

SINGAPORE Health

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Counting down to 2021

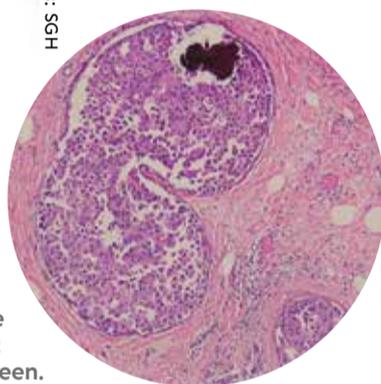
The history of Singapore General Hospital (SGH) is the history of medicine in Singapore. The first general hospital for British troops was established in Singapore in 1819, but it was only in 1821 that it began serving the general populace — marking the true beginnings of SGH. As the countdown to SGH's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

The medical detective



Photos: SGH

➤ (above) A monocular microscope used to view tissue samples in the past. (right) In today's laboratories equipped with digital pathology systems, patient biopsies that have undergone various processing steps can be digitised and viewed on a computer screen, referred to as whole slide images – for example, this image of a breast ductal carcinoma in situ can be visualised on a screen.



The Division of Pathology has been intricately linked to Singapore's history and healthcare since the colonial days. Indeed, it is the first specialty practised in Singapore.

by Professor Tan Puay Hoon, Chairman, Division of Pathology, and Senior Consultant, Department of Anatomical Pathology, Singapore General Hospital; Dr Tan Ai Ling, Senior Consultant, Department of Microbiology, Singapore General Hospital

The history of pathology in Singapore began with the arrival of Dr George Alexander Finlayson in Singapore on 12 May 1903 to take up the appointment of Municipal Bacteriologist to handle the serious public health situation and infections in Singapore. In addition to treating infectious diseases, he also carried out histopathological examinations on tissue specimens and post-mortem autopsies.

Proposals by the colonial authorities for the formation of a "Pathological Department" began in 1905. The earliest record of the Department of Pathology was in 1907, at a site opposite the present College of Medicine Building.

The department survived two world wars, the second of which affected services severely. However, pathology services have since evolved and grown over the years into what is now SGH's Division of Pathology.

Formed on 1 June 2016, the SGH Pathology Division encompasses the Departments of Anatomical Pathology, Clinical Pathology, Microbiology, and Molecular Pathology. This consolidation and reorganisation of multiple laboratories combine their strengths into larger departmental entities of different pathology subspecialties, underpinning all aspects of medical practice in the institution.

The cornerstone of modern medicine, pathology remains essential for diagnosis of diseases and patient management. Pathology services offered today have changed with the times to respond to the needs of today. Besides cancer, the majority of diseases now relate to ageing and chronic medical conditions.

Apart from increasing productivity, managing daily operational issues and continually expanding clinical test menus for patient care, the Division is able to respond quickly to clinical requests and tap into emerging technologies that can aid pathology service delivery.

Recently, SGH and Royal Philips established the SGH Digital and Computational Pathology Centre of Excellence to advance pathology practices by aiming to implement a fully digital histopathology workflow and deploying artificial intelligence (AI) to increase productivity and enhance patient care. Not only will full digitisation save over 12,000 man-hours each year, it will allow SGH to further its research in AI. AI-based tools can assist pathologists in diagnosing diseases such as cancer, the leading cause of death in Singapore.

Infectious disease outbreaks continue to occur. But the nature of these diseases has changed. While community-acquired diseases

like cholera and dysentery are now well-controlled, multi-drug resistant bacteria and emerging infectious pathogens are challenges in recent years. These include novel diseases such as Nipah virus in 1999, Severe Acute Respiratory Syndrome (SARS) in 2003, H1N1 in 2009, Zika in 2016, and the current Coronavirus Disease 2019 (COVID-19).

In 2003, during the SARS outbreak, the virology laboratory was able to culture the virus, confirming it to be the new SARS virus, and could quickly develop an in-house polymerase chain reaction (PCR) test, which was instrumental in diagnosing cases before any commercial kits were available.

Recognising the need for new diagnostic platforms using molecular tests to supplement conventional ones, the Molecular Pathology laboratory was set up in July 2006. This enabled rapid diagnosis of infectious diseases, including novel infections. The Molecular Pathology laboratory was well prepared when COVID-19 arrived in Singapore, and used an in-house PCR test to diagnose the first COVID-19 case in Singapore on 23 January 2020. Besides infectious diseases, molecular tests are now used in cancer management. Next-generation sequencing (NGS) can detect tumour biomarkers in cancer cells, enabling more specific diagnosis and individualised treatment for patients.

Just as the Pathology Department was set up at the turn of the 20th century to address the dire public health situation at that time, the Division of Pathology today strives to keep abreast of developments and technological advancements to meet current and anticipated future laboratory needs of our patients.

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Embracing innovative tech and robots in healthcare

From a tool that can predict pneumonia severity to robots that allow users to self-administer nasal swabs, these innovative technological solutions empower patients and healthcare workers with new, safe and efficient ways of enhancing the healthcare experience.

by Eveline Gan



Individuals use their chin to activate the SwabBot to perform nasal swabbing. A swab stick extends safely and gently through the nose to the back of the nasal cavity. It has an in-built safety feature, where the swab stick retracts when a resistance is encountered.

Perseverance, teamwork, a “can-do” attitude, coupled with a sense of urgency to find solutions amid an evolving pandemic, have led to the development of novel technologies in the past year.

Within the few months after COVID-19 hit our shores, SingHealth institutions and teams rallied together to design, build, and deploy smart solutions to address challenges faced by patients and healthcare staff during the pandemic.

Dr Charlene Liew, Deputy Chief Medical Informatics Officer and Consultant, Diagnostic Radiology, Changi General Hospital (CGH),

said the pandemic catalysed the widespread adoption and acceptance of digital technology in all sectors, with healthcare being no exception.

“When COVID-19 evolved rapidly across the world, we knew that we had to leverage new technologies, such as artificial intelligence (AI) and analytics, to develop tools that can be swiftly deployed, and enable teams to find new ways to combat the virus and manage the situation efficiently — for example, the use of AI in vaccine development and diagnostic tests so that they could be accelerated to address the pandemic,” said Dr Liew, who is also Director of Innovation, SingHealth Duke-NUS Radiological Sciences Academic Clinical Programme.

Harnessing AI

Dr Liew is part of the CGH team that developed an AI predictive tool to determine the likelihood of whether a patient has mild or severe pneumonia, based on chest x-ray images. Named Community-Acquired Pneumonia and COVID-19 Artificial Intelligence Predictive Engine (CAPE), this system alerts doctors to pneumonia patients who are likely to become critically ill.

As pneumonia is one of the main causes of deterioration in COVID-19 patients, the ability to quickly predict its degree of severity is paramount. Together with the Integrated Health Information

System (IHIS) team, CAPE was developed in four months.

“One main advantage of using AI as a predictive tool is that the risk of patients requiring critical care can be calculated almost instantaneously. Doctors at the emergency department and wards can receive an early warning for possible clinical deterioration, and prescribe the appropriate measures to improve patient outcomes,” said Dr Liew.

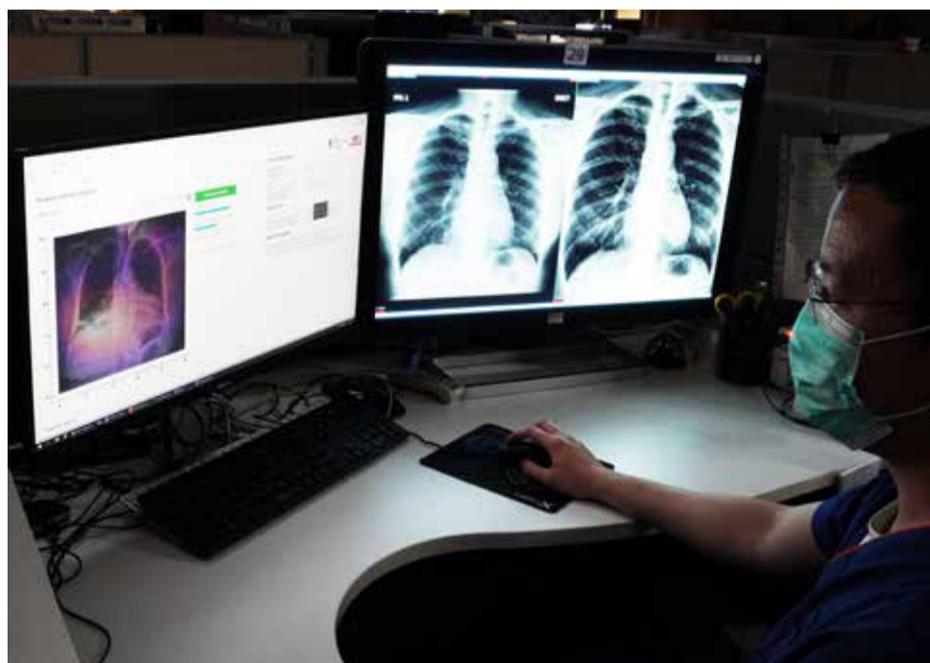
Robots on the frontline

In a world of social distancing, how can healthcare staff safely and effectively care for and interact with patients while mitigating risks of viral transmission?

Meet the robots that have been on the frontlines of the COVID-19 battle, “SwabBot” and “temi”.

Clinicians from National Cancer Centre Singapore (NCCS), Singapore General Hospital (SGH), and Duke-NUS Medical School worked with Biobot Surgical Pte Ltd, a local medical robotics technology company, to develop the first-of-its-kind fully patient-controlled nasal swab robot. Nasal swab is still the gold standard method of gathering specimens for COVID-19 tests.

Led by Dr Rena Dharmawan, Consultant Surgeon, Department of Head & Neck Surgery, Division of Surgery & Surgical Oncology, SGH and NCCS, the project was initiated in April 2020 and a working prototype was made available within just six weeks.



Trained using more than 3,000 chest x-ray lung images and 200,000 data points including lab results and clinical history as a basis, CAPE is a predictive tool used to determine the likelihood of whether a patient has mild or severe pneumonia.



When COVID-19 evolved rapidly across the world, we knew that we had to leverage new technologies, such as artificial intelligence (AI) and analytics, to develop tools that can be swiftly deployed, and enable teams to find new ways to combat the virus and manage the situation efficiently — for example, the use of AI in vaccine development and diagnostic tests so that they could be accelerated to address the pandemic.

Dr Charlene Liew

Deputy Chief Medical Informatics Officer and Consultant, Diagnostic Radiology, Changi General Hospital



SwabBot is a made-in-Singapore robot that can automatically complete a nasal swab test in just 20 seconds, which is faster and more comfortable compared to a manual swab test. It also reduces swabbers' risk of exposure to the virus and standardises the technique, which leads to a consistent swab done on every patient.

Mr Sean Woon, a 22-year old volunteer in the clinical trial, said, "Compared to my past experience with manual swabbing, the process with SwabBot was faster and more comfortable."

Amid the pandemic, remote-controlled robots called "temi" were also deployed at the SingHealth-managed Community Care Facility at Singapore Expo and at SingHealth Community Hospitals (SCH).

While initially purposed for conducting teleconsultations to minimise healthcare workers' face-to-face interactions with COVID-19 patients, the versatile robot has also been used in other innovative ways to care for patients.

Temi has been used to deliver medications and assist social workers in tele-counselling with patients. It has even served as an exercise and dance "instructor" in wards where patients could follow videos of exercise and dance routines, said Clinical Assistant Professor Luke Low Sher Guan, Chief Medical Informatics Officer, SCH, and Director, Medical at Sengkang Community Hospital (SKCH).

Prepared for shortages

Among the most severe complications of COVID-19 is respiratory failure, where ventilators are required to support the breathing needs of affected patients.

"During the pandemic, many countries and hospitals saw a lack of life-saving ventilators.

Should Singapore experience a surge in severe COVID-19 cases with respiratory failure, we were concerned that it could be a challenge to secure the supply of ventilators and train healthcare professionals to manage large volumes of patients on ventilators," said Associate Professor Derrick Chan, Director of KK Research Centre, KK Women's and Children's Hospital (KKH), and Deputy Director, SingHealth Medical Technology Office (MTO).

With this in mind, clinician-innovators from KKH, SGH, CGH and Sengkang General Hospital (SKH), in collaboration with SingHealth MTO and industry partners, created their own ventilator prototype — the SG-Inspire (SinGapore Invasive/non-invasive support for effective respiration), which was meant to supplement the supply of ventilators in Singapore, should the need arise.

The project started in March 2020 and a working prototype was ready by end-July 2020. Since then, the team has received multiple enquiries locally and overseas for the production of SG-Inspire, and is in discussions with the respective industries. SG-Inspire costs five times less than that of conventional ventilators and uses readily available components, which means that it can be scaled up and mass produced swiftly to handle the pandemic.

Overcoming challenges

Perseverance and a focus on patient care was what kept the clinician-innovators going, despite trying circumstances, such as the limited knowledge of the virus, and having to manage the rising number of cases and evolving situation.

For the SG-Inspire team, lockdowns in many countries



SG-Inspire is an innovative ventilator prototype developed to support COVID-19 patients requiring breathing support.



Temi can be deployed to patients' bedsides for non-urgent needs, act as a live translator for patients who speak different languages, deliver medications to patients, and facilitate tele-counselling sessions.

around the world resulted in limited options in the supply of components. To overcome this, they used a supply-to-design approach, choosing only available and suitable components that could be used for the design of SG-Inspire, so that it could be mass produced without any component supply issues.

"A compelling unmet need is always the basis of any useful innovation. This fostered a sense of mission in the team which, together with professionalism and proactiveness, were key drivers of our team's efforts. We worked round the clock to bring this to fruition," said Prof Chan.

Beyond COVID-19

These technological innovations will stay relevant in supporting healthcare teams, even beyond COVID-19.

The CAPE team is looking to integrate data from electronic medical records and further improve the accuracy of the tool with clinical data from hospitals, including SGH and SKH.

"Besides COVID-19, CAPE can be applied to all forms of community-acquired pneumonia. It can also be calibrated to potentially identify and predict the severity of respiratory infections globally to plan for an

increase in inpatient and critical care support. In areas where healthcare resources are limited, CAPE can enable prioritisation of resources so that patients can receive appropriate and timely care," said Dr Jessica Quah, Consultant, Respiratory & Critical Care Medicine, CGH.

Likewise, SG-Inspire has the potential to be used beyond Singapore's shores, in resource-limited settings such as developing countries.

"This would mitigate what is currently a preventable tragedy of children and adults suffering and dying due to a lack of suitable equipment and skills," said Prof Chan.

Meanwhile, temi robots are still being used as assistants in some SCH to keep patients meaningfully occupied with the entertainment functions and to look out for them.

Prof Low believes many of these advances in technology will be here to stay and be part of a new normal in healthcare processes.

"But we are also mindful that robots cannot completely replace humans in healthcare. Having the human touch in patient care is important because we need that bond with our patients to provide them with the much needed emotional support of comfort and reassurance as they heal," he said.



Photos: Vernon Wong

»»» Every morning, SPEM Jarojah Narayansamy checks in with an SOC nurse manager on possible issues for the day before starting her rounds.

Lending a listening ear

Senior Patient Experience Managers walk the hospital grounds every day to handle feedback before they escalate into official complaints.

by Dang Hui Ling

Long waiting times and overly cold rooms are two of Singapore General Hospital (SGH) patients' pet peeves. Although relatively minor and easily resolved, these simple concerns can escalate without a quick response.

To counter this, SGH adopted the Senior Patient Experience Network (SPEN) initiative in July 2018 to leverage the vast experience of former senior nurse managers, and their close working relationships with clinicians and other hospital professionals.

"If something troubles patients, we lend them a listening ear. Even if they seem happy or satisfied, we will engage them. Feedback helps us improve our

hospital processes," said Ms Quek Aik Huan, Senior Patient

Experience Manager (SPEM), Office of Patient Experience (OPE), SGH.

Like the other eight SPEMs in the network, Ms Quek is a former senior nurse manager with some 50 years in the field. At retirement, these nurses were asked to be nurse manager

mentors to younger colleagues. While training is still part of their job as SPEMs, their mission now is a bit different.

They are based in various clinical areas, including the Department of Emergency Medicine (DEM), wards,

and specialist outpatients clinics (SOCs) to make sure patients are comfortable and well; listen to their feedback to allay their concerns; and resolve problems quickly. For instance, following feedback about the cold at DEM, a blanket station was set up. Patients no longer have to ask and wait for a nurse to bring them a blanket. They can help themselves.

Every morning, the SPEMs discuss with their regular nursing teams the issues that require following up. Although SPEMs do not hold clinical roles, their nursing knowledge and experience are invaluable in dealing with medical- or nursing-related feedback. They also ease pressure on the medical team by helping to explain to patients scans or other procedures that they have been asked to undergo.

DEM SPEM Phuah Gaik Kheng helps the emergency services team to keep patients' families informed. "P1 (critically ill) patients require resuscitation and other urgent care, but the medical team may not have the luxury of time to constantly update their families," said Ms Phuah.

"Anyone would be anxious if his or her loved one is admitted and they do not get any news from the hospital," she added.

The SPEMs are able to understand the anxiety and fear that patients and their families go through by putting themselves in their shoes. "I have learnt that the key to deal with unhappy patients is to hear them out, and

be empathetic and respectful," said Ms Jarojah Narayansamy, the SPEM for the SOC.

While she is encouraged by praises and positive feedback, Ms Jarojah said she feels helpless when she is unable to help patients and their caregivers. Complex issues that the SPEMs cannot solve, such as requests for bill waivers or allegations against staff, are forwarded to the OPE feedback officers for investigation.

At the height of the COVID-19 pandemic, the SPEMs focused their attention on patients placed in isolation.

Suspected or confirmed to have the virus, these patients are not allowed visitors, and can be overwhelmed by feelings of loneliness, fear, and anxiety. The SPEMs assist with everyday issues, such as topping up the patients' SIM cards.

"We want to help patients get through this difficult period of isolation and respond to any concerns promptly," said Ms Susan Quek Hwee Koon, SPEM, OPE, SGH.

Besides working closely with the regular nursing teams, the SPEMs also enlisted the help of Medical Social Workers to ensure the mental well-being of this particular group of patients is catered to. As with patients in regular wards, the condition of the isolated patients is regularly conveyed to their families.



»»» When SPEMs could not visit patients in isolation, they continued to engage them by calling to find out their needs. This group cannot have visitors and can be overwhelmed by feelings of loneliness, fear and anxiety.

Learning and healing with patients

Clinicians who introduced new initiatives to support the migrant worker community's well-being during COVID-19 found new perspectives on caring for patients holistically.

by Thava Rani

For migrant workers, being diagnosed with COVID-19 in a foreign land triggered a cascade of emotions, from fear to anxiety. The uncertainties surrounding the virus, where and how they will receive care, and the financial impact they may experience weighed heavily on their minds.

"Many asked about the trajectory and complications of their diagnosis — information that was not easily available at the time. Others were visibly worried and concerned about their lives and livelihoods," said Dr Dennis Chia, Consultant, Emergency Medicine, Sengkang General Hospital (SKH).

Dr Chia was part of SKH's mobile medical team that served migrant workers in the dormitories during the early days of the pandemic. The experience prompted him to collaborate with a couple of like-minded peers to set up the Holistic response and Outreach Team (HOT), which looked beyond migrant workers' clinical needs to offer psychological and social support.

Such psychosocial support was also crucial in hospitals, where COVID-19 patients, many of whom were migrant workers, were isolated during their care.

"The main focus when we learnt of the need and extent of isolation was mentally preparing the patients for what was to come, and to provide them with the skills needed to handle the fear and anxiety about the pandemic, as well as how to cope with being cooped up in isolation," said Dr Evelyn Boon, Head, Psychology, Singapore General Hospital (SGH), who implemented several interventions



Healthcare workers who cared for migrant workers during the COVID-19 pandemic looked beyond the latter's clinical needs, and catered to their mental and emotional well-being.

Photo: Chin Lee Lian

to engage COVID-19 patients in SGH's isolation wards.

One example was the use of an Art Therapy kit, which contained art supplies and a colouring activity book with guiding questions, for patients to engage in personal reflection during their recovery journey. The team also started weekly virtual patient support group sessions to check in on patients' mental well-being, address their concerns and feedback, and to connect them with other patients.

Language barriers

"One of our challenges was not being able to speak the workers' native language," said Dr Chia.

Dr Lee Guozhang, Consultant, Department of Internal Medicine, SGH, who ran the hospital's isolation wards for COVID-19 patients, experienced similar challenges.

"The fear and anxiety that the migrant workers were already experiencing as a result of their COVID-19 diagnosis were further heightened by the language constraints. The difficulty in documenting clinical history and communicating the care plan to the patients was immediately apparent, and I knew we needed to adapt to the differing needs of this group of patients," he said.

To overcome this, multilingual education resources with information on COVID-19, patients' hospital stay, and mental health were distributed across SingHealth's hospitals to

help patients better understand what they were going through and manage their expectations of the recovery journey.

"We recruited volunteers and healthcare workers across SingHealth who spoke Bengali, Burmese, and Tamil to co-facilitate the virtual patient support group sessions. It helped us understand the different cultural contexts and beliefs to better engage with the patients," said Dr Boon of the COVID-19 support group sessions, which turned out to be very popular among the migrant workers.

Renewed purpose

Despite all the challenges, treating COVID-19 patients, specifically the migrant workers, has renewed the medical team's sense of purpose.

Aside from witnessing the workers' resilience and grit, Dr Chia was very moved by the strong camaraderie and brotherhood among the workers.

"Even in the face of danger and uncertainty, they maintained their demeanour. Older peers comforted their juniors when they shared their concerns and fears. They have braved hardships to work in Singapore — leaving their loved ones to come here at a young age, and engage in labour-intensive work. Through them, we hear stories of resilience, tenacity, and hope; stories that offer a different perspective of Singapore," he said.

For Dr Boon, the experience

showed her the essence of true gratitude, and reaffirmed her belief of the need to always consider the patient's perspective, as well as her passion to serve them.

"I am honoured to be able to play a part in alleviating their fear. This has also reiterated the importance of the human touch in medicine. Reassuring words that express our understanding of their fears and anxiety can offer a lot of comfort and help with the healing process," she added.

Dr Lee saw the importance of contextualising psychosocial interventions to meet the socioeconomic, cultural, and spiritual needs of patients.

"Working with a diverse team of healthcare workers from different cultural backgrounds has allowed us to better understand and address some of the issues faced by the migrant workers. It is crucial to engage various groups and stakeholders who have greater insight into unique socio-cultural considerations to offer informed interventions," Dr Lee said.

"To cure sometimes, to relieve often, and to comfort always" is a mantra that Dr Lee picked up during his medical-training days, and fell back on throughout the COVID-19 period. He made it a point to greet the workers in their native language during the morning rounds, and often they would break into a smile.

"This experience has reminded me of the privilege to be able to care for our patients," he said.

Screening for successful pregnancies

More accuracy in predicting pregnancy outcomes with KKH's novel use of progesterone blood test.

by Suki Lor

A smooth pregnancy and healthy baby is what every mother wishes for throughout her pregnancy journey. However, one in four expectant mothers experiences symptoms such as spotting or vaginal bleeding, fluid or tissue passing from the vagina, abdominal pain or cramps, or a dull pain in the lower back. While these signs can be alarming and may indicate a threatened miscarriage, about 80 to 85 per cent of these symptoms do not result in miscarriages.

Associate Professor Tan Hak Koon, Chairman, Division of Obstetrics and Gynaecology (O&G), KK Women's and Children's Hospital (KKH), warned against inferring that a miscarriage would occur based on any one symptom alone. Persistent bleeding or bleeding associated with pain may indicate an underlying problem and medical attention should be sought promptly, said Prof Tan, who is also Senior Consultant, Department of Obstetrics and Gynaecology, Singapore General Hospital.

With increasing advancements in medical technology, early pregnancy screening helps parents-to-be better understand how the pregnancy is progressing and what they can expect.

Since January 2017, KKH has pioneered the use of a blood test as part of its screening protocol for women with high-risk symptoms of miscarriage. The blood test, which offers results in just a few hours, allows doctors to determine quickly whether a woman has normal or low levels of progesterone, an essential hormone in pregnancy.

KKH is the only known institution in the world to use this novel triage protocol routinely. Prior to this, women with signs of threatened miscarriage at KKH were typically prescribed oral progestogens, a steroid hormone,



» Prof Tan Hak Koon warned against inferring that a miscarriage would occur based on any one symptom alone.

to stabilise the pregnancy. This remains a common practice in many hospitals around the world.

With this protocol, KKH patients at low risk need not be prescribed progestogens, thereby avoiding potential side effects, such as headaches, vomiting, mood changes and fatigue, which are associated with medical therapy, as well as additional financial costs.

"If the progesterone level is normal, we can reassure the majority of our patients that the risk of miscarriage is low, and that they do not need any further treatment. If the progesterone level is low, we can provide appropriate anticipatory guidance and treat that with progestogens. In so doing, we optimise the appropriate care that every woman receives," said Dr Ku Chee Wai, Division of O&G, KKH.

"For pregnant women with no known risk factors or symptoms, the incidence of miscarriage is very low and there is no need to undergo this screening protocol," he added.

Beneficial for all

A study of 1,087 women with threatened miscarriage at KKH's Urgent O&G Centre has shown this novel protocol to be effective and accurate in predicting pregnancy outcomes at 16 weeks of gestation for two groups — the high-risk group



» The novel blood test protocol pioneered by KKH, which is able to give results within a few hours, allows doctors to identify risks of miscarriage and determine care plans for their patients.

with low progesterone levels and the low-risk group with normal levels.

Early intervention prevented a miscarriage from happening for 70 women in the high-risk group while 847 women in the low-risk category avoided being prescribed progestogens without increasing their risk of miscarriage.

This safe and effective clinical protocol has revolutionised the management of women with threatened miscarriage. Together with his team, Dr Ku, one of the co-principal investigators of the study, is looking for it to be readily adapted for use in other healthcare institutions.

It has garnered much interest from doctors overseas, who have approached KKH to further understand the processes required when implementing this protocol.

The future of testing

Further research is ongoing to develop even better ways to help women at risk of miscarriage. Dr Ku and his team collaborated with researchers at the Nanyang Technological University, Singapore to develop a urine test that takes only 30 minutes to determine the risk of miscarriage.

This method is fast and non-invasive, requiring just a small droplet of urine sample to screen for molecules associated with

miscarriage risk. A pilot research study of 40 pregnant women at KKH found that the toolkit was able to accurately identify the pregnancy outcomes of all participants with symptoms of threatened miscarriage.

"These results signal the reliability of this testing method, and we will next validate it further by administering it on a larger population of patients," Dr Ku said.

Coping with pregnancy loss

The majority of miscarriages occur because of underlying genetic or structural abnormalities, and neither parents are at fault, Dr Ku said.

Dr Choo Chih Huei, Senior Consultant, Women's Mental Wellness Service, Department of Psychological Medicine, KKH, added that it is normal to grieve over a miscarriage.

"After a pregnancy loss, some may want to consider holding a small memorial service or a symbolic ceremony. Others may find it helpful to hold and touch the foetus or give the foetus a name. Remember to give yourself time and space to grieve," he said.

The inside scoop on hospital food

Combining the art of cooking with nutritional science, hospital food today is more flavourful and nourishing than ever before.

by Annie Tan



»»» The menu is constantly refined to provide a variety of flavours and textures to whet the patients' appetites to aid their recovery while ensuring each meal meets dietary guidelines.



»»» Healthier versions of popular hawker dishes, such as *Hokkien mee*, are created using substitute ingredients and culinary techniques without compromising on the taste of the food.

Curry chicken, seafood *ee fu* noodles, *Hokkien mee* and orange-infused barbecue chicken — these are not items most people would expect to find on a hospital menu.

Often perceived as bland and unappetising, this stereotype of hospital food is far from the truth. Today, comfort food and popular hawker fare are among the 1,000 dishes on Sengkang General Hospital's (SKH) menu, which is rotated fortnightly.

There are even plans to further expand the variety and give long-stay patients more choices. A new menu that includes double-boiled soups, *laksa* and *rendang* burger is slated for launch in the first quarter of this year.

The SKH Food Services team behind this delectable array of meals comprises nurses, dietitians and speech therapists, all of whom work closely with food service provider SATS to create nutritious and tasty meals. They span eight different types — Chinese, Chinese vegetarian, Malay, Indian, Indian vegetarian, western, chef's specials, and light meal options.

Healthy comfort food

Aside from variety, careful curation and consideration go into preparing each meal too.

The right type of diet texture — regular, soft, chopped, minced, or pureed — ensures that patients with different medical conditions, especially those with swallowing difficulties, can enjoy the food safely. This reduces the risk of aspiration pneumonia, a lung infection resulting from food or liquids that enter the lungs.

"Patients with reduced chewing abilities may require food pieces that are smaller and softer, while patients with more severe deficits in the oral cavity and throat may require a pureed diet," said Ms Chriselle Koh, speech therapist, SKH.

Dietitians also work alongside speech therapists to ensure that patients on texture-modified diets still receive adequate nutrition to aid recovery.

"We provide recommendations on the proportions of macronutrients, such as carbohydrates, protein and fat, so that the calorie content of each meal is adequate and balanced, which is essential for improving recovery and physical

function. Patients also receive a serving of fruits and vegetables for lunch and dinner so that they get the vitamins, minerals, and dietary fibre that play key roles in boosting immunity and chronic disease management," said Ms Lee Hui Bing, dietitian, SKH.

Mr Matthew Yim, Executive Chef, SATS Food Services said, "We are passionate about contributing our culinary expertise to promote wellness in our community. By customising holistic food solutions to suit patients' palates, we support the needs of healthcare institutions. Menus are designed to combine the art of cooking with nutritional science. Every dish needs to be tasty and appetising, while healthy and nutritious at the same time."

In many cases, a healthier version of popular dishes is specially created. For SKH's healthier hawker fare series, *Hokkien mee* is prepared with less oil and a carefully calibrated 7:3 ratio of yellow noodles and thick *beehoon*. The latter contains fewer calories and lower amounts of fat and sodium, compared to yellow noodles.

The authenticity and flavour of each dish are maintained as much

as possible, even with the use of substitute ingredients such as low-fat milk and soybean oil, to ensure a delicious, nutritious and healthy meal for patients.

Meals are freshly prepared in SKH's kitchen daily and culinary techniques, such as steaming, baking and stir-frying, are also adopted to retain more nutrients in the food.

"The chefs are continuously innovating and exploring new flavour profiles with bold seasoning using natural herbs and spices, along with complementary garnishes and condiments to elevate the meal presentation. They are meticulous in plating and presenting each dish, ensuring the safe handling of food, while maintaining visual appeal," said Mr Yim.

Tailored for patients

Although prepared in large batches, each meal has to meet stringent hospital guidelines, food safety regulations, and nutritional requirements. It also has to eliminate common allergens and take into account the needs of different health conditions.

The SKH Food Services team has created 37 different types of therapeutic diets tailored to the dietary and nutritional needs of patients suffering from various ailments, such as gout, diabetes, renal failure, and congestive cardiac failure. For instance, chicken *korma*, a traditional Indian curry dish, has a creamy, flavourful taste even without the use of dairy ingredients, making it suitable for renal patients.

"A patient with kidney disease who is on dialysis may require stricter control on dietary sodium, potassium and phosphorus, while patients who have undergone surgery may require more calorie and protein. We will advise the Food Services team on choosing suitable ingredients for use in the meal preparation so that hospital diets can complement their treatments," said Ms Clarissa Tang, dietitian, SKH.

This requires extensive planning, and menu designing involves many rounds of consultation and fine-tuning.

Ms Chia and her team found that many patients were pleasantly surprised that they were able to choose their meals from such a wide range of choices. On average, more than 70 per cent of patients rated that the food tasted excellent.

"Patients may lose their appetite as a result of their medical conditions. It is all about refining the menu to provide a selection of flavours, textures, and meals that appeal to their taste buds to encourage a speedy recovery and enhance the overall experience during their hospital stay," said Mr Yim.



►►► Patients' functional abilities are evaluated via various tests, such as (from far left) the two-minute step test, cognition assessment, grip test, and peak cough flow assessment.



Preparing seniors for positive surgical outcomes

An award-winning preoperative programme for elderly patients brings improved outcomes and cost savings to them.

by Sol E Solomon

For the frail and the old, preparing for major surgery is like getting ready to run a marathon. The fitter and better prepared they are, the faster and better their recovery will be.

To ensure that this group of patients gets the best shot at leaving the operating room with as short and uneventful a recovery as possible, a Singapore General Hospital (SGH) team has designed a programme to do just that. Called Perioperative Programme for Elderly (PREPARE), the programme aims to enhance the general health and well-being of frail elderly patients before they undergo major surgery.

"Imagine running a marathon without training. The ability to complete the race is questionable, and recovery will be long and painful. This is why competitive marathoners work with a team of experts to ensure they are in top form when they race. The idea of PREPARE is similar," said Dr Hairil Rizal Abdullah, Senior Consultant, Department of Anaesthesiology, SGH, who led the team that introduced PREPARE at the hospital's Pre-Admission Centre (PAC) in January 2019.

The PREPARE team comprises anaesthesiologists, physiotherapists, internal medicine specialists, nurses,

and dietitians. They work within the PAC so that they can offer relevant treatment to patients who need their fitness bolstered quickly before surgery.

When patients aged 65 years and above visit the PAC for their pre-surgery assessment, they undergo screening by a nurse. An anaesthesiologist then draws up a personalised plan based on the results of the screening. For instance, the patient may need to see a physiotherapist, who will further assess and teach him exercises to do at home pre- and post-surgery.

Patients may also be referred to a dietitian to raise their nutrition levels, and an internal medicine specialist to stabilise their pre-existing chronic medical problems, if necessary.

A comparison was made on the care outcomes of the 40 patients who went through PREPARE in 2019, against 90 patients from January to June 2018 who did not. These patients were aged 65 years and above, and had major abdominal surgery. The PREPARE cohort were discharged two to three days earlier, and paid 10 to 20 per cent less in hospital bills.

In addition, about 25 per cent more patients in the PREPARE cohort had no complications during hospitalisation, according to Dr Hairil.

The PREPARE initiative clinched 2020's Care Redesign Best Practice Medal at the National Healthcare Innovation and Productivity Awards.



►►► The PREPARE team includes (from left) Admitting Services Executive Reanne Lim, Physiotherapist Joy Tan, Physiotherapist Lee Xiaoting, Senior Principal Dietitian Tan Lee Boo, Senior Consultant Dr Hairil Rizal Abdullah, Nurse Clinician Ng Kai Lee, and Internal Medicine Consultant Dr Aland Shum.

Filtering out the negatives

After nearly three decades as a nurse, Mdm Wu Sin Yan continues to be wowed by medical technological advancements and inspired by patients' resilience.

by Dang Hui Ling

Seeing how quickly a dialysis machine can help a breathless and gasping renal patient to breathe normally fascinated Nurse Clinician Wu Sin Yan so much that she spent much of her professional life working in dialysis.

Originally from Hong Kong, where she attained a Bachelor of Applied Science degree in Nursing in 1992, Mdm Wu moved to Singapore a year later and worked her way as a dialysis nurse at a private hospital to her current position heading Singapore General Hospital's (SGH) Peritoneal Dialysis (PD) programme.

"I remember one case where the patient came in gasping. After the third hour of dialysis, he was much better. Seeing the patient get better gave me a great sense of satisfaction. With dialysis, you can really see results," said Mdm Wu.

Dialysis removes waste products from the blood when the kidneys can no longer do the job. It can be done via two main methods — haemodialysis, where blood is pumped in and out of the body; or PD, where the inner lining of a patient's abdomen (peritoneum) acts as a natural filter.

During PD, a cleansing fluid flows through a surgically inserted catheter into the patient's abdomen. After a few hours, the fluid with the filtered waste products is drained and discarded.

Unless the patient undergoes a kidney transplant, PD and haemodialysis are lifelong treatments. For Mdm Wu, it is especially motivating when patients maintain a good quality of life despite their condition.

"We had a patient who started dialysis when his kids were very small. He continued working and even got promoted. His condition did not stop him from going about his daily activities and supporting his family. He managed to get a kidney transplant after eight years," she said, adding that the

satisfaction of seeing patients recover gives her the drive to work.

A people person

SGH's PD programme is the largest of its kind in Singapore, with Mdm Wu leading 15 nurses to care for more than 500 patients.

As a seasoned nursing leader, Mdm Wu considers flexibility and a sense of humour important traits of a nurse — besides knowledge, skills and patience. "We need to be flexible when guiding patients because everyone is different. Being humorous helps ease the tension of patients and their caregivers who may be feeling stressed."

At 57, Mdm Wu may be twice the age of some of her colleagues, but she has no trouble working with them. In fact, they have become "good friends" who can discuss problems together. "The young nurses come to me when they have difficulties. We are open with each other and talk about many things. It is like chatting with my daughter!" she said.

While the COVID-19 pandemic has put a halt to their outings, including dining out, Mdm Wu often orders food to be delivered to their office for her team.

Beyond her nursing duties, Mdm Wu plays an active part in exploring potential development in the renal nursing field. Collaborating with the nursing research team and psychologists, she conducted a mindfulness programme on reducing the stress and anxiety levels of PD patients and caregivers.

Her efforts did not go unnoticed, as she was named one of 2020 Nurses' Merit Award winners in recognition of her dedication. "It is an honour. I wasn't expecting to get the award. I am thankful for the renal and nursing departments, as well as my supervisor, who have supported me through the years."

The mother of two is so committed to her profession that she encouraged her daughter to



join nursing, too. Recently, the young woman in her early twenties left the clean energy industry to embark on a nursing course.

During her free time, Mdm Wu enjoys long walks with her husband at MacRitchie Reservoir. Her newfound hobby — thanks to more frequent meals at home — is

whipping up dishes for her family.

"I like watching cooking shows and learning from them. Cooking is good practice for concentration. If you don't focus, you may end up injuring yourself," she said. "My son is quite a picky eater, but he likes it when I cook Korean-style pork!"

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Frontline fighter

Contributing to infectious disease research over the past 18 years, Associate Professor Jenny Low leads the fight against COVID-19 with an important vaccine trial today.

by Annie Tan

Associate Professor Jenny Low plays an important role in the fight against the COVID-19 pandemic, leading trials in the Lunar-Cov19 vaccine developed by Duke-NUS Medical School and US pharmaceutical company Arcturus Therapeutics.

It is a culmination of her work in infectious diseases, a discipline she fell into largely by chance. When Prof Low had to choose her specialty in 2002, her preference — geriatrics — did not have an opening for a trainee at the time. “This discipline has opened my eyes to the importance of public health, which I think is a very neglected branch of medicine in this day and age,” said Prof Low, Senior Consultant, Department of Infectious Diseases, Singapore General Hospital (SGH).

“Many people have the misconception that we no longer need to worry about infectious diseases because a lot of us live in first-world settings. We have forgotten that in a

“Many of us have forgotten that there are still all these threats from infectious diseases. Many bacteria are also getting more resistant to antibiotics, and some of these infections, which previously can be easily treated, are now becoming very hard to treat.”

Associate Professor Jenny Low
Senior Consultant, Department of Infectious Diseases,
Singapore General Hospital

large part of the world, many people still die prematurely from infectious causes.”

When Prof Low joined the relatively new Infectious Diseases department, it had only two senior and three trainee staff. Since then, the department has tripled its staff strength, and is one of the top departments contributing to academic medicine research at SGH.

It was also by chance that Prof Low ended up managing Singapore’s first two COVID-19 cases during the Chinese New Year holiday in 2020. Because the disease had started emerging in China’s Wuhan province at the time, she did not take leave as she typically would during that period.

“We have dealt with similar situations before — we have had people admitted for suspected MERS, Ebola, H5N9. In the beginning, it was no different from how we would work in an isolation ward. It was upon diagnosing them with COVID-19 when all the frenzy started,” she recalled.

Coping with COVID-19

“The truth is, we have always thought about the potential of such a day. We have been preparing for a pandemic for many years while hoping that we would never have to witness it,” she said.

The Infectious Diseases department cared for patients in isolation at the peak of the outbreak. As the situation eased, Prof Low returned to her regular work, participating in COVID-19 research and running three trials — a corona antibody therapeutic trial, a drug trial, and the highly anticipated Lunar-Cov19 vaccine trials.

She designed the Lunar-Cov19 clinical trial protocol and led the SingHealth Investigational Medicine Unit to administer the phase 1 trial in August last year, and a month later, phase 2.

From the get-go, the team has been working against time. “A similar trial during peace time would normally take six to nine months for phase 1 and 2. But we were trying to shrink the timeline [by half]. With this compressed timeline, we have to do everything in parallel,” she said.

The team expects to move on to phase 3 by the first quarter of 2021. This last phase will involve testing thousands of volunteers from many countries over a few months to two years.

Each day is a juggling act for the mother-of-four. Prof Low said her passion keeps her going.

“Many of us have forgotten that there are still all these threats from infectious diseases. Many bacteria are also getting more resistant to antibiotics, and some of these infections, which previously can be easily treated, are now becoming very hard to treat,” she said.

“We are so urbanised that people do not realise that there is a boundary between fauna and humans. As we continue to encroach on the space that belongs to the wild, we will be exposed to pathogens that will result in novel diseases.”

It is Prof Low’s hope that the COVID-19 experience will create greater public awareness, and also encourage governments to rethink public health policies beyond COVID-19.

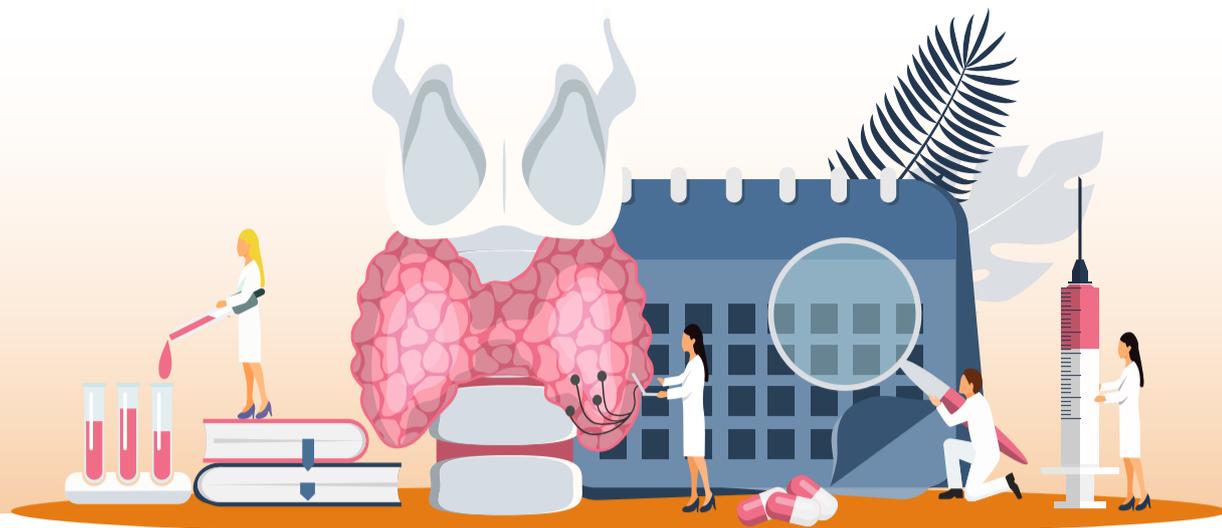
On a personal note, she looks forward to bonding with her family over activities such as hiking, birdwatching and enjoying the countryside in her favourite country, Japan, after the pandemic.



Photos: Vernon Wong

Thyroid talk

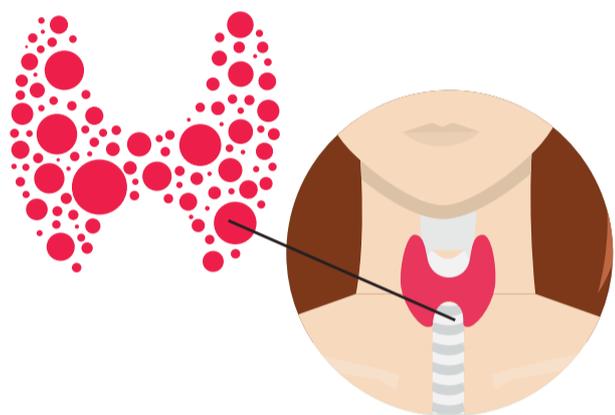
January is Thyroid Awareness Month. Get to know more about the tiny but powerful gland in this story.



Information provided by
Dr Adoree Lim
 Consultant, Department of Endocrinology,
 Singapore General Hospital

What is the thyroid?

- Small butterfly-shaped gland
- Sits at the base of the neck in front of the trachea (windpipe)



What it does

Produces thyroxine and triiodothyronine, two thyroid hormones that control many vital functions, including metabolism and heart rate

Malfunction

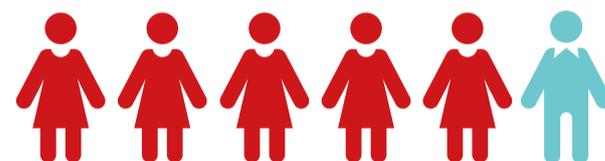
Problems occur when

- the thyroid gland is overactive or underactive, and therefore hormones produced are either too much or too little
- there is abnormal growth, such as lump(s) within the gland

Who gets it?

Thyroid conditions can occur in people of all ages and in both men and women, but

- women are five times more likely to get Graves' disease than men
- younger women of child-bearing age have a higher risk of getting Graves' disease
- hyperthyroidism can run in families



If left untreated

- Hyperthyroidism is treated with medication, radioactive iodine therapy, or surgery. Exposure to severe stress, such as severe infection, heart attack and surgery, can lead to a life-threatening condition called thyroid storm.
- Hypothyroidism requires lifelong thyroxine replacement therapy. Exposure to severe stress, such as severe infection, heart attack and surgery, can lead to myxedema coma, a medical emergency with a high mortality rate.



Too much

Hyperthyroidism is the overproduction of hormones, which causes body functions to speed up excessively.

Causes:

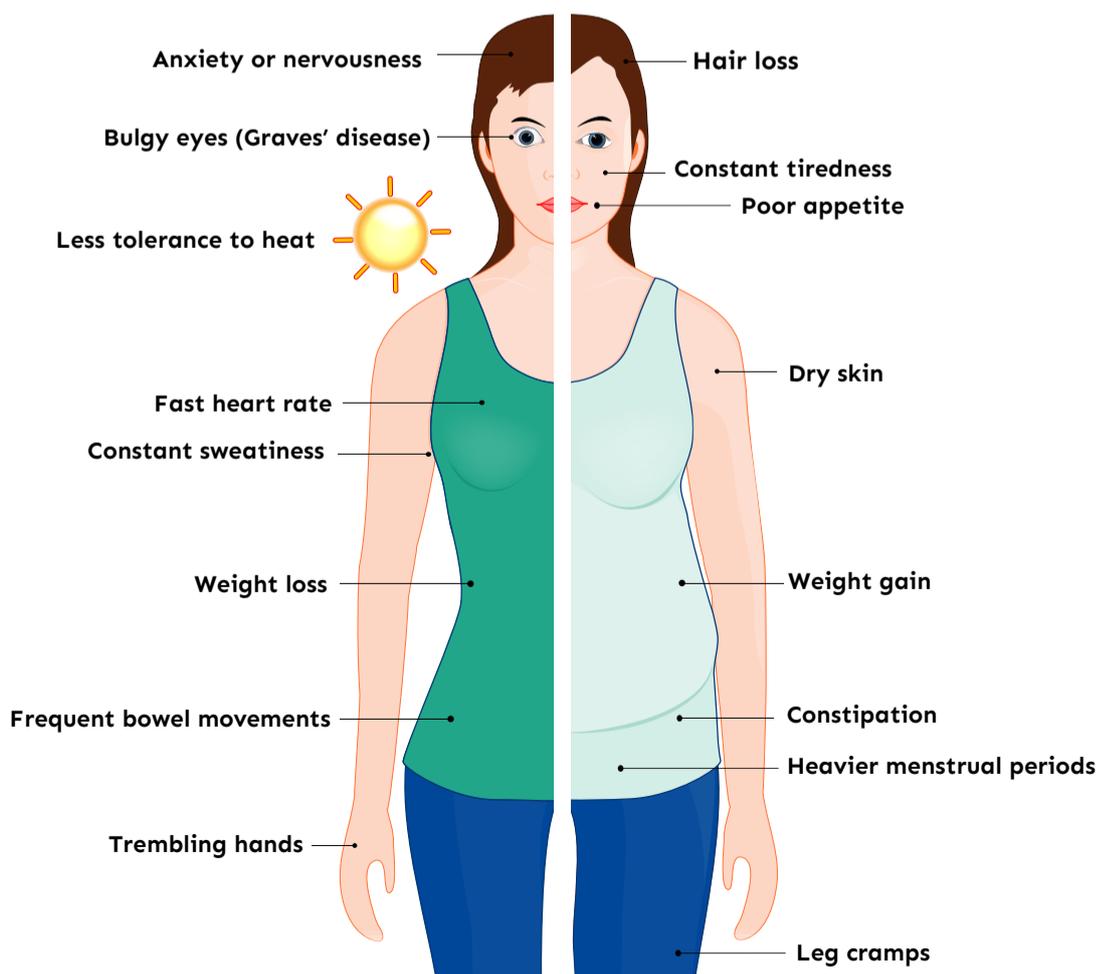
- Medical conditions, such as Graves' disease (an autoimmune disorder)
- Toxic multinodular goitre (development of lumps in the gland, especially as one ages)

Too little

Hypothyroidism happens when insufficient hormones are produced, resulting in the slowing down of many body functions.

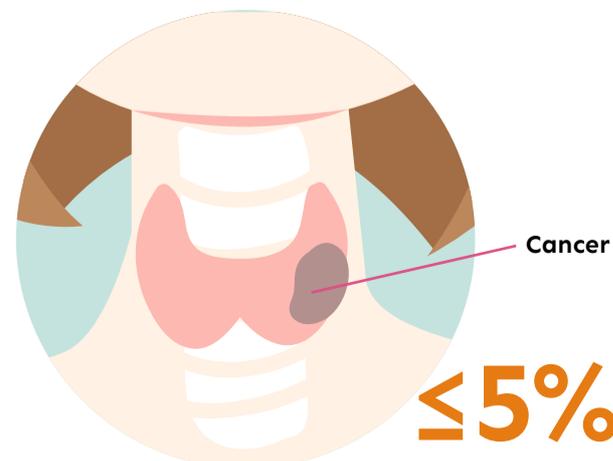
Causes:

- Medical conditions, such as Hashimoto's disease (an autoimmune disorder)
- Treatment with radioactive iodine for hyperthyroidism
- Surgical removal of thyroid gland



Thyroid cancer

- About 5 per cent or less of thyroid nodules may turn out to be cancerous
- May affect both young and old
- Most cases of thyroid cancer are treatable with good cure rates



Not common but often deadly

Nasopharyngeal cancer often afflicts Chinese men, but early diagnosis can raise survival prospects.

by Eveline Gan

It is referred to as Cantonese cancer because of the high incidence among people from China's Guangdong province and Hong Kong. But nasopharyngeal cancer (NPC), or nose cancer, is also common among Chinese from neighbouring Fujian province and other parts of southern China.

In Singapore, 80 per cent of people with the disease are Chinese, with Malays and Indians comprising a small minority. However, the actual numbers afflicted with the cancer are relatively small — over 1,000 cases between 2013 and 2017, according to 2017 National Cancer Registry statistics.

"SingHealth sees around 180 NPC patients each year, of which 60 per cent are diagnosed in the advanced stages," said Associate Professor Lim Chwee Ming, Senior Consultant, Department of Otorhinolaryngology – Head & Neck Surgery, Singapore General Hospital (SGH).

NPC occurs in the cells lining the area behind the nose and just above the back of the throat. It is often discovered late as it displays few symptoms in the earlier stages. Moreover, symptoms may also be mistaken for more common ailments, such as cough and flu, said Dr Soong Yoke Lim, Senior Consultant and Deputy Head, Division of Radiation Oncology, National Cancer Centre Singapore (NCCS).

"When the tumour is very small in the nasopharynx (back of the nose), patients sometimes experience blood-tinged saliva. Patients may think it is due just to 'heatiness' and get cooling herbal tea from traditional Chinese medicine shops. That can delay the diagnosis," Dr Soong added.

Other red flags include a painless lump in the neck, nasal discharge, a blocked ear, or hearing loss on one side. In some rare cases, NPC can cause double vision.

It is not known what exactly causes NPC, but a combination of

genetic and environmental factors plays a role. Those with close relatives who have the disease have a greater chance of getting NPC.

NPC is also associated with the Epstein Barr virus (EBV), a member of the herpes virus family that spreads via body fluids, such as blood and saliva. Although 80 to 90 per cent of the world's population harbour the EBV, the majority do not experience symptoms or recover from the infection without realising it.

Anyone can get nose cancer, but it typically affects men in the prime of their lives between the ages of 35 and 55 years. It is the 10th most common cancer among Singapore men, according to 2017 Singapore Cancer Registry figures.

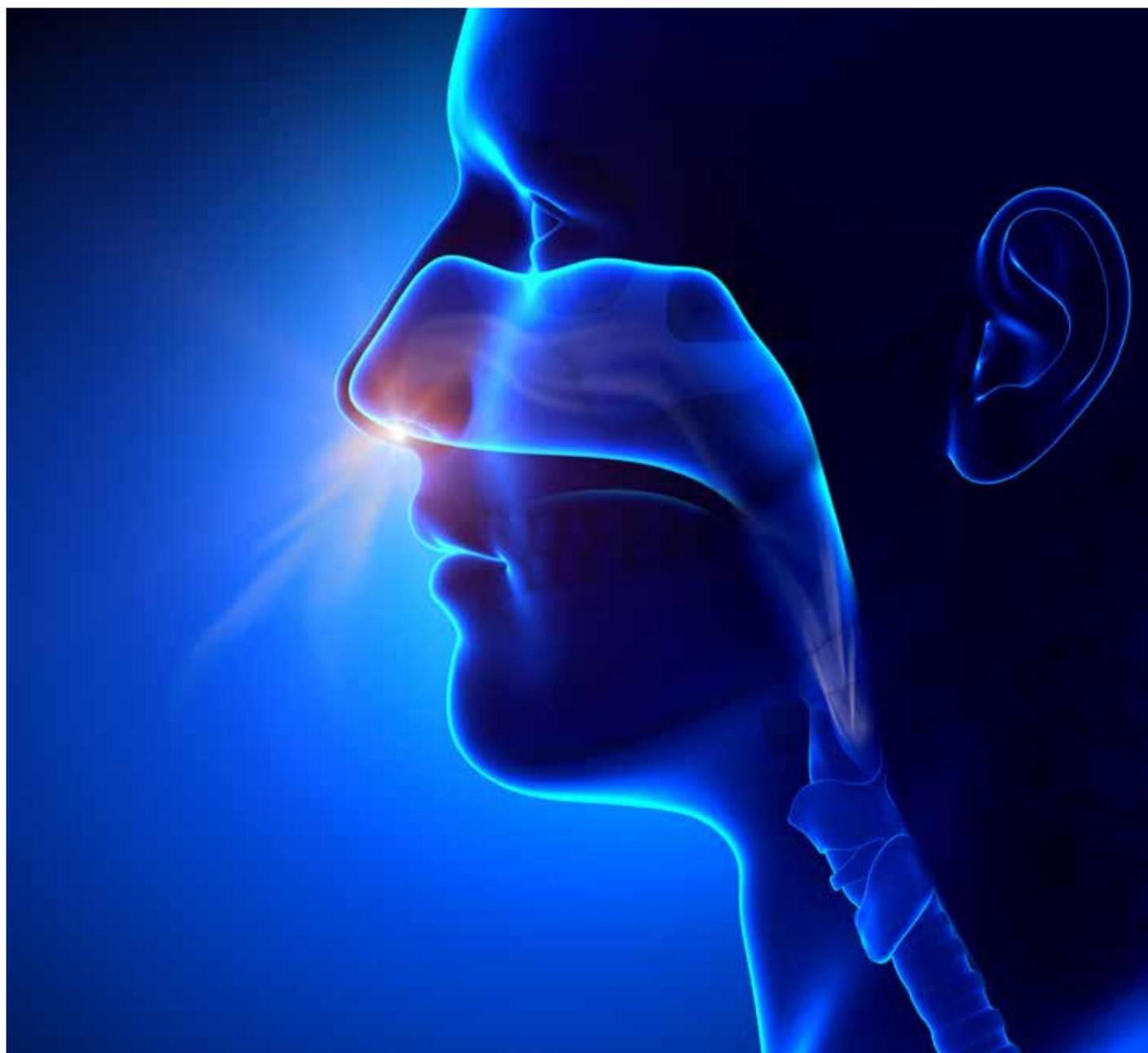
Treatable cancer

Nose cancer is treatable, and patients mostly live longer than those suffering from other cancers, such as lung cancer. The chances of NPC patients living five years after diagnosis range from around 90 per cent for stage 1 cancer to around 60 per cent for stage 4. In contrast, the five-year survival rate for stage 4 lung cancer is under 10 per cent, said Dr Soong.

In Hong Kong and Taiwan, the disease is on the decline but it is not clear why. Better diet in those places may be one reason, as studies have shown that NPC is linked to an early diet that is high in preserved foods, especially salted fish. Eating more fresh fruit and vegetables, as well as regular exercise are some ways that help reduce the risk of getting not just nose cancer but cancers in general, said Dr Soong.

According to Prof Lim, early-stage NPC is treated with radiotherapy, while chemoradiotherapy (chemotherapy given concurrently with radiotherapy) is used for disease that has advanced but not spread. If the cancer recurs, surgery is an option; but if it cannot be safely or effectively performed, repeat radiotherapy and chemotherapy are options, Prof Lim said.

"It is a radiosensitive cancer, which means that it responds well to radiotherapy, and the success of treating non-metastatic cancer (cancer that has not spread) is generally good," explained Prof Lim.





Maintaining healthy teeth and gums

Practising good oral hygiene has long-term benefits for your oral health.

by Eveline Gan



» With long-term diligent care, tooth loss and dental problems are not an inevitable part of ageing, said Dr Wu Siwen.

Maintaining a set of healthy teeth and gums is not just for cosmetic reasons. It is an essential part of good health and overall well-being. However, many Singaporeans struggle to keep their pearly whites in good condition as they age.

Thirty-one per cent of Singaporeans aged 60 and above have lost all of their teeth, according to a 2016 survey conducted by the National Dental Centre Singapore (NDCS) and Centre for Ageing Research and Education at Duke-NUS Medical School.

Tooth loss can occur due to long-term dental neglect and severe dental diseases, which are preventable with regular dental care. Dr Wu Siwen, Consultant, Endodontics, Department of Restorative Dentistry, NDCS, said that dental caries, commonly known as tooth decay, and periodontal (gum) disease are among the most common dental diseases seen in Singapore.

Dental caries can affect people of all age groups while gum disease is generally more common in the elderly, she added.

Increased risks

Besides poor oral hygiene and dental neglect, certain lifestyle habits and medical conditions can also heighten the risk of developing dental diseases.

For instance, people who consume excessive sugary or acidic foods, and snack frequently between meals are more prone to developing tooth decay.

A dry mouth can also increase the risk of tooth decay. Medical conditions such as Sjogren's syndrome, radiation therapy for treatment of head and neck cancers, and medications that affect saliva flow can result in dry mouths, said Dr Wu.

"People who smoke or have poorly controlled diabetes tend to experience more severe gum diseases, with more rapid destruction of the gums and supporting bone. Both smoking and uncontrolled diabetes can

affect the body's natural immune response to fight bacterial accumulation under the gums, as well as slow the healing process after gum treatment," she said.

Lack of understanding

Having misconceptions about dental health is one of the reasons why some people neglect their teeth and gums. For example, some elderly may think that tooth loss is an inevitable part of ageing, but that is far from the truth.

"It is possible for an elderly person who has diligently cared for his or her oral health to have no dental issues and retain a full set of healthy teeth," said Dr Wu.

While dental diseases may be more prevalent and severe with age, paying attention to oral hygiene and regular monitoring of dental conditions can ensure good long-term oral health.

Maintaining healthy teeth and gums is a long-term commitment that starts with good personal oral hygiene habits. This involves brushing teeth twice a day, with a focus on removing plaque at the gum line and between the teeth.

"Sugars in foods and drinks are a source of food for bacteria in the mouth. When a person snacks frequently between meals, bacteria in the mouth feeds on the supply of food to produce acids that attack the tooth enamel, or the hard outer surface layer of the teeth. Saliva slows down the decay process and allows remineralisation (repair) to occur and so, it is important to allow time for the saliva to neutralise the acids. Avoid taking sugary or acidic snacks in between main meals as far as possible," said Dr Wu.

Go for check-ups

Regular visits to the dentist — at least twice a year — for a thorough check-up and professional cleaning ensure that any dental problems will be detected early and necessary intervention can be done to prevent further deterioration.

For patients with uncontrolled diabetes, they should work closely with their healthcare team to manage their condition.

When undergoing dental check-ups or procedures, diabetic patients should take their prescribed medications as advised by their physician and update their dentist on changes in drugs or dosages, said Dr Wu. It is also important for them to have a meal prior to a dental visit to prevent hypoglycaemia (low blood sugar).

When prolonged screen time becomes a pain

Sustained poor posture due to excessive screen time can lead to musculoskeletal disorders and chronic pain.

by Eveline Gan



»» Increasing reliance on mobile devices can lead to persistent inflammation of the tendons, said Dr Bryan Wang.

with a patient, who is an IT professional in her 20s. She had severe pain in her neck that radiated to her right arm. The pain worsened at the end of each day. She felt depressed and thought of quitting her job.

Further assessment revealed the cause to be poor ergonomics at her workstation. After modifying her workstation and practising physiotherapy techniques, such as regular stretching and strengthening exercises, the patient was able to counterbalance the effects of poor posture.

Postural disorders

Mr Karthikeyan Ganeshan, Senior Physiotherapist, Outram Community Hospital, pointed out that the human body is not designed for long hours of sitting. Spending too much time in front of a screen would mean less time spent on physical activities, resulting in prolonged poor posture.

"Sustained poor sitting posture can lead to rounded shoulders, exaggerated forward rounding of the back (also known as kyphotic spine), forward head posture, and tight hamstring and gluteal (buttock) muscles. If untreated, these can lead to chronic back and neck pain," Mr Karthikeyan added.

In severe cases, one's nerves may also be affected. This can cause symptoms, such as numbness and pinprick sensation in the legs and arms, as well as irreversible postural changes.

Young people affected

Posture-related disorders may not be life-threatening, but they can affect one's quality of life. Mr Karthikeyan has seen young patients experience debilitating pain from long-standing musculoskeletal conditions.

He recounted his experience

Harmful swiping

While all forms of excessive screen time are unhealthy, Mr Karthikeyan said that excessive mobile phone use, which has become increasingly popular among seniors to stave off boredom and loneliness, may lead to worse health effects compared to spending time on the computer or watching television.

"We carry our mobile phones with us everywhere, and the tendency is to unconsciously spend far too much time on it. It is also very difficult to maintain good posture while using mobile phones," he said.

Repetitive motions from constant text messaging and refreshing social media pages can increase one's risk of developing a condition called tendonitis, which occurs when the tendons — thick, flexible cords of tissue that attach muscle to bone — become inflamed, especially in the fingers or wrist. For example, excessive use of cell phones can cause thumb strain.

A recent study has also shown an increase in patients suffering from cubital tunnel syndrome — numbness in the fingers along

Get up and move

For those working from home or whose work involves spending long hours in front of a screen, here are some strategies to protect your posture and health:

- 1 Invest in an ergonomic workstation set-up.
- 2 Take short, frequent breaks. For example, walk to the kitchen or pantry to get a drink, and place the printer away from the work desk.
- 3 Do simple neck and back stretches regularly.
- 4 Engage in physical activities for at least 30 minutes every day.
- 5 Strengthening the muscles around the tendon can help prevent tendonitis from recurring. A trained professional, such as a physiotherapist, can help plan a personalised programme.

the arm's major nerve called the ulnar nerve — due to excessive use of mobile phones. This has been nicknamed the "cell phone elbow" as the strain is a result of the elbow being held in flexion for prolonged periods of time.

Although tendonitis is traditionally seen in people whose work and hobbies involve repetitive movements over time, Dr Bryan Wang, Consultant, Department of Orthopaedic Surgery, Changi General Hospital, said it may also occur with excessive mobile device use.

"Increased reliance on mobile devices can lead to persistent inflammation of the tendons, when there is no opportunity for proper rest and recovery," he said.

The elderly and those with existing medical conditions, such as diabetes and rheumatoid arthritis, are at a higher risk of developing this painful condition.

Dr Wang said affected individuals may experience pain that is aggravated by movement, swelling, and warmth or redness over the affected areas. Symptoms may last from a few days to weeks or even months.

The symptoms often affect daily activities, and when complications such as tendon ruptures or tears occur in more severe cases, patients may require surgery.

While most symptoms related to tendonitis will resolve with rest and non-surgical treatments, it is important to seek medical attention if the pain persists, suddenly worsens, or when it affects joint mobility.

Amid the challenges of the COVID-19 pandemic, one thing is certain: COVID-19 has changed the way we work and live. As more people are working and spending more time at home, many are also increasing their screen time.

While technology has opened up new ways for people to connect, work, and play, health experts warn that the extra hours spent sitting and hunching over electronic devices can take a significant physical toll on the body.



»» Senior Physiotherapist Karthikeyan Ganeshan has seen young patients experience debilitating pain from musculoskeletal conditions caused by poor posture.

5 most common baby problems

A guide to help new parents take the guesswork out of five common baby problems.

by Annie Tan



Troubleshooting baby problems can be a major challenge for new parents, especially since infants are unable to communicate their discomfort and needs. In the first of a two-part article, Dr Alvin Ngeow, Consultant, Department of Neonatal and Developmental Medicine, Singapore General Hospital (SGH), highlights five of 10 common problems, and offers simple solutions for concerned parents. The second part will be published in the next issue.

1 Jaundice

About 60 per cent of full-term babies and 85 per cent of pre-term babies suffer from jaundice. Most cases are physiological jaundice, which is generally harmless and relates to the immaturity of the baby's liver.

Doctor's advice: Prolonged jaundice may have lifelong implications. If a four- to six-week-old baby continues to suffer from jaundice, further medical checks and blood tests may be recommended.

Red flags: Pathological jaundice tends to start on the first day of life and advance quickly. It can be due to infection,

inherited genetic problems, or the mother and baby belonging to incompatible blood groups. Extremely high jaundice levels may cause brain damage.

2 Vomiting

This is usually due to gastroesophageal reflux since the muscle tone between the food pipe and the stomach is not very well established. It takes one hour for the baby's stomach to empty milk into the intestines, so if parents put him back into the cot immediately after a feed, lying down may cause him to regurgitate.

Doctor's advice: Hold your baby with his head in an elevated position for 15 to 20 minutes after a feed to give him time to partially empty the stomach.

Red flags: Gastroesophageal reflux disease is less common, and refers to more severe cases, where the stomach acid burns the food pipe and causes heartburn. The infant may arch his back or even refuse to feed. Vomiting may also be due to urinary tract infection, a blockage in the stomach, or head injury or infection.

3 Colic

For babies less than four to five months old, colic generally

refers to more than three hours of crying a day, for more than three days a week, and for more than one week. Although it has no known cause, it is usually harmless and resolves at around three months of age.

Doctor's advice: Check if the baby is hungry, tired, or needs a diaper change before considering if it is colic. In cases of severe colic, try introducing a probiotic for breastfed babies, or switching to more easily digestible partially hydrolysed milk formulas. Colic and crying can push parents into postpartum depression, so stressed parents should try to take time off and get help from someone they trust.

Red flags: Persistent crying along with symptoms, such as fever, a drop in body temperature, and extreme changes in babies' activity level, may suggest other illnesses. It is best to seek prompt medical advice.

4 Abdomen distension

This is due to infants' lax abdomen muscle wall, which has to hold in many internal organs and some pelvic organs. Mild distension can also be due to a recent milk feed or because the baby swallowed a lot of air while crying.

Doctor's advice: This is normal so parents need not worry.

Red flags: Seek medical advice if the abdomen is very distended, and other symptoms, such as vomiting or the lack of bowel movement, are present. This can be caused by air, fluid, faeces, enlarged organs, or in rare cases, tumours.

5 Plagiocephaly (flat head syndrome)

The back of a baby's head can appear flat due to repeated pressure from the bed when it is lying down. In many cases where one side of the cot is facing the wall, one side of the infant's head may be flatter than the other, as the baby is prompted to turn outwards rather than staring at the wall.

Doctor's advice: Reduce pressure on the back of the head by alternating the head position. Try positioning the baby's head alternately on the two ends of the cot so that when he looks outwards, he will either be looking to the right or to the left. Parents may also consider helmet therapy or approach a physiotherapist for stretching exercises for the baby's neck.

Red flags: Doctors will check to eliminate the possibility of craniosynostosis, the premature fusion of the cranial sutures.

Keema Matar

(4 servings)

by **Dr Kaavya Narasimhalu**
Associate Consultant
Department of Neurology
National Neuroscience Institute



Preparation
time: **10** minutes



Cooking
time: **40** minutes

Ingredients

- 500g beef, lamb or goat meat, minced
- 1 cup green peas, shelled
- $\frac{1}{4}$ cup olive oil
- 1 small piece cinnamon
- 4 peppercorns
- 1 black cardamom
- 1 cup onions, grated
- 1 tsp ginger, crushed
- 3 cloves garlic, crushed
- 2 cups tomato, chopped
- 1 tbsp coriander powder
- $\frac{1}{2}$ tsp turmeric
- $\frac{1}{2}$ tsp chilli powder
- 1 tbsp coriander leaves
- 1 tbsp curry leaves
- 1 tsp mint leaves
- $\frac{1}{2}$ cup water
- Salt, to taste

Method

1. Crush garlic, ginger, cinnamon, peppercorns, cardamom in a mortar and pestle, or a blender.
2. Heat olive oil in a deep base pan, and add the mixture in Step 1 and onions when hot.
3. When onions turn translucent, add salt, tomato, turmeric, coriander, and chilli powder.
4. Sauté until mixture forms a paste.
5. Increase heat and add minced meat.
6. Once minced meat is slightly browned, add $\frac{1}{2}$ cup of water and peas, then simmer.
7. Cook until mixture is dry.
8. Add chopped coriander, curry leaves, and mint leaves just before serving.



Mummy's hand



After giving birth to my second son earlier this year, I have been caring for both boys. My elder son is two years old. Recently, I started experiencing painful, swollen thumbs and wrist. My doctor gave me painkillers and said my condition may be due to the way I carry and lift the baby, as well as housework. Is it true, and how can I reduce the problem?



The painful wrist condition that you have is called de Quervain's tenosynovitis. It is a disease of the tendons, the rope-like structures that the muscle uses to pull the bone. The tendons from the back of the thumb pass through a tunnel at the wrist, which is about 2 cm long and where the

problem of de Quervain's tenosynovitis arises. The lining of the tendon is thickened up to five times the size compared to people without this degenerative condition.

De Quervain's tenosynovitis can affect anyone, although the majority of patients are women in their 50s and 60s, as well as recent post-partum and lactating females. For the latter group, the condition is referred to as "mummy's hand". This condition is caused by activities requiring repetitive thumb and wrist movements. Tension on these tendons, if sustained and repeated, is said to produce friction at the level of the tunnel with subsequent swelling and pain.

It is important for nursing mothers to learn the correct ways to carry their babies, especially during breastfeeding. The symptoms can worsen as the baby grows heavier.

De Quervain's tenosynovitis can be managed through hand therapy, local corticosteroid injection, or surgery. Hand therapy involves a combination of splinting, topical or oral medication, and laser or ultrasound therapy.

DR CHONG CHEW WEI

Consultant, Department of Hand and Reconstructive Microsurgery, Singapore General Hospital

Caring for a dementia patient



How should I convince an elderly to go for a dementia assessment, especially when mental health issues are often a stigma to the older generation? What is done during a dementia assessment, and how fast will the condition worsen if the elderly is already showing symptoms, such as forgetfulness, changes in mood, and repetition in speech?

It can be challenging to convince an elderly to go for a dementia assessment. Family members or members in the elderly's social support network may need to assist in persuading him or her to see a doctor. Alternatively, family members can choose to consult the family physician who has been caring for the elderly for an assessment first.

A comprehensive assessment is usually done for dementia evaluation. Besides taking a detailed history and doing a physical examination, the physician will advise on other investigative tests required. After the assessment, the physician will advise the patient on the cause of the symptoms — whether the patient has dementia or mental health-related conditions, or both.

The rate of decline of dementia depends on the underlying cause and the presence of other underlying medical conditions. The primary concern when caring for an elderly with dementia who is socially isolated is his or her ability to cope and live alone safely. Family members can consider approaching the Agency for Integrated Care (AIC) to seek assistance for referral to relevant services, such as home help, home medical care, and dementia daycare services. For more information, call the AIC hotline at 1800 650 6060.

DR NG LILING

Staff Physician, Department of Post-Acute and Continuing Care, Outram Community Hospital



Keeping your bladder healthy



Does the amount of water consumed daily influence the odds of getting bladder cancer? Will drinking less water increase the risk of contracting the disease?

In general, daily water intake does not change the risks of getting bladder cancer. However, for people working in certain industries where there is excessive exposure to chemicals, drinking more water may dilute the chemicals being excreted in the urine, thereby reducing the risk of getting bladder inflammation and cancer. An adequate intake of water — approximately 1.5 to 2 litres daily — is generally encouraged for optimal kidney health, especially in Singapore, which has a hot and humid tropical climate.

ADJUNCT ASSISTANT PROFESSOR JEFFREY TUAN

Senior Consultant and Research Director, Division of Radiation Oncology, National Cancer Centre Singapore

Music therapy



I understand music therapy can help Parkinson's disease patients who have trouble walking. Must the patient have a music background, and how does it work?

As the name suggests, music is used as a therapeutic medium to help patients. The patient actively participates in the session using music, while the therapist shapes the session and guides by considering how the music is used.

One common misconception is that patients need to be musically inclined to attend or benefit from music therapy sessions. Rhythm in music is used to help patients. The music therapist first assesses and matches a patient's functional level before gradually altering the tempo or rhythm to help regulate movement.

For example, to help a patient shift his weight sideways to improve balance, the music therapist may use a 6/8 tempo to initiate and sync movement coordination. To improve walking stability, the therapist may use a 2/4 tempo with strong beats to help the patient take bigger steps.

During therapy, music that the patient likes or prefers is used. The music

therapist performs the music so that he can manipulate elements of it to cater to the patient's emotional state. For instance, the therapist may play soft music when the patient is waking from sleep, and gradually change the dynamics to increase awareness and attention.

A plethora of musical instruments is used during the music therapy sessions. These include the guitar, keyboard, drums and handheld percussion instruments, such as maracas, shakers, woodblock, and jingles.



MS MICHELLE LOW YIN YIN

Music Therapist, Music and Creative Therapy Unit, Singapore General Hospital

DID YOU KNOW...

... **that** Sengkang General Hospital has implemented the use of electronic patient information board (ePIB) to automatically display patient information from the electronic medical record system whenever their medical records are updated?

Traditionally, nurses in the wards would manually write and publicly display patient information — including the name of the patient and doctor in-charge — as well as care instructions or other relevant medical alerts on a magnetic board or whiteboard by the patient's bedside as part of clinical care delivery.

With the ePIB, the board is kept up-to-date electronically so healthcare workers have access to relevant and accurate information.

The ePIB consists of an e-Ink display panel — commonly used in pharmacies and supermarkets displays, and an Amazon Kindle. Its matte screen uses no backlighting and thus does not cause glare, making it easier on the eyes and reduces eye fatigue. Besides being able to show sharp, clear text, it also has significantly lower power consumption and is lightweight.



Patient and patient information are part of a mock-up setting.

Car parks nearest to SGH SOCs, A&E



OCH/SingHealth Tower and NHCS
Get to SingHealth Tower or OCH via Jalan Bukit Merah or Kampong Bahru Road, entering through Hospital Boulevard or Hospital Drive.

... **that** when visiting Singapore General Hospital's (SGH) Emergency Department or Specialist Outpatient Clinics (SOCs) at SGH Blocks 1, 2 and 3, the nearest car park is at SingHealth Tower and Outram Community Hospital (OCH)? It has about 1,000 car park lots.

You can get to the SingHealth Tower or OCH via Jalan Bukit Merah or Kampong Bahru Road, entering through Hospital Boulevard or Hospital Drive. Visitors should park at basements 3 (B3) or 4 (B4).

Take the lift at Lift Lobby B to Level 1 to get your temperature checked and register for SafeEntry. Return to Lift Lobby B and take the lift to Level 3, then cross the overhead bridge to SGH Blocks 1, 2 or 3.

Visitors can also park at Car Park H and take the free shuttle bus to the stop opposite SGH Block 7 and Singapore National Eye Centre. Parking rates are cheaper at Car Park H. Parking costs \$1.08 per hour from 8am to 9.59pm on weekdays, compared to \$2.16 at SingHealth Tower and OCH.

Parking facilities on SGH Campus are increasingly limited as space is taken up to rebuild and expand facilities, such as the new SGH Elective Care Centre and National Dental Centre Singapore Complex, and the upcoming National Cancer Centre Singapore building.

A section of Car Park C near SGH Block 4 has been closed to build an isolation ward. Some areas of Car Park H may be re-designated for fever screening facilities in the event of an increase in COVID-19 cases.



For more information on parking and rates, go to <https://www.sgh.com.sg/patient-care/visitor-information/Pages/car-parks-fee.aspx>.



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GLUCOSAMINE: Not effective or not the right BRAND of glucosamine?

Before buying a glucosamine brand, ask yourself these questions:

1. How many clinical studies have proven that the brand works for painful joint conditions?
2. How many clinical studies have shown that the brand does not work?
3. How many long term, large-scale studies were conducted using the brand to prove its safety for long-term use?

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What about the glucosamine brand that you are taking?

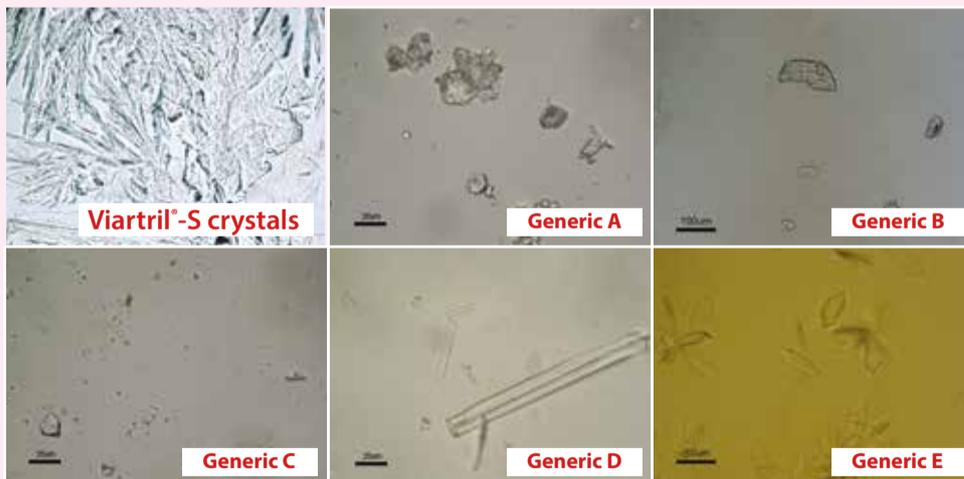
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In Singapore, glucosamine products are sold to public without the need for registration & approval by HSA. This means that even simple checks on purity are not required. So, the safety and efficacy of a brand can only be confirmed by lab & clinical studies.



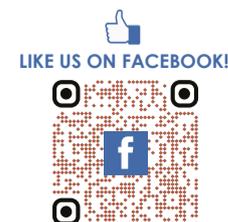
The microscopic structure of Viartil-S is different from generic glucosamine:



1. Dario Gregori et al. JAMA. 2018;320(24):2564-2579 2. Olivier Bruyère et al. Seminars in Arthritis and Rheumatism 44(2014) 253-263 3. Bruyère O, Allman RD, Reginster JY. Semin Arthritis Rheum. 2016 Feb;45(4 Suppl):S12-7.



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