

# Caring

Putting Patients First



Changi  
General Hospital  
SingHealth



## A GOOD NIGHT'S REST

Treating insomnia  
and sleep apnoea

## DECIPHERING DELIRIUM

Spotting the  
tell-tale signs

## A HEAD-START IN RECOVERY

CGH's prehabilitation  
programme aids  
cancer patients in  
their recuperation

ISSUE 2 2022



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MCI (P) 106/12/2021.  
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Changi General Hospital  
SingHealth

For patients who have been diagnosed with cancer, the road to recovery can appear long and daunting. It therefore came as a pleasant surprise to Mr Goh Tong Nang that he found himself up and about walking shortly after his surgery. He was even able to shower independently the morning after. These fast gains in mobility were the fruits of his efforts under Changi General Hospital (CGH)'s cancer prehabilitation programme devised by its rehabilitation medicine specialists.

A one-stop screen-and-intervene initiative, the CGH cancer prehabilitation programme gives newly-diagnosed patients a head-start

on recovery, even before their treatment or surgery. By adopting a home-based model and cutting down time spent in the hospital, patients can focus fully on their prehabilitation so as to achieve improved recovery outcomes.

Following a pilot study for newly-diagnosed colorectal cancer patients who had improved functional recovery outcomes after undergoing prehabilitation, CGH expanded the programme to include more patients with liver, pancreatic, gallbladder, prostate, bladder, oesophageal and stomach cancers.

# OPTIMISING HEALTH OUTCOMES AT HOME

A CGH programme allows cancer patients to fully reap the mental and physical benefits of prehabilitation.

As part of the prehabilitation programme, patients undergo a comprehensive health assessment to obtain a personalised intervention plan.







**"This 'window of opportunity' between diagnosis and treatment is crucial in empowering our patients to play a part in improving their post-surgery outcomes, even from home."**

**Clinical Assistant Professor Tay San San** (left)  
Chief and Senior Consultant, Department of Rehabilitation Medicine, CGH

### PRIMING FOR THE FIGHT AGAINST CANCER

Patients under the cancer prehabilitation programme undergo a series of assessments to holistically evaluate their health across physical and mental domains during the first prehabilitation consultation, which takes place after their surgical consultation. The comprehensive evaluation — which involves frailty, functional and mental wellness tests — is conducted by a prehabilitation team.

Based on each patient's results from the evaluative assessments and their medical conditions, the prehabilitation specialist doctor prescribes a personalised, integrated intervention plan. The plan incorporates the optimisation of any pre-existing medical or chronic conditions, an exercise prescription, as well as nutrition and mental wellness advice. Collectively, these interventions are targeted at improving the patient's capacity to withstand upcoming surgeries or anti-cancer therapies.



### WHAT IS CANCER PREHABILITATION?

It is the process of care — initiated **BEFORE** surgery or treatment for cancer — where patients' physical, nutritional, medical and mental health domains are optimised, so as to facilitate a return to the pre-treatment state of health.

Typically, patients are referred to various allied health specialties by the surgeons for prehabilitation. CGH's rehabilitation physicians involved in this programme are not only certified in exercise prescriptions but are also cross-trained by dietitians and psychologists. This enables patients to have convenient access to a well-rounded care intervention plan. "Under the new cancer prehabilitation framework developed by CGH, most patients will need only two appointments — one for

the first consultation, where a comprehensive health assessment is carried out and personalised interventions are prescribed; and another to assess the patient's condition before treatment starts," says Clinical Assistant Professor Kwok Kah Meng, Consultant, Department of Rehabilitation Medicine, Changi General Hospital. The CGH multi-disciplinary team's collaborative approach also ensures that patients with more complex cases can be referred to physiotherapists, dietitians or social workers if required.

The journey does not end here. In providing continuity of care from hospital to home, CGH's care team follows up with patients on their recovery progress three months after surgery, and individualises further care plans where necessary.



**BELOW:** Clinical Assistant Professor Kwok Kah Meng (right) and prehabilitation coordinator Christopher Paul (middle) going through the cancer prehabilitation programme with a patient model.



**CHANGI GENERAL HOSPITAL'S PREHABILITATION PROGRAMME HAS BENEFITED ABOUT 200 PATIENTS SINCE ITS PILOT IN JANUARY 2020.**



**ABOVE:** CGH prehabilitation coordinator Christopher Paul administers a hand grip test using a hand dynamometer.

**"We aim to help our patients regain their functional independence post-treatment as soon as possible, facilitate their recovery journey from hospital to home, and empower them to develop long-term beneficial health habits, including exercise."**

**Clinical Assistant Professor Kwok Kah Meng**  
Consultant, Department of Rehabilitation Medicine, CGH



SCAN THE QR CODE TO WATCH THE VIDEO OF THE CANCER PREHABILITATION PATIENT JOURNEY

Video by Mr Marc Lee  
Photos by Ms Syazwana Halid

**ABOVE:** Guiding patients on exercises so they can do them at home.



## ENCOURAGING SIGNS

A PILOT STUDY SHOWS IMPROVED HEALTH AND RECOVERY OUTCOMES FOR PATIENTS IN THE PROGRAMME

A pilot study by CGH on 59 colorectal patients who participated in the cancer prehabilitation programme showed a significant improvement in their mental health, psychological well-being and quality of life\*. They also went home earlier by an average of 1.5 days after the surgery, with reduced post-operation complications, readmission and mortality rates.

Their resulting better physical capacity leads to improved ability to tolerate additional therapy given after the main treatment, reducing the chance of treatment disruption or termination. The pre-operation and additional therapy period presents a golden opportunity for lifestyle interventions, as adequate exercise, nutritional diet and the cessation of smoking are known to reduce the recurrence of cancer.

\* 2021 Cancer Prehabilitation Framework Study by CGH



## + THE KEYS TO RECOVERY

A look at some factors that make a big difference in putting patients back on the path of wellness.

### MEDICAL OPTIMISATION

Medical optimisation refers to the control of underlying chronic diseases such as hypertension and diabetes, relieving symptoms that can affect one's ability to participate in the prehabilitation exercise programme. This includes the management and treatment of underlying causes of anemia; smoking cessation as well as the reduction of alcohol intake.



### EXERCISE PROGRAMME

Strengthening and aerobic workouts are key, while flexibility exercises are part of warm-up and cool-down routines. Strengthening exercises help maintain and build strong muscles, increase muscle mass and improve balance. Aerobic exercises — also known as cardio — improve heart and lung function, helping patients feel less tired during and after treatment.



### NUTRITION

Nutritional prehabilitation interventions consist of two important aspects — a balanced calorie intake and sufficient protein supplementation; as well as ensuring having proper micronutrients supplementation for immunonutrition. Having good nutrition helps ensure patients have sufficient food and liquids that have vitamins, minerals, proteins, carbohydrates, fat and water that the body needs.



### MENTAL HEALTH

Mental health, or psychological interventions, focus on relief techniques and strategies to address stress and anxiety symptoms. These include deep breathing techniques, progressive muscle relaxation and mental imagery techniques. Possessing good mental health encourages positivity and builds one's mental resilience.



## BOUNCING back in no time at all

Photos by Mr Goh



Mr Goh followed the prehabilitation programme exercises closely leading up to his surgery, while continuing with his own exercise regimen.

### Prehabilitation has accelerated Mr Goh Tong Nang's recovery journey.

Until his colectomy, Mr Goh Tong Nang had never undergone a major surgery in his life. As such, he wanted to do what was recommended in order to prepare for it as much as possible. While familiar with cancer rehabilitation, it was his first time hearing about prehabilitation.

64-year-old Mr Goh had undergone a colonoscopy at CGH in March 2021 as part of a routine check-up for polyps, where he was diagnosed with Stage 1 colorectal cancer. "When I was diagnosed, I was worried and scared," he recalls.

"I used to run 5km several times a week and did not think I would be able to run after my surgery."

CGH's colorectal surgeon subsequently recommended surgery to remove part of the colon. As soon as Mr Goh was listed for surgery, he was referred to a rehabilitation physician to undergo cancer prehabilitation, to help optimise his state of health and also to prepare him physically and mentally for the operation.

During his first prehabilitation appointment, Mr Goh underwent a series of physical assessments and was taught exercises for strengthening his legs and abdomen by a rehabilitation physician.

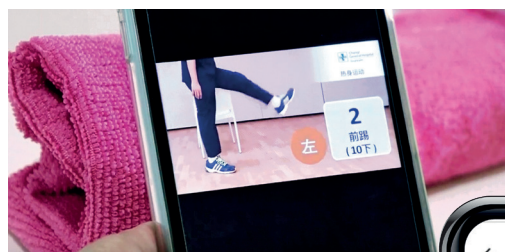
The physician also advised him to include more protein in his diet and shared anxiety reduction strategies. Mr Goh

committed to these preparations for his surgery, and followed the prehabilitation programme closely for about two weeks, carrying out the prescribed exercises up to four times daily while continuing with his daily jogging regimen and golfing sessions.

Closer to the date of his surgery, at the second appointment, he went through the same series of physical assessments, which demonstrated a significant improvement from his baseline scores. Mr Goh subsequently underwent surgery — which was successful — and was warded for two days. He was able to walk on his own on the very day of the operation, and took a shower independently the day after.

Three months on, Mr Goh is recovering well, and his post-operation exercise scores were an improvement over his baseline scores achieved during the first assessment. Today, Mr Goh continues to enjoy an active lifestyle with his friends. Reflecting on his experience, Mr Goh says, "The cancer prehabilitation programme at CGH definitely helped and prepared me physically and mentally for the surgery and the subsequent recovery period."

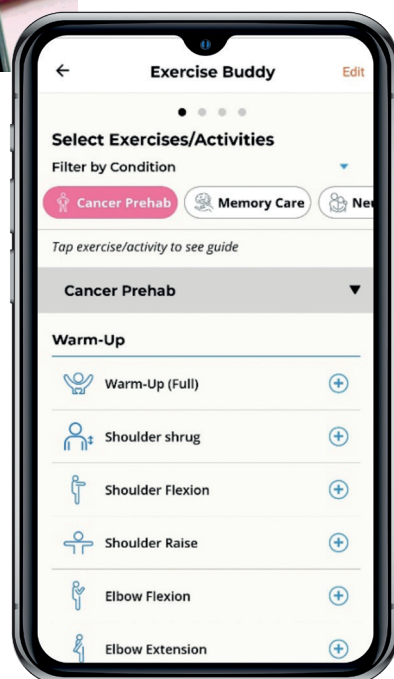




The full range of exercises — from which the rehabilitation physician can customise routines for patients — can be found on the Health Buddy app.

One of the key components of cancer prehabilitation is an individually-curated exercise programme with a series of 10 exercise videos developed by CGH. Made available through the cancer prehabilitation exercise diary on the SingHealth Health Buddy mobile application, it guides patients on the correct exercise techniques, and empowers them to take charge of their prehabilitation at home.

Based on the exercise prescriptions by the rehabilitation physician, the prehabilitation coordinator customises exercises on patients' smartphones, to aid them in following these routines and relaxation techniques at home. Family members and caregivers are encouraged to be present during the consultation to provide further reinforcement and supervision to their loved ones. The prehabilitation coordinator also checks in on patients' progress regularly to ensure that they are adhering to their prescriptions.



# Home-friendly WORKOUTS

**PRESCRIBED EXERCISES ALLOW PATIENTS TO CONTINUE PREHABILITATION AT HOME.**

Clinical Assistant Professor Kwok Kah Meng, Consultant, Department of Rehabilitation Medicine, CGH, demonstrates how to do a cross punch, a composite exercise involving multiple upper limb, lower limb and truncal muscles. Follow the sequence below:



SCAN THE QR CODE TO VIEW THE EXERCISES



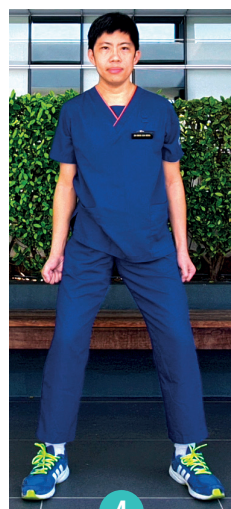
1 Start with your feet wide apart



2 Lean your body to the left side, with knees bent



3 At the same time, punch out with your right hand



4 Return to the centre



5 Repeat the same with the other side

# EATING RIGHT aids the fight

A healthy recipe that goes hand-in-hand with the cancer prehabilitation regime.

## Breaded Chicken and Asparagus Rolls with Peanut Mayonnaise



**PER SERVING**  
Calories: 378kcal  
Carbohydrate: 20g  
Fat: 20g  
Sodium: 578mg  
Protein: 29mg

These bite-sized breaded chicken and asparagus rolls are great for providing energy, protein and vitamins to those with a loss of appetite. The addition of asparagus in this recipe not only lends a dash of colour to the dish, but also boosts vitamin content as it is rich in folate, antioxidants, iron and potassium. This is also a fun recipe to enjoy with your family — everyone can help to roll the chicken up!

### INGREDIENTS

- 4 chicken breasts, 100g each
- 2 sheets of seaweed, cut in half
- 4 stalks of asparagus, trimmed and blanched
- 1 egg, whisked
- 6 tbsp Nestum
- 4 tbsp low-fat mayonnaise
- 2 tbsp peanut butter
- 2 tbsp oil
- ½ tsp salt
- ½ tsp ground black pepper

### METHOD

- Using a sharp knife, butterfly the chicken breasts to approximately 0.5mm thickness. Season with salt and pepper.
- Place a sheet of seaweed on top of each chicken breast.
- Place a stalk of asparagus in the centre, and roll the chicken into a wheel (like a Swiss roll).
- Dip chicken roll in egg mixture and coat it with Nestum evenly. Secure the roll with a toothpick.
- Heat up oil in a non-stick pan and pan-fry chicken roll until cooked. Remove from heat.
- In a mixing bowl, combine mayonnaise and peanut butter until well-mixed.
- To serve, slice chicken rolls into bite-sized pieces, with peanut mayonnaise on the side.



Recipe by CGH Department of Dietetic & Food Services.



# 优化居家护理成果

樟宜综合医院推出了一项计划，让癌症患者能够充分获得术前预康复带给他们心理上和生理上的好处。

对于被诊断出癌症的患者来说，康复之路似乎漫长而艰巨。因此，Goh Tong Nang先生在手术后不久就能站起来行走，让他感到惊喜不已。他甚至可以在第二天早上自己独立冲凉。他能够快速恢复行动能力，得益于樟宜综合医院的康复医疗专科医生们制定的癌症术前预康复计划。

樟宜综合医院癌症术前预康复计划是一项一站式的筛查与干预计划，让被诊断出患有癌症的患者们在治疗或手术之前采用以居家模式为主的干预计划，减少到医院复诊的次数，更好地专注于术前的康复练习，从而获得更好的康复效果。

在一项针对新诊断结直肠癌患者的试点研究中，这些患者在接受了术前预康复干预后身体机能恢复效果有所改善，因此樟宜综合医院将该计划推广至更多的肝癌、胰腺癌、胆囊癌、前列腺癌、膀胱癌、食道癌和胃癌患者。

## 为对抗癌症做准备

患者将在手术会诊之后参加其首次术前预康复会诊，在此期间，患者将接受一系列的检查，以全面评估他们的

生理和心理健康状况。全面的评估包括虚弱度、机能和精神健康测试，由一名术前预康复协调医疗队完成。

根据每名患者的评估结果和他们的健康状况，术前预康复专科医生将为他们制定个性化的综合干预计划。该计划包括优化任何已有的医疗状况或慢性疾病、一份居家运动处方，以及营养和心理健康建议。这些干预措施能够共同作用，帮助提高患者承受来临的手术或抗癌治疗的能力。

通常情况下，患者会由外科医生转介到不同的专职健康专科接受康复治疗。参与这项计划的樟宜综合医院的康复医生不仅在运动处方领域获得认证，而且还接受了营养师和心理学家的交叉培训。这让患者能够方便地获得全面的护理干预计划。

樟宜综合医院的跨科室团队密切合作，确保病情更复杂的患者能在必要时被转介至物理治疗师、营养师或社会工作者。

这还不是康复之旅的终点。在提供从医院到家庭的连续性护理方面，樟宜综合医院的护理团队在手术后三个月将追踪患者的康复进展，并在必要时制定个性化的深入护理计划。

## 借助科技的定制方案

根据康复医生开出的运动处方，术前预康复协调员将在患者的智能手机上输入运动处方，以帮助他们在家练习这些常规运动和放松技巧。我们鼓励患者家人和看护者一起参与会诊，为他们的亲人提供进一步的支持与监督。术前预康复协调员还会定期检查患者的进展，以确保他们完成所规定的运动。这些运动可以在HealthBuddy手机应用程序上找到。



扫描QR码查看相关运动



作为术前预康复计划的一部分，患者将接受全面的健康评估，以获得个性化的干预计划。



## From PATIENT to GIVER

A retiree creates pieces of art to drive breast cancer research.

A typical day for 66-year-old retiree, Mdm Saudah, starts early with exercises and walking around her estate, socialising. She then spends her time honing her artistic skills, picking up enrichment courses and caring for her two young grandchildren.

The feisty lady is living her life to the fullest — and loving every moment of it. However, the same couldn't be said for Mdm Saudah 15 years ago, when she found out that she was diagnosed with Stage 2 breast cancer. What began as a persistent flu for several weeks despite her healthy, active lifestyle proved a greater cause for attention when she then discovered a lump in her left breast. A chest examination and biopsy at Changi General Hospital (CGH) subsequently confirmed her fears.

Coming to terms with the news was hard for Mdm Saudah, who spent many nights crying to herself. All this changed one day when she spotted the obituary of her long-lost friend from her university days. At the wake, Mdm Saudah found out that her late friend had succumbed to cancer. That jolted Mdm Saudah into action, and she was determined to fight the disease.

Having attended chemotherapy sessions diligently, it wasn't long before Mdm Saudah's cancer cells were successfully cleared. However, the journey wasn't easy for her as the treatments left her feeling very tired, and chemotherapy-induced alopecia (hair loss) meant having to don a hat whenever she was outdoors. However, her spirits were constantly lifted by her doctor — CGH Senior Consultant and Head of Breast Surgery Professor Tan Su-Ming — who gave her hope through their casual bantering of future plans during her regular visits to the CGH Breast Centre.



"I hope my contribution can create a better future for medical research into breast cancer."

Madam Saudah Marwan

Mdm Saudah has donated 70 art creations in support of CGH's breast cancer research fund.

With an optimistic outlook on life since the cancer's remission, Mdm Saudah says, "Cancer doesn't just get to you physically, but emotionally as well. Stay open to receiving whatever help and support that are available when it (cancer) gets to you because you will be surprised by the miracles that a positive mind can do."

As a show of gratitude to CGH's Breast Centre care team for journeying with her on her path to recovery, Mdm Saudah supports the Centre's fundraising efforts through the creation of her hand-drawn canvas art pieces, with all proceeds going into breast cancer research funding.



SCAN THIS QR CODE TO FIND OUT HOW YOU CAN, TOO, MAKE A DIFFERENCE.



# Your **ALLIES** in Better Health

**T**his Allied Health Professionals (AHPs) Day, learn how AHPs from Changi General Hospital (CGH) make holistic and quality care possible from hospital to home. Collectively, they contribute their expertise — from diagnosis and treatment to rehabilitation in a multi-disciplinary care team — and formulate solutions with patients and caregivers on their journeys to recovery at our Caring General Hospital.

## Debunking the dietetic practice

In the course of her daily work, Dietitian **Amanda Lim** does rounds in the wards or outpatient clinics to review patients and provides dietary assessment and interventions for various health-related reasons such as diabetes, cancer or surgeries. CGH's dietitians offer counselling on food and drink choices and nutrition support to help patients achieve desirable health outcomes for both acute and chronic diseases.

In adopting a multi-disciplinary approach, dietitians discuss nutrition care plans with doctors and nurses, allowing for medical nutrition therapy to complement medical treatment. They also work with medical social workers, advising patients to maximise their nutrition intake within their budget. "The assessment often goes beyond the diet," Ms Lim explains. "We take into consideration additional factors such as patients' clinical and psychosocial conditions in order to prescribe the best nutrition therapy."



Interventions usually involve diet counselling, motivating positive lifestyle changes or prescribing oral or enteral (intestinal) nutritional supplements for those with increased needs.

Dietitians also work closely with the hospital's Food Services in developing menus for patients and refreshing these regularly. For example, they perform nutrient analyses of menus to ensure that the food prepared mirrors the customised nutrition advice

provided to patients with specific diets. Just how closely do they work together?

**"CGH is one of the few hospitals with Dietetics and Food Services under one department — in fact, our office is nestled right next to the kitchen!"** quips Ms Lim.

Seeing patients eating and recovering well is crucial to Ms Lim. Recounting an experience with a patient with pancreatic cancer who required multiple insulin injections for his diabetes, Ms Lim realised that he was struggling with the management of his blood sugar levels. She helped him troubleshoot his diet, and worked with a diabetes nurse educator to measure and adjust his insulin dosage to match his oral intake.

"At the end of the consultation, he heaved a sigh of relief with a large smile on his face as he thanked me for helping him," she shares. "Hearing him say 'thank you, you have taught me a lot' reminds me of the responsibility I carry as a dietitian."



## Dispensing more than medication

Senior Pharmacist **Bruce Wong** works in a range of settings because of the diverse nature of his role. He manages the pharmacy sterile compounding lab at CGH, overseeing orders of compounded medications from the wards, ensuring they are safe, correct and reach the patients in a timely manner.

At the pharmacist-led anticoagulation clinic, Mr Wong titrates medication that prevents blood clots to reduce patients' risk of developing strokes and heart attacks. He is also part of the inpatient clinical nutrition support team, working with dietitians to manage patients who cannot be fed orally and need to receive nutrition intravenously. Besides that, he dispenses medications at the outpatient pharmacy.

Beyond the common perception that pharmacists mainly dispense medicine, there are lesser-known niche areas within the practice. **"In the pharmacy sterile compounding lab, we convert injectables into other formulations such as eyedrops and infusor pumps, which enable patients to receive their treatment at home rather than in the hospital,"** says Mr Wong. "The products that we produce are not commercially-available or are difficult to dilute in a sterile manner by the bedside. I work with the laboratory team to create formulations based on available evidence."

Amid his clinical duties, Mr Wong finds that the most meaningful part of his work is the opportunity to develop the budding pharmacists around him. A winner of the Allied Health Professional Young Educator Award 2022, Mr Wong designs the curriculum and manages the development of trainee pharmacists throughout their training at CGH. "Being involved in their journey to become a competent and caring pharmacist drives me to improve myself, and also the training curriculum, so that I can better guide them," he says.

## Going beyond the surface

At CGH, radiographers like **Noor Aqilah Bte Abdul Rahhim** are rotated among different areas in the hospital such as wards and outpatient clinics, allowing them to work on a variety of cases. Ms Aqilah operates medical imaging equipment such as Computed Tomography, Ultrasound, Magnetic Resonance Imaging (MRI), Nuclear Medicine for bone scanning and X-rays, among others.

**"We are the first line in providing patients' diagnoses,"** she says. **"Depending on the patient's condition, we conduct imaging scans to investigate what the patient is suffering from. This will allow the doctors and radiologists to diagnose the patient and provide a specific treatment plan."**

As part of her work, Ms Aqilah also explains the scans that the patients are undergoing so that they know what to expect, and consistently reassures patients, to help make them feel that they are in safe hands. Throughout the pandemic, Ms Aqilah has been on the frontlines conducting chest radiography, one of the most frequently used tools for triaging and managing COVID-19 patients.

Radiographers are often part of a patient's entire journey and play an important role in the multi-disciplinary care provided to them. "We are the eyes of the doctors," Ms Aqilah explains. "After performing our imaging and acquiring critical findings, we are able to help expedite the patient's treatment journey, by highlighting them to the respective clinicians so that they can provide intervention and improve the patients' prognosis. Knowing that we can make a difference in the patient's recovery journey makes my work worthwhile."



SCAN THE QR CODE TO LEARN ABOUT THE ALLIES CARING FOR OUR PATIENTS AND COMMUNITY AT THE CARING GENERAL HOSPITAL!





Singaporeans have one of the longest working hours in the world, and getting **good-quality sleep** seems to have taken a back seat. Inadequate sleep can lead to health complications, affects a person's ability to concentrate, increases the chances of being forgetful, and impairs cognitive abilities in the long run. Yet this trend of poor sleep practices in Singapore continues. Over 40% of working adults in the country have insufficient sleep on weekdays.

In conjunction with World Sleep Day, we share more about the commonly-seen sleep disorders at Changi General Hospital (CGH). The Changi Sleep and Assisted Ventilation Centre provides a comprehensive assessment, diagnosis and treatment service to patients with different types of sleep disorders.

The Centre adopts a multi-disciplinary approach, combining the expertise of specialists from the departments of Ear, Nose and Throat (Otolaryngology), Respiratory Medicine, Dental, Sports Medicine, General Surgery and Psychological Medicine.

Many of these sleep conditions are intricately linked to other medical issues, for example, breathing issues, amongst others. A multi-disciplinary approach enables specialists across different teams to collaborate closely to diagnose and treat the sleep disorders.

# THE SCIENCE OF SLUMBER

A look at common sleep disorders, and how clinicians at CGH are tackling them.

## OBSTRUCTIVE SLEEP APNOEA (OSA)

OSA is a common sleep disorder that has been estimated to affect about 30% of Singapore's population.

OSA is a condition in which the upper airway collapses repeatedly during sleep, resulting in sleep disturbances and a drop in body oxygen levels. This in turn leads to excessive daytime sleepiness that can affect work performance and increase the risk of motor vehicle accidents.

OSA patients are also at increased risk of numerous medical conditions such as heart attack, abnormal heart rhythm, difficult-to-treat high blood pressure, stroke, depression and cognitive impairment.

### What are the risk factors?

Common risk factors for OSA are obesity, age, male gender, menopause in females, smoking, having a narrow upper airway as well as a family history of OSA.

### Diagnosing OSA

A sleep study is necessary for the evaluation and diagnosis of OSA. The gold standard diagnostic sleep study is an overnight test conducted in a laboratory. During the study, special sensors will monitor the patient's brainwaves, airflow from the nose and mouth, level



of oxygen in the blood and muscle activity while he or she is asleep. Home sleep testing is also available but it is not suitable for everyone. Patients should discuss with their doctor on which sleep studies are suitable for them.

### Treating OSA

OSA is treated through Continuous Positive Airway Pressure (CPAP) therapy. The CPAP device delivers pressurised air to the upper airway, preventing it from collapsing during sleep. The device needs to be worn every night during sleep for the treatment to be effective.

In the event one is unable to tolerate CPAP therapy, alternate treatment options such as oral appliances and surgery may be considered. Additional recommended lifestyle interventions would include weight reduction, smoking cessation and the maintenance of good sleep hygiene.

By Clinical Assistant Professor Mok Yingjuan, Senior Consultant, and Clinical Assistant Professor Lim Chau Sian, Consultant, Department of Sleep Medicine, Surgery & Science, Changi General Hospital

# THE SCIENCE OF SLUMBER

## INSOMNIA

Insomnia is a sleep disorder where a person experiences dissatisfaction of sleep quantity or quality. It may be related to difficulty initiating sleep, difficulty maintaining sleep, or early morning awakening with an inability to return to sleep.

It is a common complaint, with some 15% of the local population suffering from it. Insomnia disorder is diagnosed in people who suffer from frequent insomnia that causes distress or impairment in daytime functioning, over a period of time.

### Causes of Insomnia

A wide range of factors contribute to insomnia. Poor sleep habits, such as irregular bedtimes and the use of electronic devices in bed, are common reasons. Psychological factors, such as stress and anxiety, are also another major cause.



Often, people who experience insomnia worry about their sleep, which further exacerbates the condition. Other contributing factors include caffeine use, smoking and alcohol. Although alcohol helps initiate sleep, it is damaging to sleep quality.

Medical conditions such as hyperthyroidism or ailments that cause pain also make it difficult to enjoy good sleep. Some sufferers have problems with their body clock control and have circadian rhythm disorders. Finally, a minority have primary insomnia, which is not contributed by other causes.

### Diagnosing Insomnia

Insomnia may be evaluated by a psychiatrist or a sleep specialist, who will perform a detailed enquiry about the patient's sleep routine, associated habits, and evaluate for possible causes contributing to the symptoms.

The doctor may ask for certain investigations, such as the use of a sleep diary, rating scales, or a sleep study (also known as polysomnography) to

For its clinical work and research in sleep health, the CGH Department of Sleep Medicine, Surgery & Science gained international recognition by Newsweek as a Top Specialty globally.



aid in the assessment. Most patients with uncomplicated insomnia do not require polysomnography.

### Treating Insomnia

There is a wide range of treatment strategies available for insomnia. One of the most effective is cognitive behavioural therapy, which involves modifying and improving habits, emotions and thought processes related to sleep. This is usually performed by a clinical psychologist.

There are also pharmacological treatments such as prescription sleeping pills. However, as these run the risk of dependence, they are recommended only for short-term use. The doctor will advise on the most suitable treatment based on the nature and underlying causes for the particular patient's insomnia.



Sleep studies are conducted at the Changi Sleep Laboratory by our sleep technologists.



By Clinical Assistant Professor Bharathi Balasundaram, Senior Consultant,  
Department of Psychological Medicine, Changi General Hospital

# DECODING Delirium

Understanding this condition and how  
to care for someone affected by it.



## Common causes

Delirium can be traced to several causes, such as acute medical conditions, stroke, infections, head injuries, post-surgery effects, or side-effects of medications. Often, there is more than one cause and medical tests may be needed to be carried out to identify them.

## Who's at risk

Delirium generally affects high-risk groups such as seniors aged 65 years and older. Persons with dementia are at particular risk. Having more than one illness, severe illness, a previous history of delirium, poor hearing or sight, a history of alcohol misuse and depression are other risk factors.

## Diagnosis

If someone suspects that their loved one is showing signs of delirium, the first thing to do is see or alert a doctor or nurse immediately. They will conduct relevant tests to make an accurate diagnosis, and manage any causes or triggers that can be treated.

## Multi-faceted care

At Changi General Hospital (CGH), patients who are at risk of developing delirium are systematically identified and screened. Once delirium is recognised, holistic management of the underlying causes is carried out together with a multi-component care bundle. This consists of standardised protocols for the management of risk factors for delirium, such as cognitive impairment, dehydration, constipation, pain, immobility and sleep deprivation.

The CGH care team also encourages patients to ambulate (move), with necessary assistance to avoid falls, promotes a regular night-day and sleep-wake cycle when possible, maintains a reassuring and familiar environment with familiar objects or photos from home while avoiding overstimulation — for instance, minimising multiple visitors or loud noises, which can worsen delirium.

In addition, CGH has a Dementia and Delirium Outreach Team (DDOT), an integrated service run by an inter-disciplinary team that offers individualised management of hospitalised seniors aged 65 and above with moderate to severe disturbed behaviour associated with delirium and/or dementia.

## Treatment

To treat delirium, the cause has to be addressed. For example, an infection may be treated with antibiotics, or constipation with a regular laxative. It is important to identify and address all the contributing causes.

# 解码谵妄症

了解这种疾病以及如何照顾患者。

谵妄症的迹象包括注意力、记忆和方向感发生突然变化, 以及无法解释的情绪、性格和行为的变化。此症会使人的精神状态突然在几个小时或几天内发生变化, 导致患者处于“急性混乱状态”。

有别于抑郁症及失智症, 谵妄症是一种会出现波动和变化的状态, 从而在不同时期影响患者的大脑。谵妄症是因患者身体状况欠佳而引起的, 倘若不及时的就医治疗, 可能会导致影响健康的不良后果。

It takes some time for persons with delirium to recover even after the underlying causes are treated. Those who are also suffering from dementia may take a longer time to recover. Ongoing vigilance and prompt medical attention are needed to prevent poor health-related outcomes.

To reduce the risk of developing delirium, regularise sleep, reduce noise, promote mobility, manage pain, avoid constipation, encourage eating and drinking, and discuss the medication regime with doctors.

**S**udden changes in concentration, memory and orientation. Unexplained changes in mood, personality and behaviour. These are tell-tale signs of delirium — a sudden change in mental state, occurring in a matter of hours, or days, that results in a person being in an ‘acute confusional state’.

Not to be mistaken for depression, or dementia which develops over time, delirium is a fluctuating and changing condition that affects people's brains for varying periods. It occurs when a person is medically unwell, and if left untreated, can result in poor health-related outcomes.

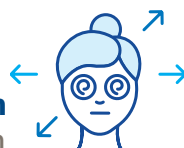
## SIGNS AND TYPES OF DELIRIUM

Someone with delirium is easily distracted or confused, has difficulty concentrating and following conversations, and may not remember what has happened.

Those with **hyperactive delirium** may get restless, become agitated or aggressive, and may even hallucinate. Some may become paranoid.

Those with **hypoactive delirium** are unusually drowsy, withdrawn, or quiet. There may be changes in appetite or mobility.

**Mixed delirium** is a combination of symptoms of both hyperactive and hypoactive delirium. One may also switch between the two states.



- Starts abruptly, emerging over hours or days
- Causes consciousness levels to fluctuate between hyper-vigilance and drowsiness
- A temporary state



- A slow, progressive condition that develops over time
- Does not disturb consciousness levels

Chronic (long-term confusion)

## Deciphering the difference between DELIRIUM and DEMENTIA

In both delirium and dementia, patients may present as being confused, having poor memory, not knowing where they are (poor orientation), bearing poor judgement, and being unable to perform usual tasks. Fluctuations in mood, changes in personality and behaviour can occur in both conditions. Varying degrees of suspiciousness and hallucinations can also occur in both conditions.



By Ms Li Fuyin, Senior Nurse Clinician (Advanced Practice Nurse), Changi General Hospital  
作者: 李符寅, 樟宜综合医院资深临床护士长(高级临床护理师)



## TIPS The Right Kind of Help

There are many practical tips that family members and caregivers can follow to aid loved ones on their delirium recovery journey, whether they are in the hospital or at home.

### Stay alert

It takes some time for persons with delirium to recover even after the underlying cause(s) are treated. Ongoing vigilance by family members and prompt medical attention are important in preventing poor health-related outcomes. If your loved one is in a care home or a hospital and if you notice a sudden change in presentation, it is useful to alert the staff.

### Create a sense of familiarity

To reduce confusion, caregivers can remind patients of the time, day and place. It is important to speak and provide instructions in a clear, calm voice with a slower cadence, as the ability to understand what we are saying can be difficult and confusing for patients with delirium. Visual or hearing impairment can worsen the confusion; it is therefore necessary to ensure patients put on their own glasses or hearing aids.



In addition, placing their personal belongings near the bedside helps to simulate a familiar home environment, and visits from family members give patients the opportunity to see familiar faces. These measures will help with their recovery.

### The importance of caregiver and communal support

Patients with delirium may display agitated or disruptive behaviour, with a potential risk of harm to themselves or others. It is useful for caregivers to remember that these behaviours are due to the presence of delirium. Patients may also be at risk of falling or wandering off. To reduce these risks, it is important to provide appropriate assistance when the patient attempts to walk or gets out of bed. Additionally, having a familiar or trusted family member accompany the patient at his/her bedside or at home can promote safety and provide additional reassurance to them. The support of family members or caregivers — working in partnership with the healthcare professionals — is vital in meeting the short- and long-term care needs of a patient with delirium.

## 提供适当的援助

无论是在医院还是在家里, 家人与看护者都可以采取许多实用贴士为康复中的亲人提供援助。

### 保持警惕

即使诱发谵妄症的病因被治愈, 患者也需要一段时间才能完全康复。家人应该继续保持警惕, 并在出现异常时及时就医, 这对预防不良健康后果至关重要。对于住在疗养院或医院的亲人, 如果您发现其言行突然发生了变化, 应当即刻告知工作人员。

### 营造熟悉的环境

为了缓解患者的混乱状态, 看护者可以提醒他们当前的时间、日期以及所处的地点。因为谵妄症患者可能在理解我们所要表达的内容上会有困难, 所以家人和看护者以清晰、平静的声音慢慢地说话和给予指示是很重要的。再者, 视觉或听觉障碍可能会让患者更加混乱, 因此应确保他们佩戴自己的眼镜或助听器。此外, 将患者的个人物品放在床边有助于模拟熟悉的家庭环境, 并且家人的探访能让患者有机会看到熟悉的面孔, 这有助于他们谵妄症的康复。

### 重视看护者和社区支持的重要性

谵妄症患者可能会表现出激动或破坏性行为, 从而伤害自己或他人。请记住, 此行为是因为谵妄症的存在。患者也可能面临跌倒或走失的风险。为了降低此风险, 在他们试图步行或下床时提供适当的帮助是很重要的。此外, 安排一名熟悉或信任的家人陪在患者身边能让他们更加安心。为了满足谵妄症患者的短期和长期需求, 家人或看护者以及医疗专业人员的支持至关重要。



By Ms Zaylea Kua, Clinical Psychologist, Changi General Hospital

## STAYING SHARP THROUGH TECH

Harnessing Virtual Reality to promote cognitive resilience in older patients.



Patients look forward to weekly sessions where they experience different scenarios and tasks in the VR environment.

Recent advances in the quality of Virtual Reality (VR) technology present new and exciting opportunities for its application in healthcare settings. The three-dimensional computer-generated worlds in VR can be navigated using specialised devices such as head-mounted displays and hand-held controllers, providing users with an interactive and immersive experience.

The use of VR has been explored in the assessment, treatment and rehabilitation of cognitive functioning, psychiatric disorders (e.g.

CGH psychologists (from left: Louisa Tan, Senior Clinical Psychologist; Zaylea Kua, Clinical Psychologist and the study's Principal Investigator (PI); and Nicole Chen, Clinical Neuropsychologist and Co-PI) work with the Department of Geriatric Medicine, Clinical Trials & Research Unit and Health Services Research on the ongoing study.



As the Caring General Hospital, we believe in thinking out of the box, scaling up successful pilots, innovating and re-envisioning the role that smart technologies can play to deepen excellence in clinical care. Our pilot study recently received the **SingHealth Allied Health Innovation Practice — Ground Up and Emerging Award** in recognition of ongoing innovative projects that have the potential to achieve significant impact and outcomes.

anxiety, trauma, psychosis), motor impairments (e.g. gait, balance, fall prevention) and pain management, to name a few. At Changi General Hospital (CGH), our multi-disciplinary team, comprising psychologists, geriatricians, clinical coordinators and a research analyst, is studying the application of VR on the prevention of worsening cognition among older adults.

### Bridging the Deficit

Mild Cognitive Impairment (MCI) is a symptomatic transitional stage between normal ageing and dementia, where individuals display cognitive deficits (e.g. problems in memory, attention, planning, judgement etc.) but are still able to maintain social and functional independence. Given the disability and distress associated with worsening cognition, growing global efforts are being

undertaken to prevent or delay the progression of MCI to dementia. Promoting cognitive resilience by means of intellectual stimulation is among the recommended preventive approaches that may help to reduce the risk of dementia.

While cognitive interventions and rehabilitation are utilised in clinical practice, they are mainly targeted at dementia patients with lower cognitive abilities. The same interventions do not seem to benefit patients with MCI as they find the activities too easy, thereby losing motivation and reducing engagement.

In a bid to address this absence of suitable cognitive activities, our CGH care team adopted a novel intervention approach to meet the cognitive and motivational needs of patients with MCI. Computerised Cognitive Training through VR offers a viable solution as it involves guided repetitive practice of standardised tasks designed to target specific cognitive skills or processes — such as memory encoding, selective attention and inhibitory control — with the aim of improving cognition via strengthening of neural pathways. Preliminary results of the pilot study show promise, garnering positive patient feedback thus far.



For their indomitable spirit and perseverance amid a myriad of challenges, and their outstanding contributions to healthcare, about 1,150 staff and service partners from Changi General Hospital (CGH) were celebrated at the Singapore Health Quality Service Awards (SHQSA) 2022. Find out more about their initiatives in delivering quality care to our patients and the community from hospital to home.

# Honouring Healthcare HEROES

The CGH family scored big wins at the Singapore Health Quality Service Awards 2022.



The STAR Team (from left): Neo Soon Keow, Assistant Director, Nursing; Lim Jia Yan, Nurse Clinician; Ma Chongyan, Nurse Clinician; Qin Jing, Nurse Clinician; Tang Hong Yan, Assistant Nurse Clinician.

## Enhancing Patient Safety as a Team

The **Strive To Achieve Results (STAR) team**, comprising CGH nurses, strove to enhance patient safety by designing a safeguard to prevent the dislodgement of the Peripherally Inserted Central Catheter (PICC), taking into consideration the securement of the PICC, the visibility of the line insertion site, its ability to accommodate multi-directional insertions, as well as the comfort of the patients. "The project significantly improves patient safety and satisfaction," said Ms Ma Chongyan, Nurse Clinician, and STAR Co-Leader. "We are tremendously pleased to be selected to receive the Best Team (Merit) Award. With this recognition, we feel truly motivated to continue our journey in quality improvement with the aim of benefitting more patients."

## Staying Patient-Centric to the End

Studies have shown that most patients in their final days prefer to be cared for at home or in nursing homes, by people they are familiar with. However, most patients pass away in acute hospitals as their caregivers at home or care teams at the nursing homes may not be equipped to manage their deteriorating condition. CGH partnered St. Andrew's Community Hospital (SACH) and St. Andrew's Nursing Homes in the **Violet Programme**, a palliative care service for home care patients with life-limiting, non-cancer conditions and residents of nursing homes whose prognoses are often uncertain.

Under this new model of care, the team adopts a "specialist-on-generalist" approach: the home nursing, home medical or nursing home teams provide general palliative care, while CGH's specialist team steps in to manage patients' symptoms when complexities arise. Patients may be referred through their home care programme or nursing homes, or by

the care teams at CGH, ensuring that patients receive seamless care till the end of their life journey.

"Through the Violet Programme, we honour our patients' needs and desires to spend their final days with their loved ones in a familiar place, by increasing access to community palliative care where possible," said Dr Koh Lip Hoe, Co-Lead of the Violet Programme, Senior Consultant, Department of Geriatric Medicine, and Head of Palliative Care Service, CGH. "For their families, our support and partnership with the home care and nursing home teams means they are able to journey with the patients until the very end, and find closure in those moments. In addition, it has helped reduce unnecessary admissions to acute hospitals." The collaborative effort saw the CGH, SACH and St. Andrew's Nursing Home team (photo below) bag the Best Team Award at the SHQSA 2022.

# HUMILITY IN VICTORY

CGH winners shared their thoughts on their awards.



## Superstar (Merit) Award-Clinician Category

"I believe that none of us can be as successful as all of us, together. Through the initiatives we developed for COVID-19 testing and operational implementation, we forged rewarding friendships along the journey, and were able to make contributions that went beyond that of any single individual's."

**Clinical Associate Professor Tan Thean Yen**  
Deputy Chairman, Medical Board (Ambulatory Disciplines),  
Chief and Senior Consultant, Laboratory Medicine



"The desire to improve the standard of care for my patients and collaboration with my colleagues motivates me to do my best each day."

**Clinical Associate Professor Andrew Wong**  
Deputy Chairman, Medical Board (Surgical Disciplines),  
and Senior Consultant, Surgery

"Being able to help and learn from so many good women and men at CGH and SingHealth inspires and motivates me to continue to improve my work and touch the lives of my patients, friends, colleagues and students. I am grateful for the amazing work done as a team and look forward to doing much more for our patients to improve the population's health in the coming years."

**Clinical Associate Professor How Choon How**  
Head and Senior Consultant,  
Care and Health Integration



"While COVID-19 is the crisis of our generation, it has also brought out the best in us, with everyone pitching in extra hours to handle our usual work as well as unexpected events. In this shared determination to overcome the pandemic, it is only natural that we pursue excellence in our work to ensure the safety and health of colleagues and patients."

**Dr Poon Beng Hoong**  
Senior Consultant and Director, Correctional Health



## Superstar (Merit) Award-Nursing Category

"The privilege of being able to care for patients and gain their trust is a big deal for me. The words of appreciation and simple gestures from patients and their family members — as well as seeing patients regain their health upon discharge — motivate me to pursue innovative ways to improve nursing care and make a difference in our patients' lives."

**Ms Zhou Lin Fang**  
Senior Nurse Manager, Nursing Administration



## Superstar (Merit) Award-Allied Health Category

"Being able to reconnect people with their loved ones through helping them hear again keeps me motivated at work. To me, it is important to always have a spirit that seeks out opportunities, to strive to excel in the endeavours undertaken, and to always lend a helping hand to others along the way."

**Mr Kenneth Chua**  
Senior Audiologist, Audiology



Since its introduction in August 2020 until December 2021, **The Violet Programme** has helped over **180 patients at home** and **149 residents of nursing homes**.

Of these, about **90%** who passed away did so at their place of preference.





With patients at the heart of all we do, Changi General Hospital continually strives to be a Caring General Hospital. Here, we share kind words from a patient, commending the care team members who have left a lasting impression.

## Cheers TO PASSION AND COMPASSION

I wish to express my heartfelt gratitude and appreciation to the staff of Ward 25 during my stay from 16 November to 2 December 2021. The entire team's attitude and dedication towards the job is simply remarkable and commendable. Their performance as individuals — and most of all, ability to work together as a team consisting of different races and nationalities — clearly shows their faith and sincerity in providing medical assistance, and as healthcare professionals.

Through my observations during my hospitalisation, I have developed a better understanding of the pivotal role that frontliners like nurses and other healthcare professionals play. I now truly believe that they deserve much more respect, appreciation and recognition than they currently receive.

Thank you for taking care of me.

C.W.K.

## A GOOD STRETCH

Ms Elsa Leung, Principal Physiotherapist, Changi General Hospital, shows us some simple exercises for relieving tired muscles.

Did you know that long periods of working at a desk can lead to stress in the neck, shoulder, back and spine, and may result in stiffness and tension in the body?

Here are some simple exercises you can do to ease these muscle strains as part of self-care. Each exercise takes only up to a minute and can even be done while you are seated. It is recommended to take short breaks and do these exercises at least three times a day, or as often as you can, whether you are at home or in the office.

### LATERAL SHOULDER AND TRUNCAL MUSCLE STRETCH

- 1 Lift your right arm above your head with the elbows bent.
- 2 Hold your elbow with your left hand and pull your elbow towards the left.
- 3 Tilt your body towards the left and hold the position for 10 seconds.

Do three sets of the stretch using your right arm and another three sets using your left arm.

### UPPER BACK / CHEST STRETCH

- 1 Clasp both hands behind your back and gently bring your shoulder blades backwards.
- 2 Hold onto a rolled towel if you are unable to clasp your hands behind your back.
- 3 Hold the position for 10 seconds.

Do three sets of the stretch.



SCAN THIS  
QR CODE TO  
CHECK OUT  
MORE EXERCISES

By Dr Melissa Seet, Associate Consultant, Breast Surgery, Changi General Hospital

# BUSTing the Myths on Breast Cancer

#### MYTH

“Breast cancer usually presents as painful lumps.”

#### FACT

Whether they are cancerous or benign, lumps in the breasts are usually painless. Hence, all lumps should be evaluated by a doctor. Less common symptoms may include nipple rash, abnormal nipple discharge, skin changes, breast dimpling or even a newly-retracted nipple. Performing regular breast self-examinations will help you familiarise yourself and detect any early changes to your breast.

#### MYTH

“I am only 40 years old and too young to get breast cancer.”

#### FACT

In Singapore, breast cancer incidence increases from 40 years onwards. One is advised to start mammogram screenings from the age of 40, even when one has no symptoms.

Breast cancer may occur in various age groups, but its incidence increases in older women. Indeed, it is the leading cancer among females in Singapore, with 1 in 13 developing the condition in their lifetime. Although early detection and treatment is possible, there are still many women who have late-stage breast cancer. Here, we debunk some of the common misconceptions about the disease, and encourage women to take charge of their breast health.

#### MYTH

“Since no one in my family has breast cancer, I will not get it either.”

#### FACT

Only about 15% of breast cancer incidences are inherited. The majority of women who get breast cancer do not have a family history of the disease.

#### MYTH

“Having breast cancer means losing my breast!”

#### FACT

Surgical removal of the whole breast (mastectomy) is not always the necessary course of treatment. When the cancer is detected early, only the area with the malignant tumour needs to be removed, thus preserving the rest of the breast.

#### MYTH

“Radiation from mammograms causes breast cancer.”

#### FACT

The amount of radiation is minimal and does not cause the development of breast cancer. In fact, mammograms have been shown to be the most effective way of detecting the disease in its early stages.

#### MYTH

“Bras, deodorants or physical injury to the breast can cause breast cancer.”

#### FACT

There is no scientific evidence for any of this.

#### MYTH

“Breast cancer is a death sentence!”

#### FACT

When breast cancer is detected at its earliest stage, there is a five-year survival rate of 99%. Therefore, increased awareness of your own breast health and regular mammogram screenings will help with early detection.

IF YOU HAVE ANY CONCERNS ABOUT YOUR BREAST HEALTH, PLEASE SEE A HEALTHCARE PROFESSIONAL FOR A MORE IN-DEPTH CONSULTATION. CGH's Breast Centre offers one-stop comprehensive breast service for breast cancer screening, assessment, diagnosis and treatment of all breast conditions.



SCAN THE QR CODE TO  
READ MORE ABOUT THE  
SERVICES OFFERED AT  
CGH'S BREAST CENTRE





Changi  
General Hospital  
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★★★★★  
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# Your Trusted Care Partner, Innovating Healthcare for Tomorrow

Changi General Hospital (CGH) is an academic medical institution caring for more than 1 million people in Singapore. A tertiary referral centre with over 1,000 beds, CGH is committed to medical research and education, clinical innovation and care for patients through a comprehensive range of medical specialties and services. Helmed by a multi-disciplinary, dedicated team of healthcare professionals, CGH consistently delivers positive health outcomes for patients.

CGH is ranked amongst Newsweek World's Best Hospitals 2022 (Singapore), Newsweek World's Best Specialised Hospitals 2022, and Newsweek World's Best Smart Hospitals 2021.

