families to give future generations the best inheritance of a healthier



KKH set a second record in the *Guinness Book of Records* in 2016 for having the largest reunion of people (2,241) born in the same hospital at Bishan Stadium.



Congratulations to Kathleen and Yuan Hao! All six of their children were born in KKH.



KKH garnered a place in the *Guinness Book of Records* for having the largest number of births (39,835) in a single maternity facility in a year (1966).



KKH was originally known as Kandang Kerbau Hospital.

tomorrow," said Professor Alex Sia, Chief Executive Officer, KKH.

In the early 1900s, the hospital's priority was to tackle the high maternal and infant mortality rates. These days, its focus is on addressing the burgeoning metabolic and mental health issues faced by our population, as well as falling birthrates.

Expertise and resources

KKH is Singapore's largest tertiary referral centre for obstetrics, gynaecology, paediatrics and neonatology.

The specialised expertise and extensive resources available at KKH is what made bank analyst Ms Kathleen Ng Kai Lin, 40, decide to deliver all six of her babies at KKH. She had heard from friends that it may at times be challenging to book operating theatres at private clinics with limited capacity, and that complicated cases during pregnancy will be referred to KKH.

"The healthcare professionals whom I've encountered at KKH during each pregnancy were all very knowledgeable and provided excellent services. This made all my pregnancies wonderful experiences," said Ms Ng.

One such healthcare professional is Ms Rani Krishnan, a Nurse Clinician at Ward 82, who has been in nursing for 53 years, including 37 years at KKH. She started as a nurse caring for women, before specialising in midwifery, and subsequently

focusing on postnatal care for mothers. For her, nursing is a deeply fulfilling and rewarding profession, albeit filled with its share of challenges.

Ms Rani sees every patient and family as an opportunity to empower them with confidence to care for their baby after they are discharged. Particularly for couples facing challenging pregnancies or deliveries, she and her team seek to provide comfort and care to help alleviate the families' distress. "Witnessing the positive impact of knowledge and skills we impart, and receiving gratitude from mothers who found our parenting tips and advice invaluable, are both rewarding and memorable," said Ms Rani.

To supplement that personal touch for patients, KKH is increasingly leveraging medical technology and embracing innovative care practices such as telemedicine and virtual wards to provide more accessible, seamless and efficient care to meet rising healthcare needs.

Beyond the hospital and into the community

As part of the hospital's strategy to champion a life-course approach towards stronger and healthier maternal, child and population health, the best opportunities to prevent and control diseases at key stages in life — from preconception, pregnancy, infancy, early childhood to adolescence and beyond — are identified and addressed beyond the hospital



As Singapore progressed over the decades, KKH's focus evolved in tandem with the nation's health concerns. Maternity care has evolved over the century, but KKH remains committed to addressing the health needs of women, children and families to give future generations the best inheritance of a healthier tomorrow.

Professor Alex Sia
Chief Executive Officer,
KK Women's and
Children's Hospital



KKH today is focused on addressing the burgeoning metabolic and mental health issues faced by our population, as well as falling birthrates.

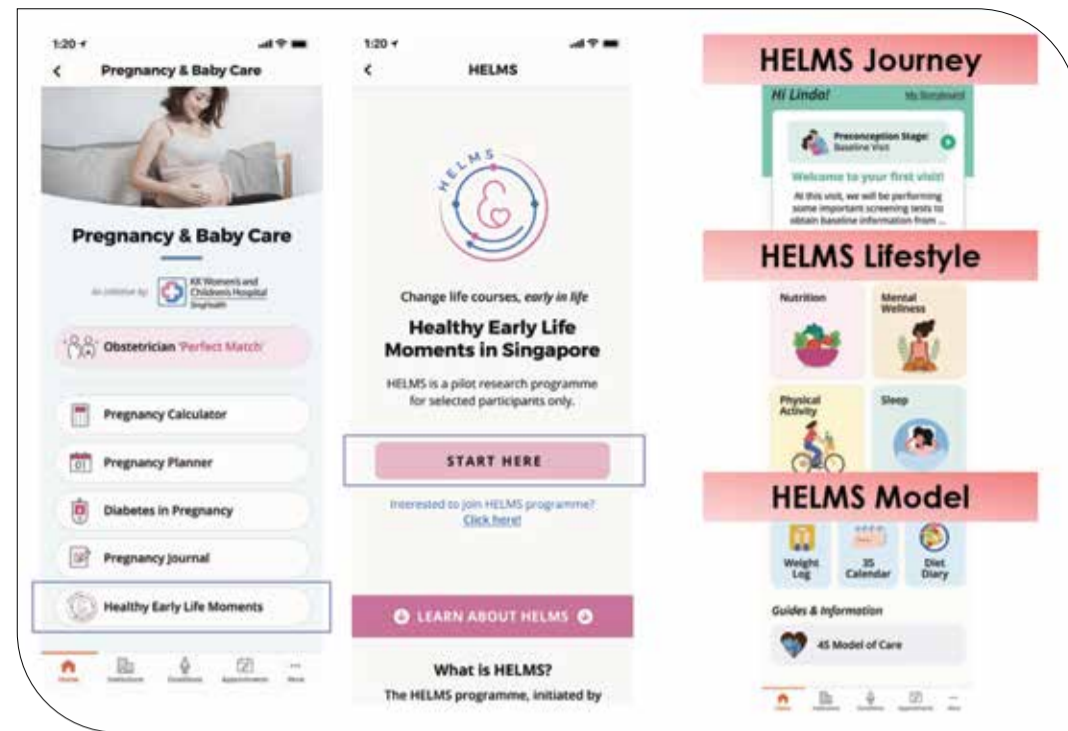


On 31 August 2024, colleagues past and present gathered to unearth the time capsule buried on the hospital grounds to mark KKH's 100 years as a maternity hospital.



Witnessing the positive impact of knowledge and skills we impart, and receiving gratitude from mothers who found our parenting tips and advice invaluable, are both rewarding and memorable.

Ms Rani Krishnan
Nurse Clinician, Ward 82,
KK Women's and
Children's Hospital



Pages of the eHELMS (Healthy Early Life Moments in Singapore) app.

and into the community through a system of integrated services.

“By focusing on a healthy start to life, and addressing the root causes and not just the consequences of poor health, we are aligned with and committed to our national strategy of building a Healthier SG today and for tomorrow,” said Prof Sia.

The SingHealth Duke-NUS Maternal and Child Health Research Institute (MCHRI), launched in 2021, serves as a centre of excellence for research in women's and children's health, with the aim of transforming and improving health in Singapore and the region.

Prematurity is a global concern and the leading cause of death for children under five, with one million children dying from preterm complications every year. Premature babies can suffer various long-term health consequences and have an increased risk of disability and developmental delays.

KKH and its partners have pledged to set up a Preterm Pregnancy Prevention Programme to spearhead education, research, advocacy and clinical practices to improve maternal and fetal outcomes, including to reduce the incidence of preterm pregnancies.

Through MCHRI, the future of maternity care is a more personalised and seamless journey, leveraging on technology and innovation in care delivery.

Strategic programmes

There are numerous MCHRI programmes to improve population health, including:

Healthy Early Life Moments in Singapore (HELMS)

Launched on 8 September 2023, eHELMS is a component of the HELMS programme that is accessible through SingHealth's Health Buddy app. It aims to provide a life-course model of care that highlights preventive health from preconception. The programme seeks to implement a system of integrated maternal and child care that embodies the clinical translation of decades of scientific evidence related to early fetal programming, spanning from preconception through pregnancy to childhood. Currently, eHELMS is only available to participants of the HELMS study.

eHELMS provides information on what to expect at each stage, including management of nutrition, emotion, sleep and recommended physical activities for optimal outcomes for mother and child. Additionally, it features milestone-specific nudges via in-app notifications to prompt participants to take recommended actions.

Integrated Platform for Research in Advancing Maternal and Child Health Outcomes (IPRAMHO)

IPRAMHO is the first cross-cluster ecosystem that seeks to develop a seamless integrated model of care through optimal implementation of effective public health interventions, and diabetes and weight reduction programmes for women and children.

Each year since 2018, IPRAMHO has led the development of a series of guidelines to improve maternal and child health. Tailored for our multi-ethnic Asian population, the seven sets of guidelines are in the areas of gestational diabetes, perinatal nutrition, exercise in pregnancy, perinatal mental health, as well as activities in children up to 18 years old and feeding in early childhood. These recommendations enable best practices in care, and benefit families in Singapore and around the world.

Psychological Resilience in Antenatal Management (PRAM) Programme

On top of the perinatal mental health guidelines launched by IPRAMHO in 2023, PRAM extends support to pregnant women before, during and after childbirth. This approach strengthens the preventive healthcare framework, supports maternal well-being, and optimises the child's future developmental outcomes.

An initiative under the national Child and Maternal Health and Well-Being Strategy, PRAM provides universal screening to expectant women to detect depression early in pregnancy, enabling timely intervention.

“These highly impactful achievements are made possible by the dedicated teams we have at KKH. Coupled with the strong foundation laid by many inspirational and trailblazing pioneers, KKH is well placed to continue to shape the future of health for generations to come,” said Prof Sia.



PHOTOS: VERNON WONG

Loud and clear

Improved devices can enhance sound quality and conduction, even when hearing loss is caused by rare ear deformities.

by Goh Bee Lian

One in every thousand babies is born in Singapore with severe hearing loss.

One of them is Ms Clarin Goh. Moreover, her form of hearing loss is rare. She has both an outer ear deformity known as microtia, as well as an undeveloped ear canal, known as congenital aural atresia.

“Microtia occurs in one in 10,000 live births, while aural atresia occurs in one in 20,000,” said Dr Brenda Sim, Consultant, Department of Otorhinolaryngology-Head

and Neck Surgery, Singapore General Hospital (SGH). Babies born in Singapore undergo a universal newborn hearing screening, allowing hearing loss to be caught early and urgent intervention to be given as early as three to six months, she added. They then learn language normally.

Ms Goh, who has been fitted with various kinds of hearing devices since young, mostly hairband-like hearing devices, gets rude stares from strangers. Once, a woman facing her on the MRT even commented loudly that she looked sad and pathetic with her hearing

device. The feisty 25-year-old said, however, that she has learnt to live with the stares and insensitive comments. “I am used to it. If they want, they can go ahead and stare. It doesn't matter,” she said.

In 2023, Ms Goh underwent a procedure for an implant that conducts sounds directly through the bone to the cochlear, which is the snail-like structure at the end of the inner ear that, when stimulated by sounds, sends waveforms to the brain. A bone-conducting device is needed as she is not able to receive sounds via the usual way – through the outer ear and parts of the inner ear, including the canal and ear drum.

The device she was fitted with – the Cochlear's Osia® Implant is one of several brands available commercially – involves a titanium implant placed under the skin, just behind the ear, and a sound processor magnetically clipped on to the implant. Unlike conventional bone-anchored hearing

Dr Brenda Sim shows how the sound device is clipped on (above and right). Ms Clarin Goh has both an outer ear deformity as well as an undeveloped ear canal. Besides hearing aids, surgery to reconstruct the external ear is possible.



aids, the newer models like Ms Goh's are aesthetically more pleasing as they do not have an abutment screw sticking out of the skull for the sound processor to be attached.

Ms Goh had to continue wearing her old hearing aid for about six weeks until the surgery wounds healed and she could start using the new OSIA implant in January 2024. Happy with the new implant, she said: “I can hear sounds more clearly now. With my old hearing aid, I could not answer

phone calls normally and had to put the call on speakerphone. But now I can connect directly to Bluetooth and hear people more clearly. I can also listen to music.”

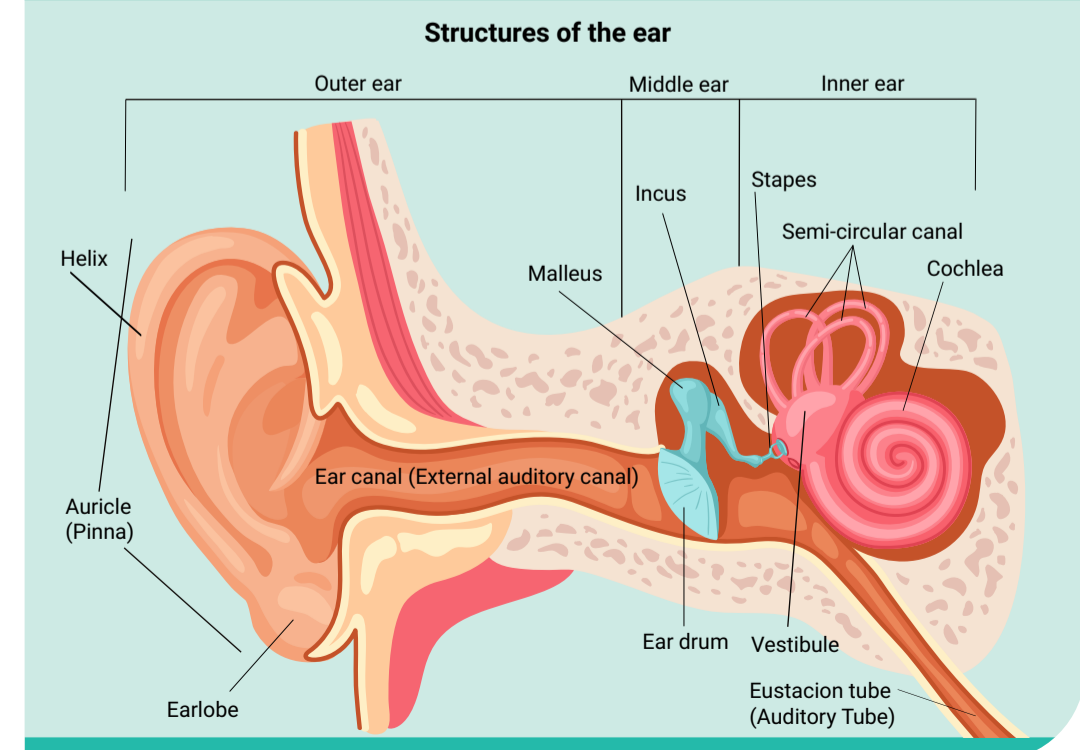
Compared to the uncomfortable headband of the past, the small disc she now wears is more discreet and can be covered by her hair. Gone too are the pain and having to apply lotion on the sore spot where her previous sound processor pressed against her skull.



Babies born in Singapore undergo a universal newborn hearing screening, allowing hearing loss to be caught early and urgent intervention to be given as early as three to six months, says Dr Brenda Sim.

How we hear

The cochlear, the snail-like structure at the back of the inner ear, is in charge of hearing. Sound waves enter the outer ear, travel through the external ear canal to vibrate the ear drum. The ear drum then transmits the sound waves to the cochlea via three small bones, known as ossicles, in the middle ear. The cochlear then sends electrical energy to the hearing or auditory nerve and on to the brain.



Fighting lymphoma and colorectal cancer through in-depth research

Two programmes, SYMPHONY 2.0 and Colo-SCRIPT, will build on local expertise and pioneer new personalised approaches to combating the diseases.

by Timothy Wee

Two National Cancer Centre Singapore (NCCS)-led research programmes have received a \$50 million boost in funding as part of the Open Fund-Large Collaborative Grant (OF-LCG) programme from the National Medical Research Council (NMRC), Ministry of Health. The two research programmes – SYMPHONY 2.0 and Colo-SCRIPT – comprised of multi-institution teams, were each awarded \$25 million for research on lymphoma and colorectal cancer (CRC) respectively.

In the fight against cancer, there is emerging evidence that challenges a traditional homogeneous treatment model. More researchers are uncovering that cancer behaves uniquely in each patient, influencing its progression and response to therapy.

SYMPHONY 2.0

SYMPHONY 2.0 (Singapore Lymphoma Translational Study 2.0) is an ambitious endeavour leveraging emerging technologies to combat blood cancers. The initiative has three primary objectives. First, to develop an AI-driven platform capable of identifying optimal multi-drug combinations for patients with relapsed/refractory (RR) T cell lymphomas and aggressive B cell lymphoma. Second, to improve accessibility to CAR-T cell therapy, a promising but currently expensive treatment option. Finally, to centralise patient data for research by establishing a Lymphoma Atlas.

The team behind SYMPHONY 2.0 has already made significant strides in establishing Singapore as a hub for blood cancer research, with a particular focus on blood cancers that are more prevalent in Asian populations. Their work is crucial, as these Asian-centric lymphomas are often underrepresented in international studies.

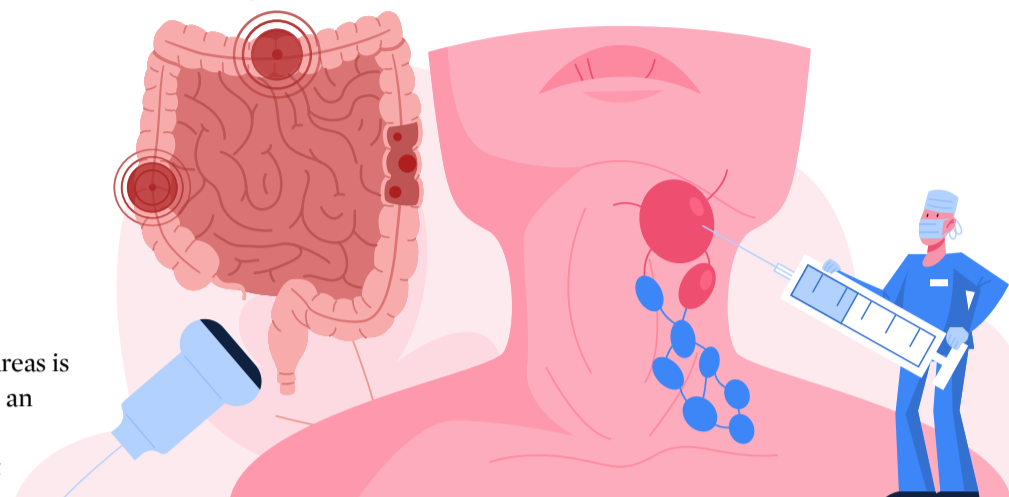
One of the team's key focus areas is Natural Killer/T cell lymphoma, an aggressive form of blood cancer that accounts for 15–20 per cent of lymphoma cases in Asia. By addressing this and other Asian-centric lymphomas, the researchers aim to fill a critical gap in global cancer research and treatment. Professor Lim Soon Thye, CEO and Senior Consultant, NCCS, likens the project to an orchestra, with multidisciplinary specialists and researchers from various institutions – including NCCS, the Agency for Science, Technology and Research (A*STAR), and the Cancer Science Institute of Singapore – harmonising their efforts to advance cancer research.

Colo-SCRIPT

From 2017 to 2021, there were over 12,000 new CRC cases in Singapore, making it the most common type of cancer affecting men and women here. New evidence from patient sample and research data collected by members of the Colo-SCRIPT team shows that early CRC lesions and advanced tumours may be grouped into distinct subtypes.

Associate Professor Tam Wai Leong, Deputy Executive Director, A*STAR's Genome Institute of Singapore (GIS), and the Scientific Chair of Colo-SCRIPT, said: "It's increasingly clear that colorectal cancer is composed of distinct molecular subtypes; therefore, patients need to be managed and treated differently. The one-size-fits-all approach should no longer be the way forward. By better understanding the underlying mechanisms of the complex disease, we will have an opportunity for early intervention to interrupt disease progression and eventually develop tailored treatment strategies that are more effective for patients."

The colorectal cancer research programme will be a first-of-its-kind study



that spans pre-cancer to advanced cancer, according to Associate Professor Iain Tan, Clinical Chair and Corresponding Principal Investigator, Colo-SCRIPT. The Senior Consultant in the Division of Medical Oncology, NCCS, and Goh Hak Su Professor in Colorectal Surgery, said: "We have brought together Singapore's leading clinicians and scientists in colorectal cancer to pioneer a subtype-specific paradigm to find ways to effectively and efficiently prevent, diagnose and treat it."

The first national CRC research programme will recruit 20,000 patients with early-stage CRC to develop new subtype-specific diagnostic methods and investigate the influence of genetic, environmental, metabolic and microbial risk factors. Through this, the team hopes to establish a pre-cancer atlas of medical knowledge and develop a novel non-invasive CRC detection test.

The team will then study 1,000 patients with advanced CRC to build a biospecimen repository and extensively profile different tumour subtypes. The aim is to identify and bring new drugs to clinical trial for improved treatment outcomes in patients with advanced CRC. "We hope to find new ways of treating this group of patients, moving forward. Our multidisciplinary team will leverage their scientific expertise, as well as their clinical expertise in identifying and recruiting patients, to understand disease through patient samples, and apply both to uncover novel translational diagnostics and therapeutics," said Colo-SCRIPT co-investigator, Professor Emile Tan, Head and Senior Consultant, Department of Colorectal Surgery, Singapore General Hospital and NCCS.

... Prof Lim Soon Thye, Assoc Prof Tam Wai Leong, Assoc Prof Iain Tan, and Prof Emile Tan.



The brain did it

Breakthrough study by a team of researchers from SGH and NNI identifies possible cause of scoliosis.

by Thava Rani



Aggling suspicion that the brain of scoliosis patients might be wired differently led to a breakthrough study that found a link between imbalances in the brain and an abnormal curvature of the spine.

Singapore General Hospital (SGH) surgeons and National Neuroscience Institute (NNI) neurologists operating on the spines of patients with adolescent idiopathic scoliosis (AIS) had noticed in recent years that the wave signals from the left and right sides of their brains were somewhat asymmetric.

To check out their observations, the SGH-NNI team used a high-resolution and specialised magnetic resonance imaging (MRI) technique – the first to do so – to

map the brains of 34 participants in 2020.

"We found asymmetric measurements in the nerve pathway between the right and left side of the brain in patients who have AIS, unlike the symmetrical pattern in participants without," said Professor Chan Ling Ling, Senior Consultant, Department of Neuroradiology, SGH, and the study's corresponding author.

The study, published in the international *Clinical Radiology* journal in February 2024, used a high-resolution diffusion tensor imaging (DTI) brain MRI technique for mapping brain pathways. Besides asymmetry, the scans also showed an enlargement or swelling of pons in the brainstem, the bottom part of the brain linked to the spinal cord. In those without AIS, the pathways showed symmetric quantitative measurements, and the pons was not enlarged.

"This discovery suggests that scoliosis is fundamentally related to our brain and spinal cord. It could bring about changes in the way AIS is diagnosed or treated. For example, neurological interventions may potentially be employed to prevent worsening of spine curvature. These could include the use of magnetic fields or low electrical currents to stimulate or modulate brain activity," said Professor Lo Yew Long, Senior Consultant, Department of Neurology, NNI@SGH, and senior author of the study.

AIS affects about 3 per cent of adolescents in Singapore, mostly girls. Symptoms include spine curvature, and uneven shoulders, hips and waist. Most patients manage their condition with physiotherapy and bracing.

"Currently there is no cure for AIS, but the custom-made brace pushes on the spine to prevent it from getting worse. Patients will usually need bracing until the pubertal

growth spurt has completed. At that point, the situation stabilises and they no longer need the brace," said Associate Professor Reuben Soh, Senior Consultant, Department of Orthopaedic Surgery, SGH, and the study's first co-author.

If the scoliosis continues to advance despite the braces, which happens in about 5–10 per cent of patients, the patients may experience nerve damage and breathing problems. Complex surgery involving the use of metal rods, hooks and screws will then be needed to hold the bones in place.

"Most scoliosis patients are picked up very early by the school health services, and they continue to be monitored by the Health Promotion Board. If the condition worsens, they are referred to SGH's scoliosis clinic," said Assoc Prof Soh.

The scoliosis clinic's specially trained physiotherapists help 300 patients the clinic manages each year to improve their mobility and muscular symmetry through exercise and core strengthening, which in turn help to reduce the degree of spine curvature.

"We see patients as young as 10 years old and parents often have the misconception that it's bad habits or lifestyle factors that cause scoliosis. We embarked on this study to try uncovering the real reason; in doing so, we hope to be able to better care for patients and support them and their families in managing the condition," said Assoc Prof Soh.

The team intends to conduct further studies to identify markers in patients who are at risk of AIS progression with imaging and electrical methods. "We are hopeful that one day, there could be a non-invasive mode for managing the spinal curvature, and that would really change things for the patients," said Assoc Prof Soh.

... (L–R) Professor Chan Ling Ling, Professor Lo Yew Long, and Associate Professor Reuben Soh.



Getting ready for emergencies

Dr Ivan Chua and Ms Lee Chee Woei discuss their roles in preparing for a new SGH Emergency Department and observation facilities.

by Thava Rani

As if life as an emergency medicine physician is not hectic enough, Dr Ivan Chua is also involved in planning for a bigger emergency department (ED) — possibly one of the largest multistorey emergency facilities in Singapore.

But then, he is one cool dude. He does not seem to get easily rattled, be it the stress and pressure of racing against time to save lives or getting the new ED ready. “I think my background in pre-hospital emergency care and trauma care is useful for this role,” said Dr Chua, Senior Consultant, Department of Emergency Medicine (DEM), Singapore General Hospital (SGH). “Besides, I get to have a say in what goes into the new ED. Knowing that we’re actually helping to create a facility to serve our community and save lives over the coming years also makes me feel that I’ve made an impact.”

The massive project, started almost a decade ago, is in its last stages of construction. The new 12-storey building, sited across the road from the hospital’s current ED, houses not just the ED but also the short-stay Acute Medical Ward, hospital decontamination station, and the National Neuroscience Institute.

Dr Chua and his colleagues had to think about the most efficient way for patients to be given treatment. “Our biggest priority is the patient’s journey. We need a design that caters to optimal patient flow. The sickest patients go directly to the resuscitation area, so it’s situated right behind the triage area on the first floor after the initial assessments are done,” said Dr Chua, whose area of planning is the resuscitation area. This has the best capabilities for urgent diagnosis and treatment of patients who have collapsed or need emergent treatment as a result of a heart attack, stroke, major trauma, or other illnesses.

To avoid taking up precious time travelling to the imaging and other departments in the main SGH blocks, the ED will house a dental orthopantomogram unit, a dedicated

Dr Ivan Chua says a priority in planning for the ED is ensuring patients have rapid access to resuscitation, assessments and scans, which are now housed under one roof.

PHOTO: VERNON WONG



I get to have a say in what goes into the new ED. Knowing that we’re actually helping to create a facility to serve our community and save lives over the coming years also makes me feel that I’ve made an impact.

Dr Ivan Chua
Senior Consultant,
Department of Emergency Medicine,
Singapore General Hospital



sonography room, and an angiography suite that can be used for endovascular treatment for stroke cases, said Dr Chua.

As with the overall bigger ED, the resuscitation area is double the size of the current one — with 12 resuscitation bays, including four dedicated trauma bays — in anticipation of greater demand for emergency services in the coming years.

To pre-empt sudden worsening of conditions of less sick patients, who may have been sent to the ambulatory areas on the upper floors, measures are also in place for quick transfer back to the resuscitation area. “We have an internal ‘code blue’ system, where the patient is given immediate care and then transported via dedicated lifts to the resuscitation area. When the code is activated, the lifts are locked so that no one can use them except us. This helps prevent treatment delays for the patient,” said Dr Chua.



(Above) To ensure the smooth running of the much larger ED when it opens, large-scale exercises and processes are held regularly, like the one involving many people at one of the observation wards.

(Above, right) Some drills to test systems and processes are smaller scale, like this one known as a tabletop exercise that Ms Lee Chee Woei is conducting with her AMW team.

The team had to think well ahead — by at least a decade — about the demands and needs of Singapore’s ageing population. This is because the silver tsunami is approaching quickly, while the recent experience of COVID-19 highlighted the possibility of pandemics recurring. How would patients suspected of being infected with an unknown virus be kept away from others — from the time they step into the ED all the way through to admission? During COVID-19, hospitals faced limited and ageing facilities; SGH had to erect temporary ward space and convert other facilities, like car parks, into testing and vaccination centres. “We’re also prepared for bioterrorism events. The ambulance parking area can be converted to a decontamination station with shower facility, where we’ll have nine lanes to decontaminate patients. This is three times more than what we have currently,” said Dr Chua.

Another challenge presented itself when the team found that actual space was far smaller than envisaged on paper.

The team, Dr Chua added, had to look at reconfiguring the space



Because we have dedicated physiotherapists, occupational therapists, patient navigators, medical social workers and pharmacists stationed in the ward, they are able to work with the patients daily, which reduces the patient’s length of stay significantly. We also offer caregiver training upfront, so patients are more confident when being discharged.

Ms Lee Chee Woei
Senior Nurse Manager,
Acute Medical Ward,
Singapore General Hospital



without compromising patient care.

Dr Chua takes these challenges — unexpected and perhaps upsetting — in his stride. His ability to stay calm and cool, and to think quickly without panicking may be the reason he has thrived in his chosen discipline. “ED is fast paced, and the opportunity to make life-saving decisions is satisfying,” said Dr Chua, who also conducts workshops for the US-based Resuscitation Academy to help improve cardiac arrest survival rates in countries around the region.

Given his intense interest and involvement in emergency medicine, it is surprising to hear that Dr Chua had seriously mulled a career in finance. He blogged about the subject when younger, although he has stopped through lack of time. Still, he is considered an expert among friends and colleagues, who regularly seek his advice.

Dr Chua, who is single, has a younger brother who works in the finance sector. One can only imagine their dinner conversations!

Fast-tracking care

When Ms Lee Chee Woei was posted to Ward 73 as a young nurse in 2008, she could hardly have anticipated the big role she would play in the future Acute Medical Ward (AMW). The Senior Nurse Manager (SNM) is now one of two SNMs leading the charge to set up four floors of the AMW in the soon-to-be-opened emergency building at the Singapore General Hospital (SGH).

Ms Lee was there when one of the wards was converted to the AMW under the care of the Department of Internal Medicine in 2015. It was a move to improve patient care for individuals being admitted from the Emergency Department. “I’ve been involved in the AMW’s development since it first started operations, working closely with various stakeholders to shape and improve our care model. Since then, I’ve been given the opportunity to lead multiple quality improvement projects to streamline the work processes there,” said the 42-year-old.

The AMW, a short-stay facility for SGH patients, delivers early assessments, treatment and rehab interventions to facilitate earlier patient discharge. Typically, patients stay for three to five days at the AMW, thanks to this care model.

Engagement of patients, families and domestic helpers starts from admission, ensuring patients receive the same care when they are discharged for home. Having caregivers by the bedside comforts patients in an unfamiliar hospital environment, and

their early engagement also boosts their knowledge and confidence. “Because we have dedicated physiotherapists, occupational therapists, patient navigators, medical social workers and pharmacists stationed in the ward, they are able to work with the patients daily, which reduces the patient’s length of stay significantly. We also offer caregiver training upfront, so patients are more confident when discharged,” said Ms Lee.

Her current challenge is scaling up the efficiency of the AMW to the expanded facility, which has 152 beds across four levels. She arranges comprehensive training programmes for the staff to help them understand the new workflows and protocols for the expanded facility. For instance, nurses must learn to manage isolation rooms as well as run peritoneal dialysis and haemodialysis as these services will be offered at the new facility.

Coordinating care and ensuring seamless communication between teams on different levels are challenging. Thus, the multidisciplinary teams meet regularly so that staff are on the same page on the care plan of patients. “We have to also make sure the nurses are familiar with the layout of the bigger space. They need to know the fastest routes to the patients for resuscitation cases, or the safest way to move patients in case of fire and so on,” said Ms Lee. About 200 nurses are currently undergoing training, and plans are in place for recce trips to the new AMW for orientation to “empower the nurses and make them more equipped”.

Ms Lee enjoys being part of this major project, especially as she knows that her efforts directly improve patient care. “Personally, I found the constant need to adapt and improve to be both challenging and exciting. Coordinating with multiple stakeholders and ensuring smooth communication across different teams were sometimes tough, but it has been a great learning experience.”

Ms Lee finds joy in watching her staff grow, develop their skills, and become more confident in their roles. “I truly enjoy listening to them and creating a family-like atmosphere in the workplace. It’s important to me that they feel supported and cared for, just as we care for our patients.” During the COVID-19 pandemic, she made use of skills picked up from her seamstress mum to sew masks for kids using fabric printed with colourful cartoon characters. “It turned into a little venture of its own, as colleagues came back to me for repeat orders! It was rewarding to see them excited about wearing something I created,” she said. Her greatest fulfillment, however, is in the impact she makes on patients’ lives. “Being there for them during their most vulnerable moments, whether they’re recovering or facing difficult challenges, reinforces why I chose this profession.”

At home, Ms Lee and her radiographer husband enjoy spending quality time with their 10-year-old son and 8-year-old daughter. “We enjoy outdoor activities together, such as picnics, cycling and playing badminton. These moments allow us to bond and create wonderful memories as a family,” she said.



Common language reduces choking risks

To minimise the risk of choking in patients with swallowing difficulty, a standardised set of food texture terms is being rolled out in healthcare institutions nationwide.

by Timothy Wee



Ms Lee Yan Shan says that standardising food texture and drink thickness takes the guesswork out of food preparation for dysphagia patients.

Porridge can mean different things to different people. Is it the grainy, Teochew-styled rice porridge, or the soft, mushy Cantonese congee? What about minced meat — how fine should the meat be chopped?

The texture of food may be a matter of style, but it is a big deal to patients who have difficulty swallowing, a condition known as dysphagia.

It is equally important for their carers, who have to prepare porridge and other soft meals when the patients are discharged back home; or when the patients are admitted to different hospitals or care homes.

Serving the wrong texture of food to a dysphagia patient can be dangerous. To ensure this aspect of safety, the Ministry of Health (MOH) adopted the International Dysphagia Diet Standardisation Initiative (IDDSI) framework of diet and fluid terminologies for Singapore public hospitals, community hospitals, and care homes.

IDDSI has been adopted progressively among SingHealth institutions. In June 2024, both Singapore General Hospital (SGH) and KK Women's and Children's

Hospital (KKH) speech therapists, dietitians and kitchen staff began using the new terms to describe food textures in their meals for patients with dysphagia, following on the heels of Changi General Hospital and Sengkang General Hospital. SGH adopted IDDSI standards for drink thickness in 2021.

“Standardisation of food texture and drink thickness terms takes the guesswork out of food preparation for dysphagia patients. Because of the same terminology, patients would be served similar-looking food at not just the hospital, but also daycare centres. Over time, when the patient then goes home, the caregiver would have internalised the meaning of porridge and know that this is the kind of food that the patient should be taking,” said Ms Lee Yan Shan, Principal Speech Therapist, Speech Therapy Department, SGH.

Ms Chen Yu Hui, Speech Therapist, Speech Language Therapy Service, KKH, added: “By using IDDSI terminologies, caregivers, teachers and healthcare professionals share a common understanding of the safest diet and fluid recommendations for children with dysphagia. They will then be able to eat and drink safely in school and at home.”

Dysphagia is a symptom of underlying diseases — neurological conditions like stroke, Parkinson's Disease and dementia,

head and neck and gastrointestinal cancer, or general weakness from severe medical events. Children can have dysphagia when they are born with deformities like a cleft palate or tongue tie. Signs of dysphagia include coughing, choking or spitting up food or drink, food spilling out of the mouth or remaining in the mouth after swallowing, a feeling of food getting stuck in the throat, or pain when swallowing.

The revised terms came about after a review of clinical dietitian and speech therapy services in nursing facilities in 2018 under the MOH's EatSafe initiative. “Nursing home staff highlighted to us that the inconsistent terminologies used for dysphagia diets across acute hospitals, community hospitals, and intermediate to long-term care facilities caused confusion and compromised patient safety,” said Ms Lee, a member of the MOH committee looking at the standardisation of terms.

Before the change, pureed diet at one institution might be known as minced diet in another. Food preparation was also not standardised across the board for the different dysphagia diet types. “The degree of softness in a soft diet depends on the ingredients used and how they are cooked. Using IDDSI means that there will be less confusion and better communication between staff when patients move from one

healthcare setting to another. This ensures better safety and better continuity of care,” said Ms Lee.

Dysphagia can lead to aspiration, when food or drink enters the lungs instead of the stomach when swallowing. This can lead to chest infections, known as aspiration pneumonia, which can be life-threatening, explained Ms Lee.

“Speech therapists may recommend modified diet and fluid textures to make it easier and safer for people with dysphagia to swallow. For example, someone who has poor tongue control and poor jaw strength may benefit from a thicker liquid or pureed diet, so that the liquid does not flow immediately to the back of their throats and cause them to choke. Pureed textures may be helpful as patients do not need to use too much energy chewing on harder solids,” said Ms Lee.

At SGH, speech therapists began laying the groundwork for the eventual switch to IDDSI standards years ago. Speech Therapist Days were events to highlight the inconsistencies in food textures and how standardisation is important. At 2023's Speech Therapist Day, SingHealth staff were invited to share their own IDDSI food recipes as a way of reinforcing the new terminology.

Food Service Dietitian Heng Xiow Chao and Executive Chef Edmund Lim work with Ms Lee on food texture standardisation for patients with swallowing and eating difficulties.



Levels of textures

When it came to diet textures, local healthcare institutions in the past used various terms to describe different characteristics of dysphagic diets.

With the IDDSI framework, classification was expanded to eight levels: Levels 0 to 4 cover liquid textures of increasing thickness, while Levels 3 to 7 cover food of varying textures and sizes. Levels 3 to 6 are suitable for patients with dysphagia. Level 7 (regular and easy to chew) refers to normal food with mixed consistency, like noodle soup, and is suitable for patients with no dysphagia.

“Mixed consistencies can be difficult for patients with dysphagia, as they may not be able to control both liquid and solid textures in their mouths at the same time, causing increased choking risk,” said Ms Lee Yan Shan, Principal Speech Therapist, Speech Therapy Department, SGH.

Level 6 (soft and bite-sized) refers to tender food that requires no biting and some chewing. Food items should be no larger than 15mm by 15mm, which is pegged to the size of the human trachea, and should be easily mashable with a fork to minimise choking.

Level 5 (minced and moist) consists of food that requires minimal chewing. Each particle should be small enough to go between the prongs of a fork and measure no larger than 4mm by 15mm.

Level 4 (pureed) and Level 3 (liquidised) are relatively similar due to the common criteria that food texture should be smooth and without lumps. Where they differ is consistency: Level 4 refers to a thick but not sticky texture, whereas Level 3 refers to a runny texture.

IDDSI classification for food	
Level	Description
3 (liquidised)	food texture should be smooth, without lumps, and runny
4 (pureed)	food texture should be smooth, without lumps, and thick but not sticky
5 (minced and moist)	minimal chewing; each particle (no larger than 4mm X 15mm) should be able to pass between the prongs of a fork
6 (soft and bite-sized)	requires no biting but some chewing; food items no larger than 15mm X 15mm
7 (easy to chew)	normal everyday food that is naturally soft
7 (regular)	normal food with mixed consistency





Preventing unplanned pregnancies

Careful management of cases of unplanned pregnancies can provide necessary support for the physical, mental and emotional well-being of women, their families, and the community.

by Candice Cai

Unplanned pregnancies are prevalent in Singapore, according to a local first-of-its-kind research, which examined data of over 9,700 antenatal patients at public healthcare institutions. The women, aged 15 to 54 years old, visited eight polyclinics around Singapore between 2017 and 2020.

Called SAFE (Surveillance on Abortion and Family planning in primary care), the study was published by SingHealth Polyclinics (SHP) in 2022. It found that one in 10 of these women had sought gynaecological referrals to manage unintended pregnancies. These individuals were predominantly single women aged below 20, above 40 years, CHAS cardholders, or of Indian ethnicity. With these findings, SHP has introduced video consultations to improve access to oral contraception for women, making family planning more convenient.

Video consultations are also available for new mothers who have recently delivered, opening up opportunities for timely support for family planning.

According to the study, there was an upward trend for abortion referrals within the same three-year period. From 2017 to 2018, the increase was 26, 28.9 and 47.6 per cent among citizens of Chinese, Malay and Indian ethnicities respectively; from 2019 to 2020, the increase was 33.3, 4.3 and 48.4 per cent respectively.

The research also revealed that women of foreign nationalities comprised 15.7 per cent of those referred for unplanned pregnancy, nearly doubling in cases between 2017 and 2019. The report noted that this "sharp increase" is a concern as it not only

constitutes a breach of legislation, but may indicate poor awareness of health knowledge among these women.

In addition, over 10 per cent of the patients had records of repeated referrals to terminate their pregnancies, which is a worrying trend.

Abortion risks

Abortions, though generally safe, carry preventable risks. According to Clinical Associate Professor Tan Ngai Chuan, Director of Research, SingHealth Polyclinics, Vice-Chair of Research, SingHealth-Duke NUS Family Medicine Academic Clinical Programme, and the corresponding author of the paper, the issue of unplanned pregnancies is pertinent, particularly when it occurs among adolescents, as abortion is tied to complications such as anaemia, stillbirths, preterm deliveries, and low birth weights in subsequent pregnancies.

Repeated abortions can also lead to spontaneous abortions or the possibility of miscarriages in subsequent pregnancies, said Clin Assoc Prof Tan. Besides the physical implications, there are also the mental and emotional harms that women suffer, such as feelings of shame and guilt, or in extreme cases, depression, he added.

Clin Assoc Prof Tan added that many cases of unplanned pregnancies stem from a lack of education about contraceptive measures and family planning. There is also correlation to one's socio-economic status. "Those from a lower socio-economic status tend to have lower levels of education and literacy; they may not be cognisant of family planning options, especially emergency contraception (commonly known as the 'morning after pill'), resulting in unwanted pregnancies," said Clin Assoc Prof Tan.

Managing unplanned pregnancy

Reasons for abortion are varied and solutions have to be individualised, Clin Assoc Prof Tan highlighted.

Victims of sexual violence and statutory rape notwithstanding, there are women who are not ready to start a family, as well as those who have completed their family and do not wish to have another child, he said.

Women who request for abortion referrals at the polyclinics are provided counselling on options and alternatives based on their stage of pregnancy. There are also Care Managers, who are nurses by training, on hand to offer advice to patients when needed.

In cases of advanced pregnancies where abortions are prohibited, social workers may also be activated as the pregnancy will have to be brought to term. Support, such as housing placements, for these women can be made for those who require help during their pregnancy. Discussions about whether they would like to keep the baby or consider adoption will also be carried out and the necessary support will be provided.

The study noted that an accessible community-based healthcare service to educate and counsel women on family planning is urgently needed to reduce the incidence of unplanned pregnancies. "Family Physicians and primary care professionals are usually the frontliners providing family planning services in the local communities. They are also often the healthcare providers receiving women's requests for gynaecologist referrals to manage unplanned pregnancy. Family physicians play a key role in optimising women's health," said Clin Assoc Prof Tan. There will thus be "ample opportunities" in the primary care setting to mitigate this issue.

Burning questions about farting and diarrhoea

Mind what you eat – or suffer embarrassing consequences of foul-smelling flatulence and painful bowel movements.

by Candice Lee and Felicia Ong

Dialling up the chilli factor in a challenge to eat the spiciest food can lead to regret in the days after. Food can take a couple of days to make its way down the gut – and with very chilli-hot food, there is a good chance of getting stomach pain, emitting embarrassingly loud or foul-smelling gas, and suffering burning diarrhoea.

"Food takes a while to go down, and our gut is a really long tube. For food to travel from the mouth to the other end can sometimes take two to three days. The food that isn't absorbed well gets fermented by the bacteria in the gut, and that will produce quite a lot of gas," said Associate Professor Andrew Ong, Senior Consultant, Department of Gastroenterology and Hepatology, Singapore General Hospital (SGH). "What you ate the day before is what's likely to be inside your gut when you start farting. And today's poop? It's from the food that you ate two to three days ago."

Being able to control the ring-shaped sphincter muscles around the anus might help soften the sound that flatulence typically causes, but it is more difficult to control the smell. "Most of the smell comes from substances like hydrogen sulphide, which comes from proteins. After a buffet or Korean barbecue the night before, with a lot of meat, the toilet can smell like a war-zone the next day," added Assoc Prof Ong.

This does not mean that vegetarians get a pass from flatulence, although eating less meat protein and more rice, grains and vegetables can help. "Without a lot of protein, I think that would be okay. Even rice and carbohydrates are fine," Assoc Prof Ong said.

Then there are foods classed as FODMAP – fermentable oligosaccharides, disaccharides, monosaccharides and polyols – which people with irritable bowel syndrome (IBS) should be aware of. High FODMAP foods that aggravate the gut include dairy- and wheat-based products, beans and lentils, and some fruits and vegetables. It is unclear why certain foods cause problems for some people. For them, FODMAP foods just do not get fully absorbed by the body. Instead, food stays in the gut, where it is fermented by bacteria in

the gut and produces a lot of gas.

Flatulence and diarrhoea aside, eating very spicy food can cause a burning sensation from the mouth to the stomach and the anus. "It's dependent also on the quantity of spicy stuff, which we call capsaicin, in the chilli," said Assoc Prof Ong. When chilli – and the capsaicin – comes into contact with tissue, it causes a burning sensation. The greater amount of capsaicin a chilli has, the hotter and stronger the burning sensation. "So young people who think it is fun to challenge each other to see who can eat the most chilli may want to think first about capsaicin and what it can do to the body!" said Assoc Prof Ong.

Although the body can build a certain tolerance to capsaicin, there is a limit. Assoc Prof Ong noted that in places where chilli is part of the everyday diet, people are able to eat chilli neat. "Go into the kitchen of a curry place, and you can see the cooks wearing gas masks – the chilli burns their eyes and nostrils."

Another misunderstood food group is milk and dairy products, and why many Asians tend to be lactose-intolerant. "Many Asians don't have the gene to produce the lactase enzyme. Babies have it when taking breast milk, but as they are weaned to eat a solid diet, they lose that enzyme. So, in theory, Asians shouldn't be absorbing lactose very efficiently compared to someone in the Caucasian population," said Assoc Prof Ong.

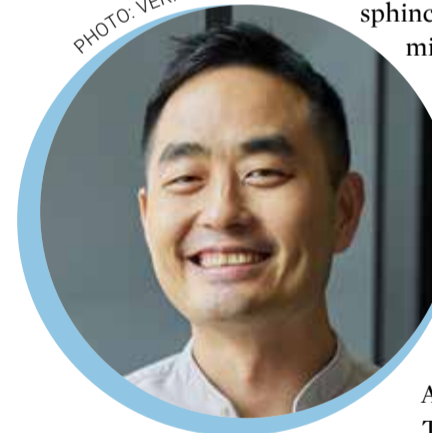
PERFECTLY
imperfect
HEALTH
by SGH



Adapted from SGH's *Perfectly Imperfect* podcast episode 12 ('Spill your guts – Farts, diarrhoea and constipation'). To listen to the full podcast, scan the QRC or click on <https://for.sg/perfectly-imperfecthealth-farts>



PHOTO: VERNON WONG



"So young people who think it is fun to challenge each other to see who can eat the most chilli may want to think first about capsaicin and what it can do to the body!" says Assoc Prof Andrew Ong.

●●● Repeated abortions can lead to spontaneous abortions or the possibility of miscarriages in subsequent pregnancies, says Clin Assoc Prof Tan Ngai Chuan.

Vegetable curry puff

6 servings 



Ingredients

Pastry

- 100g plain flour
- 65g unsalted butter
- ½ tsp salt
- ¼ egg yolk
- 4 tsp water
- ½ egg, lightly beaten (to brush on before baking)

Filling

- 4 tsp oil
- 60g onion, sliced thinly
- 3 tsp curry powder
- 40g mixed vegetables
- 200g potatoes, diced
- 100ml water
- ½ tsp salt

Method

Pastry

- 1 Mix plain flour and butter together using the rub-in method
- 2 Add remaining ingredients and mix well to form dough
- 3 Divide dough into 6 portions

Filling

- 4 Heat oil in a wok and fry onion until fragrant
- 5 Add curry powder, mixed vegetables and potatoes, and stir-fry for a few minutes
- 6 Add water to the wok and allow vegetables to simmer for another 5 minutes
- 7 Season with salt
- 8 Remove from heat and allow filling to cool

Assembly

- 9 Roll out pastry and cut into circles
- 10 Wrap filling in pastry, folding the edges in
- 11 Brush the top of the puffs with egg, and bake at 200°C for 20–25 minutes or till cooked

Estimated nutrient content (per serving)

Energy	217kcal
Carbohydrate	21g
Protein	4g
Fat	13g
Sodium	411mg
Cholesterol	50mg

Did you know?

Curry powder is often believed to be hot and spicy because of its use in spicy recipes. Made up of fragrant spices, curry powder is usually highly aromatic with a warm, bitter taste. If you like your curries hot, look for Madras curry powder.

Health Tip

You can prepare this dish using soft margarine instead of butter to help reduce intake of saturated fat.

Adapted from *Where is the fat?* cookbook, a publication by Singapore General Hospital

What's up with that hacking cough?



Delve into the facts, challenges and triumphs of managing chronic cough.

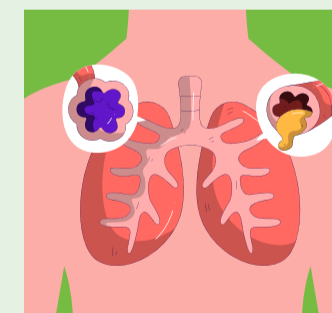
by Dr Jessica Tan, Head and Senior Consultant, Department of Respiratory Medicine; Dr Lee Wei Chee, Associate Consultant, Department of Respiratory Medicine; and Ms Chua Boon Lee, Pharmacist, Sengkang General Hospital

What is a chronic cough?

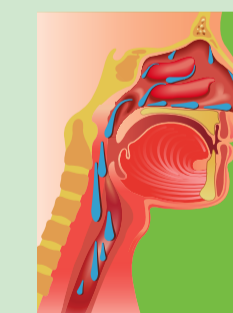
Chronic cough is a persistent cough that lasts more than 8 weeks in adults and more than 4 weeks in children.

What are the common causes?

- **Asthma and chronic obstructive pulmonary disease (COPD) in smokers**
They cause airway inflammation, resulting in increased mucus production, narrowing of airways (bronchoconstriction), causing affected patients to have heightened sensitivity to environmental factors such as strong odours and smoke.



- **Allergic rhinitis and post-nasal drip syndrome**
They result in coughs when excessive mucus accumulates at the back of the throat and nasal passages, and 'drips' down the throat, causing irritation and triggering the cough reflex.



- **Gastroesophageal reflux disease (GERD)**
When stomach acid moves up into the oesophagus, acidic content may reach the throat and airways, irritating the lining of the throat and triggering a cough reflex to clear the irritation.



When should one seek medical advice for a persistent cough?

One should seek further medical attention if the cough still persists 8 weeks after a bout of acute respiratory infection (e.g. COVID-19, influenza, etc). A consultation with a general practitioner (GP) is advised so that a referral can be made for the patient to see a specialist if needed. Haemoptysis (coughing out blood), prolonged fever, chest pain, shortness of breath, and weight loss are causes for concern.

What diagnostic tests might be used to determine the cause of a chronic cough?

First, a thorough medical history and physical examination will be done. Common diagnostic tests include:

- Chest radiograph to check for signs of pneumonia or other structural abnormalities
- Pulmonary function tests to help diagnose asthma or COPD
- Sputum culture and analysis to detect infections such as pulmonary tuberculosis
- CT scan of the thorax in selected cases, such as when a diagnosis of bronchiectasis, interstitial lung disease, or lung cancer is suspected

Treatments

Chronic cough is treated based on the underlying causes.

Underlying Cause	Treatment
Asthma	Inhaled corticosteroids
COPD	Smoking cessation and inhaled bronchodilators
Allergic rhinitis and post-nasal drip syndrome	Intranasal steroids and nasal decongestants
GERD	Dietary modification and drugs that suppress gastric acid production

Over-the-counter (OTC) cough syrups can temporarily relieve symptoms but will not treat underlying medical conditions if they exist.

There are three main types of cough medicine:

- Cough suppressants, which include codeine, promethazine and dextromethorphan
- Expectorants, which include guaifenesin and ivy leaf extract
- Mucolytics, which include acetylcysteine and bromhexine

Cough suppressants, as the name suggests, suppress one's urge to cough and are mainly used to treat dry cough. Both expectorants and mucolytics help with wet cough by thinning the phlegm and making the phlegm easier to be coughed out. Expectorants should be avoided in patients with dry cough as they may worsen the cough.

Managing persistent cough

- Stop smoking
- Stay hydrated
- Avoid irritants or known triggers that can induce or worsen cough such as cigarette smoke, strong odours, chemicals, certain foods or fruits
- Elevate your head when sleeping if your cough is related to post-nasal drip
- Maintain a balanced diet, and exercise regularly



Supporting children with eating disorders

Q My teenage daughter has an eating disorder. I don't want to stress her by over-supervising her diet and daily life, but I do want to support her during this difficult period towards a recovery. What can I do?

A For younger children, parents are often the primary source of support and guidance. They directly supervise meals, monitor behaviour at home, and provide emotional support. While parents may be less involved in older children's day-to-day activities, their role remains vital. They offer emotional support, encourage regular meals, and promote help-seeking behaviour.

Many parents find this experience challenging and exhausting. Eating disorders can be difficult to understand, and privacy concerns may limit parents' ability to share their worries with others.

The impact on parents' lives can be significant. They may need to adjust work schedules to supervise meals, and can become targets of their child's eating disorder behaviours. Some parents might face restrictions on their own social activities.

Emotionally, parents often grapple with feelings of anger or guilt. Assurance and validation are important for them, as long-term care-giving can lead to stress and burnout. It is crucial for parents to prioritise their own well-being, as a caregiver's health directly impacts the child's recovery.

Throughout this challenging journey, it is important to recognise that parents are key partners in the recovery process. Their involvement, support and well-being are integral to their child's path to health.

Ms Patricia Jin
Senior Medical Social Worker, Singapore General Hospital



Preventing UTIs with good habits

Q What are good hygiene habits after urination to prevent urinary tract infection (UTI)? Are over-the-counter medication to treat UTI effective and safe to consume?

A It is good to maintain hygiene in the vaginal area and wipe from front to back after urination and passing motion. Children who develop fever and symptoms of UTI should undergo thorough medical evaluation for underlying medical conditions.

Sexually active women may experience UTI after sexual intercourse. Prevent UTI by urinating after sex and avoiding spermicides. Some ladies may require a single dose of antibiotics after sex.

Over-the-counter medication such as cranberry and probiotic supplements (for recurrent UTI) are usually safe to consume and can reduce incidences of UTI. However, some people may experience side effects such as gastritis and diarrhoea, although these effects are usually mild.

Dr Neo Shu Hui
Consultant, Department of Urology,
Sengkang General Hospital



... that patients might have recently noticed greater face-to-face interaction with their doctors at Singapore General Hospital (SGH) clinics?

Instead of having doctors manually type in the information during consultations, a pilot programme makes use of speech-to-text technology that inputs information about the patient's condition directly into the hospital's electronic medical records system. The technology reduces clinical documentation time by up to 10 per cent.

More importantly, doctors are able to focus more on their patients instead of their screens, deepening the human connection. Feedback from both doctors and patients has been positive regarding the enhancement of the patient's clinic experience. One patient said: "Previously, I can't see and don't know what the doctor was typing, and there may be misunderstandings. It's good that I can talk more with the doctor today, and I can hear what the doctor is putting into the notes... clearer about my sickness. I feel more relieved."

SGH, as with other SingHealth institutions, has been increasing the digitalisation of processes for greater efficiency. Doing so frees up resources for more valuable and meaningful tasks like giving more attention to patients who need them more, including those not able to take advantage of technology. Patients who already use such apps in all other aspects of their daily life are empowered to become better care partners with SGH.

For instance, the MyCare app installed in bedside tablets in all wards allows patients to access their care plan during their hospital stay and take an active role in their treatment. The tool not only provides vital information but also facilitates communication with the care team. Patients can self-chart how much they eat and drink. Nursing staff are also working on a new module that allows patients to self-report symptoms at any time of the day.

... that the Radiological Sciences SingHealth Appointment Rescheduling and Cancellation Hotline (RSS ARCH) handles 400-500 calls daily to reschedule and cancel patients' radiology appointments and queries? This can go up to 700 when the call volume surges on Mondays or after a long weekend.

The physical setup of the RSS ARCH is purpose-built. Each cubicle is ergonomically designed to accommodate two monitors, facilitating seamless multitasking for the staff. Additionally, each workstation includes a mirror so that staff can regularly check and maintain a positive and friendly expression. Smiling while speaking on the phone has been shown to positively influence the tone of voice, making communication more pleasant and engaging for better caller experience.



By centralising appointment management, the RSS ARCH serves several key purposes:

- streamlining communication and appointment rescheduling
- ensuring consistent and seamless patient experience
- facilitating easier resource management and load balancing
- promoting and supporting SingHealth's Joy@Work initiative with upskilling opportunities and better employee engagement due to improved system automation and functionalities

This single hotline number and telephony system for all radiology appointment rescheduling and cancellation is available across six SingHealth institutions (Singapore General Hospital, Changi General Hospital, Sengkang General Hospital, KK Women's and Children's Hospital, National Heart Centre Singapore, National Cancer Centre Singapore).

The RSS ARCH hotline number is 6789 8883. Its operating hours are 8.30am-5.30pm from Mondays-Fridays, and 8.30am-12.30pm on Saturdays; it is closed on Sundays and Public Holidays.

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