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NEW WORK MODEL PUTS CARE ON THE FAST TRACK

P3

PHOTO: JUSTIN LOH

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Picking apart the tried and tested as care needs change

The new Acute Medical Ward at SGH takes a different approach to care model to meet the growing demands of an ageing population.

PHOTOS: JUSTIN LOH

Ms Hartini Osman (extreme left) and other nurses lead daily discussions about patients with the team, including Dr Tharmmambal Balakrishnan (in maroon) and Dr Lim Wan Tin (to her right). This is an unusual but important feature of the AMW model, as nurses are most familiar with the patients' conditions.

THE OUTCOME IN NUMBERS

Establishing the Acute Medical Ward (AMW) for select patients has cut the length of hospital stay by an average of

2.4 days

Helped reduce patients' bills by an average of

20%

A shorter hospital stay also meant freeing up an average of

5 beds a day

The AMW admitted **1,200 pneumonia** and **600 cellulitis** (skin infection) patients

Data from the pilot service that started in February 2015 and ended in February 2016

CARE FOR SOME A&E patients at Singapore General Hospital (SGH) is being intensified and fast-tracked to allow discharge of this select group to be more timely. It is a work model that is being hothoused in the Acute Medical Ward (AMW), which will have more beds when it moves into a new hospital block to be built to also house a much bigger A&E.

This care model involves a couple of key elements: a multi-disciplinary team where nurses play an elevated role, and the use of so-called clinical care pathways, which map out the steps and treatments to be taken for specific diagnoses as a way of standardising the care of these conditions.

"The AMW is a short-stay ward that will treat patients sent from the A&E. They are not critically ill, yet not well enough to be sent home, so are unlikely to need a prolonged hospital stay. Their condition makes a discharge within 72 hours – one of the criteria for admission to the AMW – possible," said Dr Tharmmambal Balakrishnan, Consultant, Department of Internal Medicine, SGH.

The main goal of the AMW, said Dr Lim Wan Tin, Associate Consultant, Department of Internal Medicine, SGH, "is to acutely diagnose patients' problems, stabilise the [condition of the] unwell, and front-load their treatment management so that their overall stay is shorter".

For now, not everyone who turns up at the A&E will be admitted to the AMW. Patients suffering from pneumonia and other infection-related problems, making up about 45 per cent of the 19,000 A&E patients seen by internists in 2012-2013, were singled out for admission during the pilot in 2015-2016.

Patients who were seen for other problems too diverse to be grouped were treated as before – stabilised and then either discharged or referred to other disease-specific wards in SGH. A large majority of SGH A&E patients are elderly, with multiple medical conditions.

The AMW care model was found to be promising in terms of reducing the length of hospital stay and freeing up more beds at the regular wards. Patients benefited from paying a smaller bill for staying fewer days in hospital.

Introducing this new model of care was not easy because it involved changing work flow and processes. Communications within the team is crucial. Besides the usual morning doctor rounds, all four teams running the AMW – including doctors, nurses, pharmacists, physical and occupational therapists, medical social workers and dietitians – meet mid-morning to discuss cases.

This discussion, unusually, is led by nurses. Most familiar with the patients' conditions, the nurses constantly monitor patients' vital signs, note improvements or deterioration, and provide valuable feedback about patients' readiness for discharge. "This discussion helps reduce over-reporting to doctors, and empower nurses, pharmacists, therapists and medical social workers to act with greater autonomy," said Dr Lim.

> **THE MAIN GOAL IS TO ACUTELY DIAGNOSE PATIENTS' PROBLEMS, STABILISE THE UNWELL, AND FRONT-LOAD THEIR TREATMENT MANAGEMENT SO THAT THEIR OVERALL STAY IS SHORTER.**
>
> DR LIM WAN TIN, ASSOCIATE CONSULTANT, DEPARTMENT OF INTERNAL MEDICINE, SGH

The nurses are encouraged to exercise their initiative and recommend appropriate action for the patients. "If a patient who has pneumonia experiences a functional decline, meaning he was able to walk before but is now not able to, the nurse might suggest having physio input," said Ms Hartini Osman, Nurse Clinician, SGH.

"Previously, we didn't have the opportunity to have this [morning] discussion in one location, so we had to wait for the allied health professional – say, physiotherapist or social worker – to come in before we could make our recommendations. With this meeting, we can do so immediately."

Front-loading or intensifying treatments from the start of admission is crucial in boosting recovery, said Dr Tharmmambal, adding that studies show patients' conditions can deteriorate if not treated quick enough.

> Continued on page 4

> *Continued from page 3*

Picking apart the tried and tested as care needs change

Another unusual feature of the care model is that it's ward-based. The key healthcare professionals are based in the AMW. Before, the internists – who specialise in a broad spectrum of diseases – had to "run around" to see patients, who were admitted to different wards located in different buildings. A patient who needed urgent care for a leg infection, someone with pneumonia and another with chest pain might be put in different wards, but they would be seen by internists first before being referred to their respective specialists, if necessary.

Having patients and the medical teams in one location is more efficient, benefiting patients. "Before, if we needed advice from the doctors, we had to call and wait for them to respond. This takes time. At the AMW, we just catch them in the corridors somewhere," said Ms Hartini. Not only does this allow the team to have a strong sense of camaraderie, doctors and other professionals alike always have a good feel of the patients' conditions, making response to any change much quicker.

Effective running of the AMW is critical, and efficiency is strengthened by standardising medical practice. Six clinical care pathways were drawn up for the few conditions that are commonly seen – pneumonia, dengue, skin and soft tissue infections, pyelonephritis or kidney infections, urinary tract infections, and gastroenteritis or diarrhoea, said Dr Lim.

The pathways set out steps on diagnosis such as recognising the signs of the disease and deciding if it's simple or complicated, the tests needed, and treatments to use. Patients found to need prolonged care because their conditions are severe or complicated will be transferred to the general wards.

An Early Ambulatory Clinic (EAC) was also set up in tandem with the AMW to facilitate discharge. Patients have up to a week after discharge to see an internist for a one-off appointment to "tie up loose ends", said Dr Tharmmambal.

The processes at the AMW are continually being fine-tuned and improved, and more conditions are added to the array the team now sees. The AMW will have more than double the number of beds from the current 67, when the new building housing the new A&E is ready. The AMW and EAC will be important integral parts of the A&E.

As with other hospital and health-care facilities, a bigger A&E is necessary as demand for health-care services is expected to increase sharply. The Ministry of Health, in its Healthcare 2020 plan, has identified population growth, a greying population and a greater burden of chronic diseases as the key drivers of health-care demand. The size of facilities isn't the only consideration. Health-care providers like SGH are also under pressure to build greater efficiency if they are to deal with the expected onslaught of patients in the coming years.

The doctors, nurses, therapists, dietitians and social workers are based in the AMW – meaning they have a greater feel of their patients' conditions and are able to respond to changes more quickly. Regular reviews at the bedside ensure that everyone is up-to-date on the state of the patient's health.

Growing bone for implants

Dental implants will enter a whole new phase if local researchers manage to grow bone in the place where a tooth is missing. By Suki Lor

THE RESEARCH PROJECT is aimed at "growing" bone in the area where a tooth was lost so that a dental implant can be inserted there.

The bone is supposed to grow into a porous three-dimensional (3D) scaffold for preserving the ridge's height and width after a tooth is extracted.

The patented scaffold was jointly developed by National Dental Centre Singapore (NDCS) and Nanyang Technology University (NTU). It looks like a small white mesh, and is made of a bioresorbable synthetic polymer, which is absorbed by the body.

It was inspired by a similar scaffold used in neurosurgery to plug burr holes drilled in the skull to release excess fluid in the brain, said Clinical Associate Professor Goh Bee Tin, Principal Investigator, Deputy Director, Research and Education, and Senior Consultant, Department of Oral & Maxillofacial Surgery, NDCS.

Prof Goh raised the possibility of using it for dental implants with the scaffold's inventor, NTU's Professor Teoh Swee Hin, Chair, School of Chemical and Biomedical Engineering. Prof Goh also provided specifications for its manufacture.

A pilot trial run with seven patients showed that the scaffold reduced vertical shrinkage of the bone surrounding an extracted tooth. A randomised controlled trial with 138 patients is now being conducted, but for this trial, a new polymer, which encourages even more bone growth, is being used.

> **WE ARE TALKING ABOUT USING THE SCAFFOLD FOR GROWING BONE FOR OTHER APPLICATIONS, SUCH AS WHOLE SEGMENTS OF THE JAW.**
>
> PROF GOH BEE TIN, PRINCIPAL INVESTIGATOR, DEPUTY DIRECTOR, RESEARCH AND EDUCATION, AND SENIOR CONSULTANT, DEPARTMENT OF ORAL & MAXILLOFACIAL SURGERY, NDCS

Prof Goh said that if the trial is successful, the scaffold could become an established procedure for preserving bone before dental implants, saving many from painful and costly bone grafts, and reducing treatment time.

PHOTOS: JUSTIN LOH

Prof Goh was inspired by the scaffold used in neurosurgery to drain cranial fluid, and worked with its inventor to create a patented version that could "grow" bone in the tooth socket so that dental implants could be done.

How it is done

She said dental implants – because of their predictable success – are now very popular with patients who want them instead of dentures. An estimated 15,000 are done each year in Singapore.

However, if extracted teeth have been missing for some time, the bone in the jaw would have shrunk from disuse, and patients would need bone grafting first.

Bone is taken most commonly from the jaw, but if this is not enough, it will be taken from the hip or leg. The bone is attached to the tooth socket with tiny screws. Healing takes around six months, and then the dental implant is inserted.

Prof Goh said a dental implant can be done immediately after a tooth is pulled out if there is sufficient bone in the jaw. But when this is not possible, the area is left for two to three months to allow the bone to heal before inserting a dental implant.

Traditionally, to reduce bone shrinkage during this healing period, the tooth socket is packed with a bone substitute, usually from cows. But being a foreign body, it is not the same as live bone, which is needed to ensure the success of the implant over time.

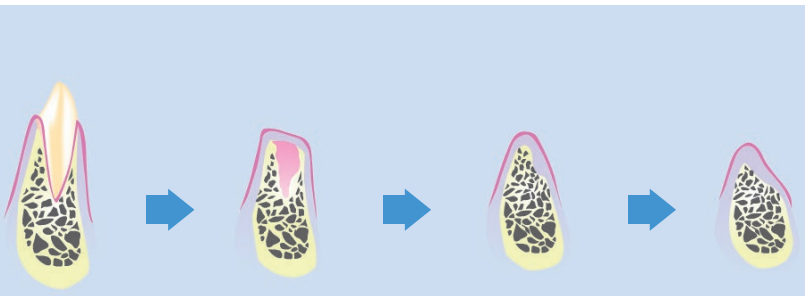
By contrast, the scaffold is porous and lets blood through, encouraging bone to grow into the structure. It is shaped with a surgical blade to fit snugly into the tooth socket. The gums are then stitched over.

Its 3D shape helps maintain the contour of the ridge. The dental implant is put in six months later, capped by a crown.

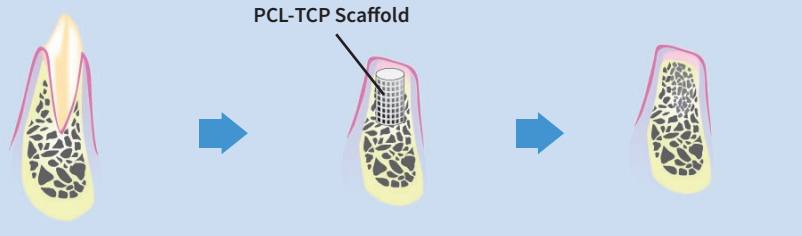
The researchers are now looking into how else to use the scaffold.

"We are talking about using it for growing bone for other applications, such as whole segments of the jaw, but that would be more challenging," said Prof Goh. This would help patients who have parts of their jaw removed due to tumours.

The 3D scaffold (the small white structure being held) is inserted into the tooth socket after the tooth has been extracted. It encourages bone to grow in that space.



When a tooth is extracted, the surrounding bone socket shrinks vertically.



The 3D scaffold fits snugly in tooth socket, encouraging bone to grow there.

Post-transplant drug regimen is a juggle

Transplant patients have to take a long list of medications, which can be a hassle and difficult to remember.

PHOTO: 123RF

AFTER A TRANSPLANT, immunosuppressants or anti-rejection drugs have to be taken religiously for life. The medicines prevent the body from attacking and rejecting the organ, which it recognises as foreign.

People whose organs fail likely suffer from other diseases as well. For instance, kidney transplant patients usually have high blood pressure and cholesterol, so they would also be taking medicine for those conditions.

Given the importance of taking medicines, a group of transplant specialists at Singapore General Hospital (SGH) undertook a study to find out how well patients abided by instructions on doing this, and if they didn't, the reasons for not doing so.

"Our study aimed to measure medication adherence among solid organ [such as the kidneys, liver and the heart] transplant recipients at SGH – for example, the extent to which patients take their medications as recommended. This involves taking the correct dose, the correct strength, and at the correct timing and number of times a day," said Ms Khoo Sher Ri, Senior Pharmacist, SGH, and the first author of the study.

> **[PATIENTS] THINK THAT THEY DO NOT HAVE TO TAKE THEIR CHRONIC CONDITION MEDICATIONS. BUT UNCONTROLLED HYPERTENSION AND DIABETES CAN AFFECT THE HEALTH OF THE KIDNEYS IN THE LONG RUN.**
>
> MS KHOO SHER RI, SENIOR PHARMACIST, SINGAPORE GENERAL HOSPITAL

The study found a 54 per cent adherence rate. This is better than the 20-51 per cent rate found in other international studies, but it still means that nearly half the survey participants weren't taking their medications as prescribed. The team recruited 206 SGH kidney (158) and liver (48) transplant patients. They were between 27 and 75 years of age, or a median age of 56 years.

No single cause could be found for the participants not taking their medicines as prescribed, but the most frequent reasons cited were forgetting, feeling hassled, and having difficulty in remembering to take their medications, Ms Khoo said.

Transplant patients can be prescribed up to 18 or an average of nine medications a day, taken at various times of the day, and in different ways. "Because of drug interactions, the patients may need to schedule them at different times of the day," said Dr Lee Puay Hoon, Senior Principal Clinical Pharmacist, SGH, and the senior author of the study.

For instance, one medicine might have to be taken on waking up at 6am, another at 7am and at 10am, and so on. Such a complex regimen can be difficult to remember, Dr Lee added.

Patients tended to be careful about taking their immunosuppressants but were less so for drugs like statins, which are taken for controlling cholesterol levels. "They think that they do not have to take their chronic condition medications. But uncontrolled hypertension and uncontrolled diabetes put stress on the kidneys, so not controlling their chronic conditions can affect the health of the kidneys in the long run," said Ms Khoo.

Following the findings, the transplant team's work procedure has been enhanced to ensure that transplant patients don't neglect their medication regimen. For instance, when they return for their regular reviews, they are asked more closely about how they are taking their medications.

The importance of taking all their prescribed medicines and following the instructions to the letter would be driven home to them at their regular reviews. If they are found to be neglecting their medication regimen, these patients will be monitored more closely.

At the same time, pharmacists also work with physicians to simplify patients' drug regimens, like prescribing single medications with a longer duration of action instead of taking two different drugs.

Medications can sometimes help reverse organ rejection, especially when detected early. But when a transplanted organ is lost, patients may not easily get another chance of a second transplant.

"Whether they get a second transplant depends on whether they are suitable for a second transplant, and whether we can find donors," said Dr Terence Kee, Senior Consultant, Department of Renal Medicine, SGH, and a member of the research team. He is also the hospital's Clinical Director, Transplant Centre, and Programme Director, Renal Transplant Programme.

"Kidney transplantation is not a cure. It's just another form of treatment. You have to take medicines for the long term just like any other disease," said Dr Kee, noting that in many cases of late organ rejections, it is because patients don't take their medications.

The joint study by (from left) Dr Terence Kee, Ms Khoo Sher Ri and Dr Lee Puay Hoon aimed to find out how well transplant patients were taking their medications as prescribed.

Charting a path through the lungs

A new technology enables difficult lung biopsies to be performed with greater success. By Annie Tan

WHEN A SUSPICIOUS nodule or lump in the lung is detected on a CT (computed tomography) scan, the next step is usually to get a small tissue sample to examine if it's cancerous or harmless.

But collecting a tissue sample deep in the lungs isn't easy. There is a risk of puncturing the air-filled organ, as well as injury to the heart, aorta and liver – critical organs that lie close by. At the same time, a nodule in the web of airways is difficult to locate, even if a scan clearly shows where it is.

A new technology makes the job easier. Much like a road navigation device such as Google Maps or GPS, the virtual bronchoscopy navigation system is able to plan a route for the doctor to take to accurately reach a lung nodule, said Dr Anantham Devanand, Senior Consultant, Department of Respiratory and Critical Care Medicine, Singapore General Hospital (SGH), and Deputy Head, Singhealth Duke-NUS Lung Centre.

"Virtual bronchoscopy navigation improves the diagnostic yield [the information provided by the biopsy to make an accurate diagnosis] by enhancing the planning that occurs before a bronchoscopic biopsy procedure, and by providing guidance during the scope. It is designed to improve diagnostic yield without changing the risks or duration of the procedure," said Dr Devanand.

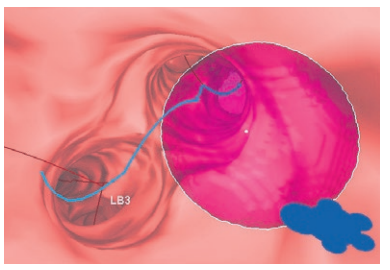
"Previously, we had to estimate where to go based on the scans. Now, we know more precisely."

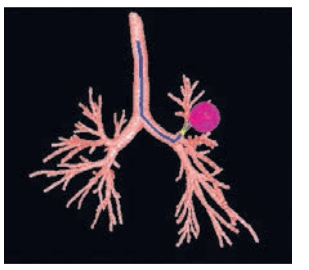
The hospital has used virtual bronchoscopy navigation under a five-year pilot for more than 180 patients undergoing bronchoscopy. The overall diagnostic yield is about 80 per cent for this group, substantially higher than the 50 per cent for such procedures as reported in medical literature. This means that the procedures were able to offer more meaningful diagnoses. In addition, no increased complications were reported.

In virtual bronchoscopy navigation, the coordinator takes a series of CT images, which are then used to map the best of any number of routes for the doctor to take. During the procedure, the coordinator, who is familiar with airway anatomy, prompts the doctor the way to go to reach the nodule.

"The bronchoscope [a thin, flexible tube] is inserted through the windpipe, then she tells me where to go next – go down, turn left, then up, and so on," said Dr Devanand, who is also Director of SGH's Bronchoscopy and Interventional Pulmonology Service.

PHOTOS: ALVINN LIM





Much like a road navigation device, the virtual bronchoscopy navigation system plans a route to accurately reach a lung nodule. The coordinator (right) creates a virtual pathway from CT images, and during a bronchoscopic procedure, she follows the map on the screen (images on the right) and prompts Dr Anantham Devanand the way to go to reach the nodule.

> **PREVIOUSLY [DURING A BRONCHOSCOPIC BIOPSY PROCEDURE], WE HAD TO ESTIMATE WHERE TO GO BASED ON THE SCANS. NOW, WE KNOW MORE PRECISELY.**
>
> DR ANANTHAM DEVANAND, SENIOR CONSULTANT, DEPARTMENT OF RESPIRATORY AND CRITICAL CARE MEDICINE, SGH, AND DEPUTY HEAD, SINGHEALTH DUKE-NUS LUNG CENTRE

After reaching the target, an endobronchial ultrasound or EBUS probe can be inserted via the bronchoscope to confirm that the location is correct. "The EBUS has a small rotating ultrasound probe that helps doctors look beyond the walls of the airways to see that we are indeed adjacent to the nodule. There is data to show that the combination of technologies [virtual bronchoscopy navigation and EBUS] improves diagnostic yield further," said Dr Devanand.

As virtual bronchoscopy navigation does not require incisions, only sedation, local anaesthesia and medication to suppress coughing are required. The outpatient procedure is usually completed within 20 to 30 minutes.

Conventional bronchoscopic biopsy is among the safest and least invasive options for patients found to have nodules in their lungs, albeit having a relatively low success rate of positive diagnosis. CT scan-guided needle biopsy, which involves inserting a small needle into the chest, is more accurate but requires hospital admission and can have a higher risk of complications.

Another option is thoracic surgery, where a small part of the lungs is removed – a far more invasive option – for diagnosis. If the nodule is very small, the patient can choose to do nothing but to have it monitored regularly for changes. But repeated scans risk radiation exposure, and if the nodule is indeed cancerous, the disease will advance, and some form of biopsy will still be needed later.

Nodules can suggest not just cancer but tuberculosis or scar tissue. Should nodules be diagnosed as malignant, early diagnosis and treatment have the best chance of success. "But we were frustrated with the imperfect options [for biopsy] available to our patients," he said.

SGH's bronchoscopy centre, the busiest in Singapore, has considerable experience in implementing new technologies. "Having a highly trained endoscopy team meant that we had the foundation to try novel approaches to patient care," said Dr Devanand, who together with Dr Adrian Chan Kwok Wai, another Consultant from his department, applied for a Ministry of Health grant to acquire and test out the virtual bronchoscopy navigation system.

Being the first in Southeast Asia to acquire the technology, Singhealth Lung Centre doctors have lectured specialists in countries such as Taiwan and Indonesia on it. They have also run bronchoscopy workshops for specialists from Australia, New Zealand, the Philippines, Myanmar, Malaysia, India and Macau.

New diabetes drugs cut heart failure risk

An exciting new class of medicine for people with type 2 diabetes, which cuts their risk of heart failure and death, is now available in Singapore. By Suki Lor

NEW USERS of these drugs can see a reduction in hospitalisation for heart failure and death from any cause, compared to other glucose-lowering drugs for type 2 diabetes.

This was the discovery of a large international study from 2012 to 2016, published in early 2017.

Researchers looked at data from more than 300,000 patients with type 2 diabetes, from the United States and five European countries, most of whom did not have established cardiovascular disease. They were followed up for around a year.

It was found that the drugs reduced rates of hospitalisation for heart failure by 39 per cent, and death from any cause by 51 per cent, compared to other types of oral medication for diabetes.

The drugs studied were sodium-glucose transporter 2 (SGLT2) inhibitors, which remove glucose via the kidneys. They comprise dapagliflozin, canagliflozin and empagliflozin, which have all been approved for managing type 2 diabetes in Singapore since 2014.

Associate Prof Tan Ru San, Senior Consultant, Department of Cardiology, National Heart Centre Singapore (NHCS), described the results as exciting, and said such a positive outcome is greatly relevant to Singapore, where there is now a war on diabetes.

"Diabetes and heart failure are intricately linked," said Prof Tan, who is also Adjunct Associate Professor of Duke-NUS Medical School.

He said diabetes – a condition where there is high blood sugar level – causes complex changes in the body through inflammation and stress. This can lead to diseases of the blood vessels, an increased risk of blood clotting, scarring and cell death. If heart structure and function are adversely affected, it can cause heart failure.

"These drugs have a unique mechanism of action that removes excess sugar in the urine from the body of diabetic patients. They are a significant advancement for safe oral treatment of diabetes and are even beneficial for reducing the risks of cardiovascular events and heart failure in patients with type 2 diabetes."

Backed by the study results, Prof Tan said he would confidently use them on patients with poorly controlled type 2 diabetes, and tell them they may also see a reduction in their risk of heart failure.

Prescription and subsidies

Since May 3, 2017, the Agency for Care Effectiveness has recommended dapagliflozin be included in the Medication Assistance Fund (MAF). This means that type 2 diabetes patients – whose diabetic control remain poor despite the use of standard medication, or for whom standard medication cannot be safely used, and who are eligible for MAF assistance – can now have access to and receive government support for dapagliflozin to help control their condition.

Patients on dapagliflozin are prescribed one tablet a day, with polyclinics and restructured hospitals pricing it at $1.36 per 10mg tablet. With the MAF subsidy, the price can be reduced by 50 per cent or 75 per cent.

"Although the drugs [SGLT2 inhibitors] are not approved for heart failure treatment per se, I hope that the increased access to them can help patients with diabetes, especially those with complications of heart failure," he said.

The standard drug prescribed as the first choice is metformin, said Prof Tan. "If the control is not good, we can immediately begin combination therapy. In cases where metformin or the usual drug combinations do not work, a drug like an SGLT2 inhibitor would be a very reasonable choice."

An SGLT2 inhibitor may also be prescribed when a patient is unable to tolerate side effects of the other more traditional type 2 diabetes drugs. These can only be prescribed for patients with reasonable kidney function. And as these drugs increase urinary sugar excretion, they can raise the risk of urinary tract or genital tract infections.

As users lose sugar and fluids, some patients who are new users of SGLT2 inhibitors may have low blood pressure and feel a bit faint, so it takes a period of acclimatisation, Prof Tan said. On the other hand, the sugar loss can prevent weight gain or may even help people lose weight.

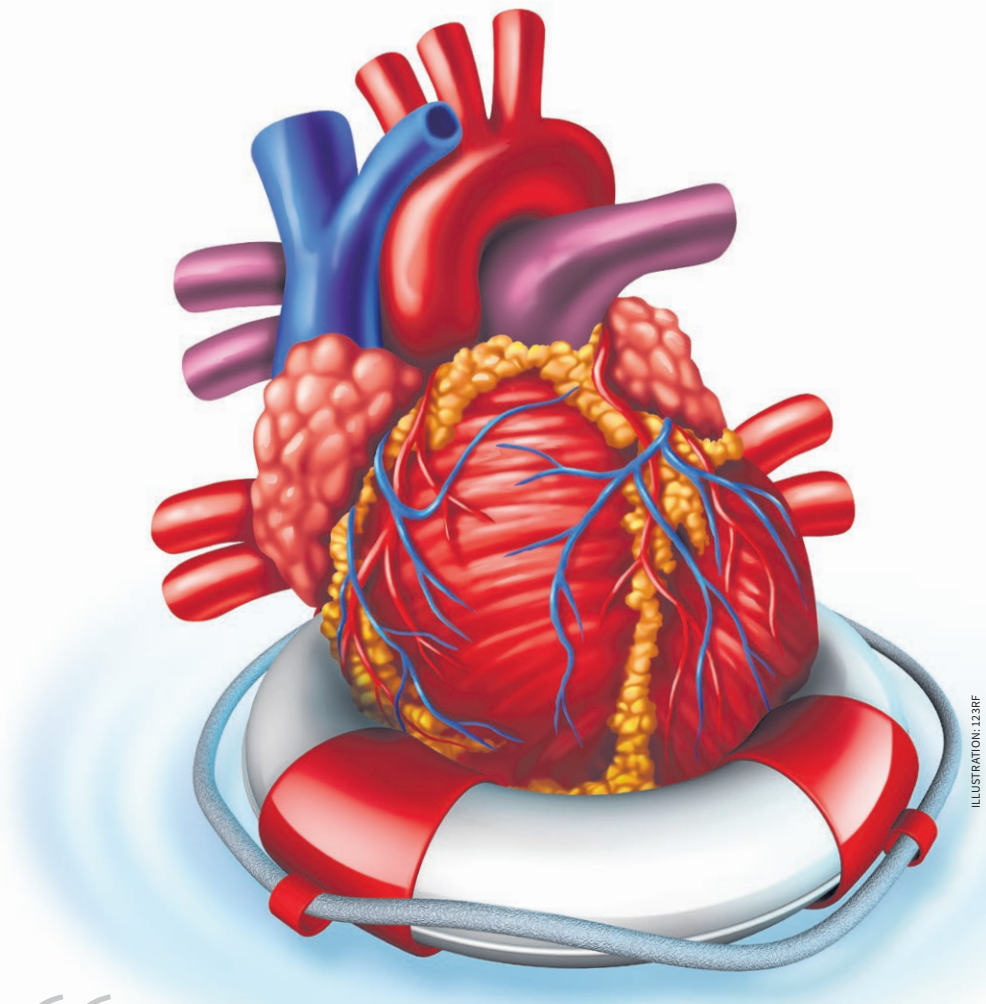


ILLUSTRATION: 123RF

> **THESE DRUGS ARE A SIGNIFICANT ADVANCEMENT FOR SAFE ORAL TREATMENT OF DIABETES, AND ARE EVEN BENEFICIAL FOR REDUCING THE RISKS OF CARDIOVASCULAR EVENTS AND HEART FAILURE IN PATIENTS WITH TYPE 2 DIABETES.**
>
> ASSOCIATE PROF TAN RU SAN, SENIOR CONSULTANT, DEPARTMENT OF CARDIOLOGY, NATIONAL HEART CENTRE SINGAPORE

Diabetes and heart failure in Singapore

The rate of diabetes in Southeast Asia, including Singapore, is more alarming than in the West, due to factors such as a carbohydrate-rich diet, a sedentary lifestyle and smoking, said Prof Tan Ru San.

Asian patients also suffer more complications from it. "They develop heart failure earlier, and our patients do not do as well, for various reasons."

Unlike in the West, where the incidence of heart attacks is coming down, it is still rising in Singapore, he said. "We have not managed to control all the risk factors effectively."

Between 2008 and 2015, NHCS admitted about 500 diabetic persons for heart failure annually, with around 2 per cent of them dying during their hospital stay.

Meanwhile, the incidence of diabetes in Singapore itself is set to rise. Based on estimates by the Saw Swee Hock School of Public Health, numbers could reach 670,000 by 2030 and nearly one million by 2050.

Globally, it can grow from more than 400 million adults worldwide now to more than 600 million by 2040.

The discovery of glucose-lowering drugs that can greatly reduce the risk of heart failure and death from other causes for diabetics is very relevant to Singapore, said Assoc Prof Tan Ru San.

A little knowledge is a useful thing

A study shows that young females who don't get the vaccination against cervical cancer just don't know enough about it. By Peter Yeo

A STUDY BY SingHealth Polyclinics (SHP) has revealed the need for more education on how vaccination can prevent cervical cancer – one of the most preventable cancers in the world.

The study involved getting before and after responses of 150 teenage female students, from a top junior college in Singapore, on whether they would get the vaccination.

The girls were first given a baseline questionnaire on cervical cancer to fill up. They were then engaged through an interactive educational session on the human papillomavirus (HPV), which most often causes cervical cancer. After that, they were given another similar questionnaire to fill up.

According to Dr Sarah Lim Woon Ching, Family Physician, SHP, who led the study, the results were significant.

Before the educational session, which includes a presentation on an electronic tablet, about one third were willing to be vaccinated, more than half were uncertain, and a small number rejected the vaccination outright.

After the session, more than half were willing to be vaccinated, nearly half remained uncertain, and an even lesser number rejected the vaccination.

PHOTOS: 123RF & PETER YEO

The study showed that young girls do not know where to get facts on HPV and cervical cancer, and those they got from friends and family were inaccurate.

Not enough information

Dr Lim noticed that the girls' awareness of HPV and cervical cancer also almost doubled after the interactive educational session.

She said the study showed that the girls did not know where to go to get informed about HPV and cervical cancer. They also did not get their information from media resources such as newspapers or the radio.

"It is worrying to note that most of the girls had neither information nor knew where to turn to for answers. Their most common source of information came from family and friends. And judging by responses to the baseline questionnaire, they were not very accurate," said Dr Lim.

The survey was done to understand the low take-up rate of the HPV vaccine, which has dropped in the last three years. This has been attributed to a lack of education and awareness.

Dr Lim acknowledged two other factors which may play a part in deterring girls from getting the vaccine – the stigma attached to HPV as well as needle phobia. "Even though some parents are willing, the girls would turn it down due to their fear of needles," she said.

She emphasised the need for the media to publicise information on cervical cancer screening and prevention. Although young people largely rely on news from social media, information can be disseminated through the older generation, who still read newspapers.

Two vaccines available

There are currently two HPV vaccines available – Cervarix and Gardasil – which can prevent about 70 per cent of all cervical cancers.

The vaccines cover two HPV subtypes. Gardasil covers an additional two subtypes, which cause about 90 per cent of genital warts.

Dr Lim said patients as young as nine years old may opt for the vaccination. They are effective for females between age nine and 26, and may be dispensed over two or three doses depending on the age of the patient.

She said women are encouraged to get their shots before they become sexually active. The HPV virus is most commonly spread through sexual intercourse, putting sexually active woman at risk.

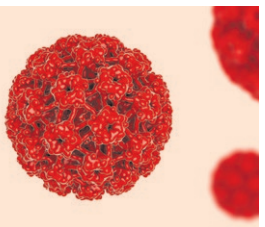
"They can still get the vaccine even if they're sexually active because there are many types of HPV. They still need to be protected against all the different strains," said Dr Lim.

Dr Tan Ngiap Chuan, Director, Research, SHP, and Academic Vice Chair of Research, Family Medicine Academic Clinical Programme, said: "Cervical cancers could be totally eradicated if every girl gets vaccinated."

But, he added, because there are many strains of cervical cancer and the vaccine only gives 70 per cent coverage, regular pap smears are also recommended once every three years.

The media should publicise information on cervical cancer screening and prevention, said Dr Sarah Lim Woon Ching, Family Physician, SHP.

What is the human papillomavirus?



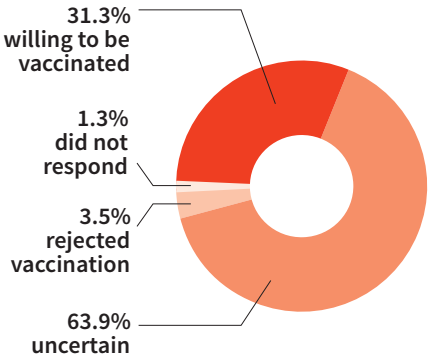
According to the World Health Organization, the human papillomavirus (HPV) is a virus that causes cervical cancer.

The National Immunization Program, Centers for Disease Control and Prevention in the United States says an estimated eight out of 10 women will get the common virus in their lifetime.

HPV manifests in myriad subtypes, which could lead to cervical cancer, vulva cancer, anal cancer and genital warts. It is easily prevented and cured if proper caution is taken.

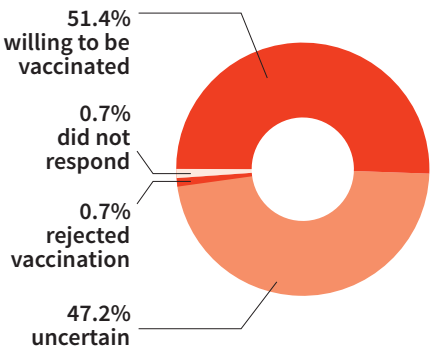
It is recommended that women over 25 years old also get regular pap smears – at least once every three years – to detect any signs of cervical cancer.

Before the survey



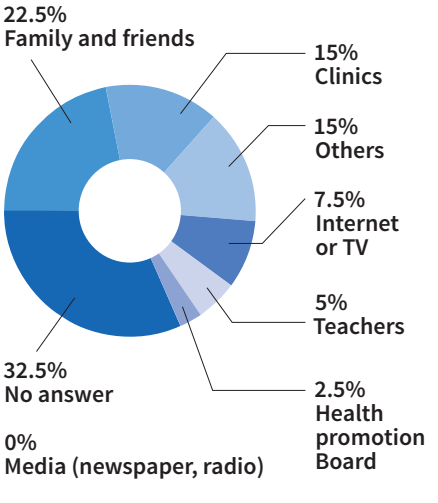
Knowledge of HPV/cervical cancer: Average score of 4.95 out of a total of 10

After the survey



Knowledge of HPV/cervical cancer: Average score of 8.61 out of a total of 10

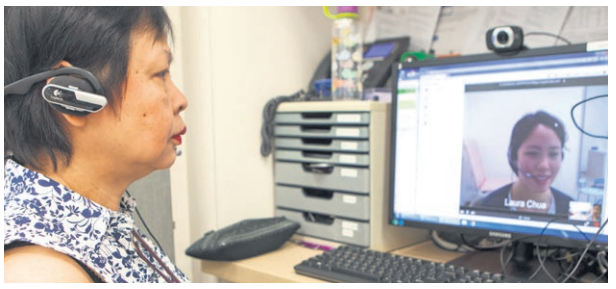
Where they got their information on HPV vaccinations



Speech therapy on the go

New national video consulting platform lets patients undergo therapy at home, school or work. By Linda Lim

PHOTOS: ALVINN LIM



Ms Laura Chua (left) and a colleague (above) demonstrate how speech therapy is conducted remotely. Patients can have their consultations anywhere, as long as they have a mobile device with Internet connectivity.

How it works

An initial assessment in the clinic is made to find out the patient's condition and suitability in undergoing speech therapy remotely. Factors considered include the patient's hearing, vision, manual dexterity, and risk based on existing medical conditions and the nature of interaction required.

If the patient is found to be suitable, subsequent therapy sessions are done via videoconference.

Once an appointment with the therapist is scheduled, the patient will receive a unique invitation link. This link allows the patient to log in 15 minutes before the appointment. It expires at the end of the day.

Both parties can log onto the video call from any kind of computer – including tablets and smart phones – with an Internet connection.

An identity check is conducted before consultation begins.

FOLLOWING THE INTRODUCTION of a national video consulting platform, some Singapore General Hospital (SGH) patients no longer need to undergo speech therapy at the hospital.

Instead, they can have their treatment at home, office, school or anywhere else – as long as they have an Internet connection and a computer or other smart personal device to consult their speech therapist remotely.

The roll-out of the platform by the Ministry of Health's Integrated Health Information Systems in May 2017 widens the use of telemedicine. At SGH, the service has been extended initially to speech therapy patients only.

According to Ms Laura Chua, Senior Speech Therapist, SGH, feedback from patients who subscribed to the service was generally positive on the benefits of video consultation or telemedicine.

"Patients might have had to take a half-day off to come for therapy before – travelling to SGH and then waiting their turn to see the therapist," said Ms Chua.

"With telemedicine, all they need is a mobile device with Internet connectivity. So they don't need to leave school or work to attend therapy." Besides saving time – an average of 1½ hours – patients also save on travelling expenses.

It's not just the patients who benefit. "When the patient is a child, we have to spend time and resources preparing toys and other materials, and to set up the therapy room. After the session, we have to clean the room, and sterilise the items and toys that the child had used. When we see them remotely, we don't have to do all that," she said.

The Speech Therapy Department had used video consultation years back for foreign patients who needed therapy but couldn't stay in Singapore for an extended period. Using a commercially available platform helped bridge the geographical distance for these patients, but some concerns were raised over online security and privacy.

There is little difference between administering therapy across a screen and in person. "The nature of interaction between the therapist and the patient is very visual and verbal, so [speech therapy] is well suited for telehealth," said Ms Chua.

Therapy via videoconference can put some patients at greater ease. "Sometimes exercises may seem a bit silly, so the patient feels shy or self-conscious doing it. Having the therapist sit across from them may cause a bit of performance anxiety also. This kind of screen setting makes them feel a little more comfortable, a little less self-conscious when doing these exercises," she said.

> **PATIENTS MIGHT HAVE HAD TO TAKE A HALF-DAY OFF TO COME FOR THERAPY BEFORE. WITH TELEMEDICINE, ALL THEY NEED IS A MOBILE DEVICE WITH INTERNET CONNECTIVITY.**
>
> MS LAURA CHUA, SENIOR SPEECH THERAPIST, SINGAPORE GENERAL HOSPITAL

When therapy involves touch, however, the usefulness of telemedicine becomes more limited. For instance, Ms Chua puts her hands on a patient's neck to feel the movement of the swallowing muscle during eating or drinking when assessing swallowing problems. "That's not something we can do through a screen," said Ms Chua. In those cases, telemedicine may not be possible, so the patient will have to undergo therapy at the clinic.

In most cases, however, she is able to adapt and make small adjustments. "If I need to use materials in my session, I will ask the patient to prepare them at their end," she said, adding that most materials are simple and common everyday articles like a drinking straw, a cup of water, reading passages or a piece of tissue.

With telemedicine, she has to probe the patient more closely to understand his condition. She also needs to be more creative in giving instructions.

For instance, when teaching the patient how much strength to use in a massage in the clinic, she demonstrates by getting him to press on her palm. But in a video session, she describes the intensity and asks, for instance, on a scale of 0 to 5, 0 being light as a feather and 5 being pressing until you feel pain, how much force is being used, she said.

Despite the limitations, Ms Chua sees great benefit in telemedicine. "It makes healthcare more accessible and convenient. It makes it easier for patients to stick to their appointments, and commit to following up and attending their therapy appointments," she said.

Patients are more reluctant to disrupt school or work to attend therapy, as it is seen as an activity that is less urgent or important than, say, a doctor's appointment. Sticking to the schedule for therapy helps patients improve faster.

Making sure CPR is done right

Pocket-size card tells those giving chest compressions if this is done correctly. By Corinne Kerk

PEOPLE WHO SUFFER a cardiac arrest need immediate cardiopulmonary resuscitation (CPR), yet bystanders often lack the confidence to perform this life-saving act.

Help is now available: The CPRcard is a light and simple device similar in size to a credit card. It tells the responder immediately if the chest compressions he is giving are deep and fast enough to keep the victim's blood flowing. A green light shows on the CPRcard if the compressions are done correctly.

"In using the CPRcard, an ordinary bystander at the scene of a cardiac arrest will have more confidence in administering CPR," said Associate Professor Marcus Ong, Senior Consultant, Department of Emergency Medicine, Singapore General Hospital.

"By providing responders with real-time feedback to guide them in performing high-quality chest compressions, we can help save a patient's life even before they reach the hospital. This will redefine the way CPR is taught and practised," added Prof Ong, who is also Medical Director, Unit for Pre-Hospital Emergency Care (UPEC), Ministry of Health.

Since 2014, more than 26,000 people have been trained at community clubs and grassroots events to assist in cardiac emergencies.

When someone suffers a cardiac arrest, the first four minutes are crucial to the victim's survival. After calling for an ambulance, CPR should be performed immediately to ensure there is continuous blood flow to the brain and heart before paramedics arrive. However, bystanders often hesitate to perform CPR, with the current bystander CPR rate in Singapore at 40 per cent, compared to up to 80 per cent in some other countries.

It is hoped that the CPRcard, developed by UPEC and Norwegian medical equipment maker Laerdal Medical, will improve the bystander CPR rate.

The card will be given to people who sign up for Dispatcher Assisted First Responder (or DARE) trainings conducted by UPEC. These people will also be enrolled in a community trial to evaluate if the device leads to greater confidence in people performing CPR, if they are performing good-quality CPR, and the number of lives saved using the CPRcard. The project aims to give out 15,000 CPRcards by August 2018.

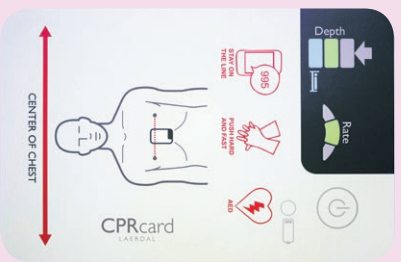
To find out or participate in the Community First Responder Programme, contact your Community Club or email pa_iknowmyneighbours@pa.gov.sg.

PHOTOS: ROGER CHUA

Associate Professor Marcus Ong (left) looks on as Mr Gan Kim Yong (right), Minister for Health, performs CPR with a CPRcard on a mannequin at a UPEC-People's Association community event last year.

Teenager Muhammad Luqman Abdul Rahman (above) is a real-life hero, having responded to many emergencies by performing CPR, more recently with the CPRcard.

How the CPRcard works



Developed and patented by Norway's Laerdal Medical, in collaboration with UPEC, the CPRcard is intended for one-time use on anyone past the age of eight years suffering a cardiac arrest.

The CPRcard fits easily into a wallet, purse or pocket, making it portable.

Previous devices to gauge the quality of chest compressions were less user-friendly, coming in the form of an accessory to advanced Automated External Defibrillators, clunky equipment and phone apps.

To perform CPR with the aid of the card, the responder places it on the victim's chest using visual aids on the card, before putting his hands over the card to deliver compressions.

The card has two measuring meters. The first measures the depth of compressions, and will display a green light if the adequate depth of 4cm to 6cm is achieved.

The other meter tracks the rate of compression, and will also produce a green light if the desirable rate of 100 to 120 compressions a minute is reached.

The responder's goal is to sustain two green meter lights while performing CPR, until help arrives.

The responder is to pass his CPRcards to paramedics after using it on a victim. The card will be returned to UPEC for research purposes, and the responder will receive a new card.

The young and the brave

Dealt a blow in the prime of life, they reeled but did not capitulate. These three are among those picked for the Singapore Health Inspirational Patient Awards, which honour the bravery and resilience of patients in the face of adversity.

By Veronica Koh

A mother fighting an aggressive form of blood and bone marrow cancer

In 2015, Ms Selene Tan had a fever that did not subside for a few days. She thought it was dengue, but it turned out to be myeloid leukaemia.

"The prognosis was devastating, but I simply couldn't afford to dwell on it because my son needed me. I was prepared to do whatever it took to fight the cancer," she said. Her son, Tian En, was only four then.

She went through two rounds of chemotherapy, which left her with terrible side effects. She also had a stem cell transplant with bone marrow from her younger sister. Unfortunately, Ms Tan's body reacted badly to the transplant and severe infections kept her in hospital for three months.

Despite the difficulties, Ms Tan, now 37, remains thankful. "Being able to see my son grow up keeps me going. I treasure all the time I have with him."

> I SIMPLY COULDN'T AFFORD TO DWELL ON IT BECAUSE MY SON NEEDED ME. I WAS PREPARED TO DO WHATEVER IT TOOK TO FIGHT THE CANCER.
>
> MS SELENE TAN

Paralysed in a motorcycle accident at 19

A motorcycle accident in 2005 turned Mr Victor Hoon's whole life upside down. He only remembers being thrown off his vehicle while riding one night. When he awoke in hospital, he was told that he would never walk again.

His mother quit her job to look after him, and his father worked doubly hard to make ends meet. But after some time, the strain was too much. "Taking care of me was challenging. That was when I asked to go to a community hospital, so it'd be less draining for my mother and easier on my family's finances, because my stay would be subsidised," he said.

At the community hospital, Mr Hoon was able to overcome the emotional and psychological trauma caused by his condition, and constantly encouraged himself "not to look back". He began to focus on regaining movement in his arms.

Today, after years of therapy and hand surgery, Mr Hoon, 31, is able to sit up, feed himself and move around in a motorised wheelchair. He has even taken up mouth painting, and recently sold two of his works at an exhibition!

"It's great to know that someone appreciates my artwork. I'm now on a scholarship with the Association of Mouth and Foot Painting Artists of the World. I hope to improve my craft and inspire others with my work."

> IT'S GREAT TO KNOW THAT SOMEONE APPRECIATES MY ARTWORK. I HOPE TO IMPROVE MY CRAFT AND INSPIRE OTHERS WITH MY WORK.
>
> MR VICTOR HOON

A hereditary retinal disease robbed her of her sight at a young age

Ms Stephanie Ow's world is shrouded in darkness, having been born with retinitis pigmentosa, a degenerative retinal disease. However, the cheerful 21-year-old is always surrounded by music – classical Chinese music, which she plays on the erhu.

In secondary school, she wanted to learn a musical instrument but her adoptive father could not afford piano or violin lessons. Instead, he found someone to teach her the erhu.

Initially, she was not keen. She found the erhu squeaky when played badly. But she persevered and was soon able to control the pressure and angles of the bow. Within two to three months, she could play simple pieces.

Ms Ow has come a long way since then. She was invited to perform with the Singapore Chinese Orchestra (SCO), and was also the first recipient of the Deutsche Bank-SCO Music Scholarship. Now a student at Nanyang Academy of Fine Arts, School of Music, she hopes to be a performer and music teacher.

Looking back at the challenges of her deteriorating vision while growing up, and the pain of being given up for adoption at the age of five, she said: "When I was younger, I wished I could see because I thought that would solve all my problems. But now I realise that sighted people face difficulties too. I am now just happy to be myself."

> NOW I REALISE THAT SIGHTED PEOPLE FACE DIFFICULTIES TOO. I AM NOW JUST HAPPY TO BE MYSELF.
>
> MS STEPHANIE OW

Extracted from the booklet on the Singapore Health Inspirational Patient Awards 2017. For full accounts from these three patients and others, go to https://goo.gl/m3fvwR

Flouting the law can be dangerous

Strict laws aside, a sizeable number of Singaporeans still don't belt up. A new study addresses the road safety issue from a behavioural standpoint. By Linda Lim

OLDER PEOPLE DO IT, but women don't. Belt up, that is.

According to a Singapore General Hospital (SGH)-led study, women (26 per cent of women studied versus 14 percent of men studied) were more likely not to use a seat belt, as were rear-seat vehicle passengers (56 per cent of rear-seat passengers polled).

But older people, drivers, men and some non-residents were among those who scored highly in the study, *Buckling up in Singapore: Residency and other risk factors for seatbelt non-compliance – a cross-sectional study based on trauma registry data.*

Although the law requiring back-seat passengers to use a seat belt has been in place since 1993 – drivers and front-seat passengers have had to belt up since 1973 – the message doesn't seem to have filtered down to the people who sit at the back, said Dr Wong Ting Hway, Consultant, Department of General Surgery, SGH.

"Back-seat passengers seem to be underestimating the importance of putting on a seat belt," said Dr Wong, adding that the study also found patients with only minor injuries were more likely to have worn a seat belt, while one in five people who sustained severe injuries such as a serious head wound in a traffic accident were not wearing one.

The majority of such casualties were back-seat passengers, and accidents that occurred during the morning rush hour also affected more patients who were un-belted, the study found.

Dr Wong used emergency department admissions data from Changi General Hospital, National University Hospital, Khoo Teck Puat Hospital, Tan Tock Seng Hospital, SGH and the Singapore National Trauma Registry. Some 4,576 patients involved in road collisions between 2011 and 2014 were included in the study.

Overall, 82 per cent of the patients had used a seat belt, a little higher than elsewhere, said Dr Wong. "While overall seat-belt compliance in our study is high, efforts can be made to increase compliance for morning rush hour passengers, rear-seat passengers, and occupants of buses, heavy transport vehicles and vans or pickups," she said.

Although the numbers were not big, she noted that occupants of heavy vehicles, pickups and vans seemed not to belt up, when compared with those of cabs and private vehicles. Compared to car drivers, those of buses were 17 times more likely not to use a seat belt. Drivers of heavy transport vehicles were 1.9 times, and those of vans or pickups 1.7 times.

Driver behaviour is known to affect compliance of the rest of the vehicle occupants, the study said, adding that as professional drivers (of both large and mini buses) who spend a lot of time on the road, they should be a target for seat-belt compliance. Similar efforts should be made for those of heavy-goods vehicles and vans or pickups as they comprised more than 10 per cent of the study population.

Another interesting finding emerged when drivers were analysed: 91 per cent of the 2,853 drivers wore a seat belt, with non-resident ones from Malaysia (97 per cent), India (96 per cent) and China (100 per cent) complying with the law on seat belts more highly than residents (92 per cent).

Some of the severe injuries studied included bleeding from pelvic fractures; major head injuries, which could potentially lead to death or leave the patient vegetative; and breast bone fracture, which could lead to cardiac contusion and heart problems.

Wearing a seat belt can help reduce the intensity of injury in accidents. It limits the impact sustained in a collision, helps stop the driver or front-seat passenger from being flung out of the car, and rear-seat passengers from falling off their seats and getting trapped between seats of the vehicle.

PHOTO: LINDA LIM / ILLUSTRATIONS: 123RF

Seat-belt compliance among vehicle occupants here is better than elsewhere, the study found. But Dr Wong Ting Hway (above) says efforts can still be made to get more people to belt up during morning peak periods.

Belt up – or face the penalty

1973
Seatbelt legislation for drivers and front-seat passengers was passed.

1993
Seatbelt legislation for rear-seat passengers was passed.

2009
It became mandatory for all rear seats in private buses, mini buses and vans to be fitted with seatbelts.

$120
fine for adult passengers who do not wear seat belts.

6 months
imprisonment, or a penalty of up to $2,000 for second or subsequent offence.

BEST LETTER

Air quality

I would like to request for improved ventilation in the underground pass leading to the heart centre. I find it rather stale, especially on a hot day.

Also, I enjoy reading your publication *Singapore Health*. I usually collect a copy during my heart centre visits. Are there other channels through which I can receive each issue? Keep up your good work.

Mdm Wong

The ventilation in the underpass linking Singapore General Hospital campus and National Heart Centre Singapore is facilitated by a mechanical fan system, which helps to circulate the air in the absence of air-conditioning.

Routine maintenance checks are carried out to ensure that the mechanical fan is in working condition at all times, and the mechanical fan specifications we use is based on industrial practice.

We have noted your feedback and will take the necessary steps, such as increasing the fan speed during hot weather to improve the air circulation. Hopefully, this will provide better ventilation for users when they use the underpass.

Mr Victor Ang
Assistant Director
Operations (Support Services)
National Heart Centre Singapore

(Note: Singapore Health is available at some MRT stations, polyclinics and health centres. You can also subscribe to it at https://www.sgh.com.sg/about-us/newsroom/singapore-health/pages/singaporehealth-2017.aspx)

Are self payment kiosks for everyone?

While there are always long queues at polyclinic payment counters, I notice that there are self-service payment kiosks around. I usually give them a miss because I don't know how to use them. Also, I am told that you can't use them if you are opting to pay using Medisave. Are these kiosks meant for everyone, and how do seniors who are not tech-savvy, use them easily?

SHP SAYS The self-service kiosks, which are conveniently located in all our polyclinics, have three main functions: patients can register, make payment and book an appointment.

With the kiosks, you can skip the queue and reduce waiting time at the counters to pay and make an appointment for your next visit. You may approach our staff if you need help using them.

NETS and Cashcard are accepted at the kiosks. Currently, the kiosks accept payment by Medisave only for patients who have used Medisave for their previous visits. If you are using Medisave to pay your bills at the kiosk for the first time, please approach our staff at the payment counter to activate the Medisave deduction.

We will continue to enhance our kiosks with more user-friendly features to make it more convenient for patients. For more modes of cashless payments, you can sign up for GIRO payment or pay online via e-Pay at https://epay.singhealth.com.sg/

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Walking the talk

Food and nutrition is not just a job for Ms Christine Ong, but a way of life. By Annie Tan

UP AT 5AM, BUT NOT DUE at work till 8.30am, and she is already in the kitchen cutting vegetables, boiling soup, preparing dinner and lunch.

Ms Christine Ong, Senior Principal Dietitian, KK Women's and Children's Hospital (KKH), prepares meals at home four days a week. And because her workday is long, there's only time for preparation before the sun is up.

Dinner for herself and her husband usually includes a soup. "I'm interested in TCM [traditional Chinese medicine], and these soups are chock-full of superfoods," she said. Some of her favourites are anti-cancer soups with pumpkin, chicken and scallops, and bone-friendly recipes such as walnut, carrot and pork ribs soup.

Before heading off to work, she ensures she has a hearty breakfast, because it's "the most important meal" of the day. Hers usually includes two slices of wholemeal bread with peanut butter, a slice of cheese, oats with milk, and coffee. Lunch is also a home-packed meal of rice, soup and vegetables.

"It's hard to eat healthily when you eat out, when even the vegetables are oily or overcooked. But when I do eat out, I just avoid fatty foods, although, except for sugary drinks, most foods do have some nutritional value," she said.

Her advice to people confused about the slew of nutritional information everywhere, including online, is to take it with a pinch of salt.

"Much of this information is based on what is trending. You should look at specific studies and consider the information holistically, not just for specific conditions. Don't be too extreme. Eat in moderation," she said.

PHOTO: JUSTIN LOH

Ms Christine Ong's advice to people confused by the slew of nutritional information out there is to "take it with a pinch of salt".

She walks the talk, even with treats. But as an avid baker, she transforms decadent delights into healthy treats, which her 86-year-old father, who has impaired glucose tolerance, enjoys. Her signature items include golf ball pineapple tarts with wolfberries, walnuts and red dates, and bak kwa (barbecued pork or chicken) made with lean meat and chia seeds.

> "WHEN PATIENTS COME BACK AND I CAN SEE IMPROVEMENT IN THEIR MEDICAL CONDITION, IT GIVES ME GREAT SATISFACTION. I'M HAPPY TO HAVE HAD AN IMPACT ON SOMEONE'S LIFE."
>
> MS CHRISTINE ONG, SENIOR PRINCIPAL DIETITIAN, KKH

To share her expertise, she and her team worked with a food blogger to produce the cookbook *Good Eats For Mums-to-be: 35 Dietitian-approved Recipes,* which was published by KKH in 2013.

Finding her calling

Ms Ong left her food biotechnology laboratory job in 1995 to pursue a Masters in Nutrition and Dietetics and work at KKH, where she has been for the past 20 years. Last year, she received the 2017 National Day Commendation Medal for her contribution to healthcare.

She served as head of department for 13 years. But after specialising in inborn errors of metabolism and ketogenic diets for epilepsy, she chose to step down and pursue the clinical specialist career route because she wanted to work more closely with patients.

"Without proper care, these patients may suffer from brain damage and be unable to care for themselves. They might even need tube-feeding. But with proper nutrition care, many may be able to attend normal schools and lead fulfilling lives," she said.

Work is never routine for her. She personally tests all diets she recommends to understand her patients' struggles, and finds every patient different.

"Even simple cases are not that straightforward. You need to delve into their lifestyle and family habits to advise and tailor diets. You can't simply hand them a brochure and say, 'Here, follow this.'"

Her day is usually spent helping children with nutritional problems at the children's feeding clinic; advising patients on follow-up care at multidisciplinary metabolic or ketogenic diet clinics; managing patients with weight problems, gestational diabetes or cancer; co-developing hospital menus for patients; or giving advice on healthier food choices for staff and visitors.

"This may involve recommending a special therapeutic diet or a supplement if they were lacking in a particular nutrient, to prevent problems such as a bone fracture due to low vitamin D or calcium."

She said her work is rewarding and the learning, continuous. "Here, we're exposed to lots of information in the field about what's happening now."

She is thrilled when parents update her on their child's progress over the years. "When patients come back and I can see improvement in their medical condition, it gives me great satisfaction. I'm happy to have made a difference and had an impact on someone's life."

A path less taken

Geriatric oncology – treating cancer in the elderly – is not a path young doctors readily choose, but Dr Ravindran Kanesvaran is trying to change that. By Eveline Gan

HE INITIALLY CONSIDERED gastroenterology (treating digestive tract diseases) as a specialty, but around that time something happened that caused him to change his mind.

His mother was diagnosed with Stage 3 breast cancer. "So I chose oncology," said Dr Ravindran Kanesvaran (or Dr Ravi, as patients and colleagues call him), Consultant, Division of Medical Oncology, National Cancer Centre Singapore (NCCS).

It allowed him to learn more about the cancer as she fought it.

"When she was undergoing treatment, I realised that cancer was killing a lot of people, and we were very far away from a cure, especially in the late stages."

The treatment for his mother initially worked, and she remained cancer-free for eight years, during which she saw her children marry, and became a grandmother of five. But sadly, it recurred in 2015 and she succumbed to it in September last year.

> THERE'S PLENTY OF INTEREST IN PAEDIATRICS, BUT THE ELDERLY SEEM TO BE NEGLECTED. I SAW A GAP THAT NEEDED TO BE LOOKED AT, GIVEN THE RAPIDLY AGEING POPULATION.
>
> DR RAVINDRAN KANESVARAN, CONSULTANT, DIVISION OF MEDICAL ONCOLOGY, NATIONAL CANCER CENTRE SINGAPORE

His oncology knowledge helped him understand his mother's illness. "But it also put me in a difficult spot, as I knew of therapies that could've prolonged her life after the relapse, but she didn't want them for fear of a detriment to her quality of life, which was more important to her. That's what she wanted," he said.

He said that this journey with her helped him better understand his own patients. "In the earlier days, I was more aggressive in recommending treatments, but now I don't push at all. It's up to the patient. Some want to fight it all the way. Others don't want treatments, which may prolong their life, but have terrible side effects."

"We respect that and will support them symptomatically as their cancer progresses. At the end of the day, it's not just about buying time but also preserving their quality of life at the same time," said Dr Ravi , who is also President of the Singapore Society of Oncology, and Honorary Treasurer and Singapore's National Representative to the International Society of Geriatric Oncology.

Getting into geriatrics

As an oncologist, he treats prostate, urological cancers and lung cancers. But geriatric oncology (GO) has always held a special interest for him. He did a one-year fellowship in GO and genitourinary (genital and urinary system) oncology at Duke Cancer Institute in the United States in 2011.

He admits that geriatrics is not a popular choice with oncologists. "There's plenty of interest in paediatrics, but the elderly seem to be neglected. I saw a gap that needed to be looked at, given the rapidly ageing population. I also thought that there were many aspects of ageing that could be researched and improved upon."

His own research papers have been published in peer-reviewed journals, and he has received international awards for his work.

As an Assistant Professor at Duke-NUS Medical School, he always encourages the graduate medical students he mentors to learn something about geriatrics.

He thinks all oncologists should do this, even if they do not specialise in it, because more than 60 per cent of cancers occur in people over age 65. "Some basic knowledge will help them when treating older patients, who often have multiple medical conditions and need multidisciplinary care."

When the new NCCS building opens in 2020, this kind of care will be offered, but Dr Ravi is already doing this on a smaller scale for complex cases. "When we move to the new building, this will be a full-fledged service."

His changed lifestyle

He said many cancers may be prevented with a good diet and healthy lifestyle – something he and his wife, a geriatrician, have taken on board, especially now with a toddler at home and a baby on the way.

PHOTO: JUSTIN LOH

Dr Ravindran Kanesvaran's journey with his mother, as she battled cancer, has helped him understand his own patients better and how, for some, quality of life is more important than prolonging life.

He believes in starting the day right, with a wholesome breakfast of rolled oats, fruit and toast. He takes a healthy home-packed lunch to work, and has a light dinner. And if hunger pangs hit in between? "I eat an apple."

He hits the gym at least three times a week, incorporating running with weight training. And after losing 12kg in six months, he said: "I'm amazed at how much energy I now have."

However, one patient, worried about Dr Ravi's weight loss, said: "Doctor, before I was diagnosed with cancer, I also lost weight. You must take care."

Dr Ravi had to tell him the loss was deliberate, and reassure him. "Don't worry. I'm still here to take care of you."

Can this spice really burn fat?

Apparently, there may be more to cinnamon than its delicious flavour. A new study by the University of Michigan found that cinnamaldehyde, the essential oil which gives cinnamon its flavour, also acts on fat cells to prevent obesity.

Evidence from previous research has shown this to be true in mice, but the researchers wanted to see if it also applies to humans. So the team collected adipose tissues from donors of varying ages, weights and ethnicities, to test if human tissue reacted in a similar way.

In the body, adipose tissue would be converted into fat cells, called adipocytes, but in the lab, they started heating up when treated with cinnamaldehyde. This is what usually happens when metabolism rises due to exercise or physical activity – adipocytes stored in the body as energy reserves get burnt off.

Further research is necessary for more conclusive results, so perhaps hold off going liberal with the cinnamon just yet.

Source: Newsweek

PHOTOS: 123RF

Dream on

Dreaming may help curb stress and fear, according to a study published in the *Journal of Neuroscience*.

It showed that your brain responds better to trauma or stressful situations if you spend more time in Rapid Eye Movement (REM) sleep.

Researchers said good REM sleep can protect you from "enhanced fear", making you less prone to trauma and fear-related health issues such as post-traumatic stress.

They aren't sure why, but think it has something to do with norepinephrine, the hormone associated with stress, which takes a break during REM sleep. Norepinephrine affects the amygdala, the brain's fear centre, making you more sensitive to things that trigger fear. Deep and restful sleep resets its levels to normal.

Some lifestyle changes such as a comfortable and temperature-controlled sleeping environment can help you get longer REM sleep. Limiting pre-bedtime activities to mind-numbing ones such as folding clothes can also make it easier to switch the mind off.

Source: The Huffington Post

I think I am hungry

Feeling hungry may be psychological, according to a new study by researchers from Sheffield Hallam University in the UK. They found that hunger levels were influenced more by how much people thought they ate earlier, rather than the amount they ate.

In the study, 26 participants were each served a three-egg omelette, but half were told theirs only had two eggs in it, while the other half were told they had four.

The first group felt hungry earlier, and subsequently ate more at lunch than the second group, even though all their physiological hunger levels were the same.

None of the participants were diabetic or suffered from any condition that could influence their sugar levels.

So, is your mind making you eat more?

Source: Medical News Today

Want to swim like Schooling?

Swimming may be a low-impact sport, but it can also lead to injuries. Apart from learning proper technique, it's important not to overexert and to warm up first. By Desmond Ng

Poor technique can lead the casual swimmer to sustain injuries, especially in difficult strokes like the butterfly style.

AFTER JOSEPH SCHOOLING'S 100m butterfly Olympic gold last year, interest in learning the stroke jumped. But it is a hard style – if not the hardest – to master.

Poor technique can lead the casual swimmer to suffer injuries. Besides developing pain or injury known as butterfly back – so called because the swimmer incorrectly uses the strength of his back to lift his upper back out of the water – swimmers can also sustain injury to the shoulders and knees, said Mr Joel Toh, Physiotherapist, Singapore General Hospital.

Poor technique aside, poor posture and overexertion (swimming too long and too hard) can also strain and tear muscles and tendons of the joints, said Mr Toh, who sees patients with swimming-related injuries.

"The casual or recreational swimmer might have bad posture to start with. He might also lack flexibility and range of movement in the shoulders and arms. So when he does certain strokes, he might start to overstrain those areas," he said.

In freestyle or the front crawl, the body – as well as the shoulder, torso and hips – needs to rotate. If the swimmer lacks flexibility and has poor range of movement, executing the movements repeatedly can strain the joints, leading to inflammation and pain of the shoulders and back.

It isn't just the difficult styles that can lead to problems. When doing the breast stroke – the easiest to learn – the body has to remain fairly straight to avoid getting a painful back. But amateur swimmers tend to hunch or arch their backs.

When a patient is referred to Mr Toh, he assesses the nature and severity of the injury before deciding on treatment. For instance, for stiff joints, stretching might be recommended to help increase flexibility. He might also suggest using weights later for strengthening. If the injury is due to strain, the patient might be asked to lay off swimming for a while and do other types of exercises first.

"Sometimes the patient comes to us with what seems like swimming-related problems such as elbow, shoulder or back pain. But after assessing him, we might find that they are not actually due to swimming," he said.

Patients are asked to lie down and perform the strokes used when swimming as a way of identifying the problems. "We are not coaches, so we can only observe how the patient air paddles," Mr Toh said, adding that if the technique is obviously wrong, one recommendation might be to suggest the patient work on his swimming technique with an instructor.

People often forget that although swimming is a low-impact sport, but as with any sporting activity, a 10-minute pre-exercise warm-up is necessary to lower the risk of strain and injury.

"Warming up increases the heart rate, prepares the joints and muscles for the activities to be done, and prevents injuries," said Mr Toh, recommending a combination of stretching and dynamic exercises to be done. Dynamic warm-up exercises include arm swings, shoulder circles, leg swings, lunges and jogging on the spot to increase the heart rate.

He warns new swimmers not to let enthusiasm get the better of their ability and over-exercise, noting that studies have reported that an increase in distance or intensity led to shoulder pain.

"There is no guideline on the number of laps one should swim unless one is in a training programme. But new swimmers should start slowly, building up frequency and intensity along the way," Mr Toh said.

Following the FITT (frequency, intensity, time and type) principle for exercise is one sensible way of avoiding injury. For instance, start by swimming once a week, doing a variety of strokes slowly for 10 minutes.

"Done properly," he noted, "swimming is good for the whole body, and as a low-load activity, it is also good for the elderly."

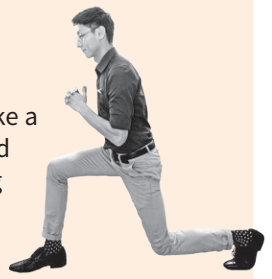
New swimmers shouldn't get too enthusiastic. As in any other sport, starting slowly after a proper warm-up will lower the chance of injury, says Mr Joel Toh.

Warm up before taking the plunge

Jumping jacks
Stand with your legs together and your arms at the side. Jump and raise your arms overhead to a clap, spreading your legs wide. Jump again and return your legs and arms to the original position. Repeat for 1 minute.

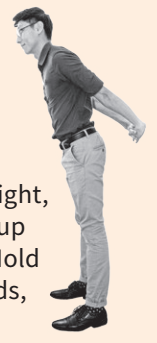
Butt kicks
Kick your legs up to your butt as you jog on the spot. Do this for 1 minute.

Arm circles
Raise your arms to shoulder level. Rotate your arms forward – then backwards – in circles for 30 seconds each direction.

Lunges


Start by standing straight. Take a step forward with one leg and lower hips until both legs are at 90 degree angles. Make sure the front knee is directly above your foot, and the other knee isn't touching the ground. Return to starting position. Repeat 10 times each leg.

Stretch after swimming

Front shoulder stretch


Standing straight, clasp both hands behind your back. Keep your arms straight, and slowly lift them up as high as you can. Hold stretch for 30 seconds, repeat 3 times.

Rear shoulder stretch
Standing with back straight, cross one arm over your chest at shoulder level. Using the other arm, gently pull arm towards chest until you feel the stretch.

Quadriceps stretch
Standing with back straight, pull one ankle to bring the heel towards the buttock. Hold stretch for 30 seconds, repeat 3 times.

PHOTOS: ALVINN LIM & SPH LIBRARY

A double whammy

Because of the link between diabetes and pancreatic cancer, some patients can get both. But thankfully, the risk is low. By Sol E Solomon

THE LINK BETWEEN diabetes and pancreatic adenocarcinoma – the most common type of pancreatic cancer – exists because the pancreas produces insulin to keep blood sugar levels safe. If the pancreas is not functioning well, insulin production decreases. This makes blood sugar levels rise, causing diabetes.

Patients with pancreatic cancer can develop diabetes when their pancreas is functioning at a reduced level, according to Dr David Tai Wai Meng, Consultant, Division of Medical Oncology, National Cancer Centre Singapore (NCCS).

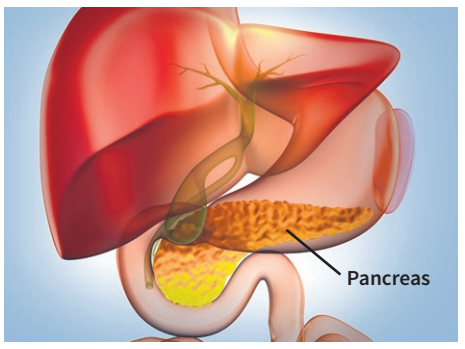
This can happen when surgery to remove the tumour in their pancreas also takes away some healthy parts of the organ.

"About half of pancreatic cancer patients will get diabetes either because of reduced pancreatic function from surgery or from the tumour itself," he said. It also works the other way – diabetics can get pancreatic cancer.

"Epidemiological studies in other patient populations suggest that patients with poorer control over their diabetes may have a higher incidence of pancreatic cancer."

He added: "In Singapore, pancreatic cancer is considered an uncommon type of cancer, but it's the fifth and sixth most common cause of cancer-related deaths in men and women respectively. So the incidence is low, but the mortality rate is high."

PHOTOS: 123RF



The pancreas is hidden behind the stomach and shrouded by other organs, making diagnosis of pancreatic cancer and other diseases that diminish its function a challenge. A low-functioning pancreas is a risk factor for diabetes.

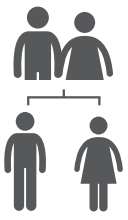
The major risk factors for pancreatic cancer are…

AGE
The risk of developing pancreatic cancer increases with age. Patients noted to have this type of cancer are typically between 60 and 70 years of age.

SMOKING
People who smoke have 2 to 3 times more likelihood of developing pancreatic cancer.

OBESITY
Studies have shown that obese men and women have a higher chance of dying from pancreatic cancer.

ALCOHOL
Chronic pancreatitis, where the pancreas gets inflamed, is typically a result of alcohol consumption.



FAMILY HISTORY OR INHERITED CONDITIONS
This occurs when gene changes are passed from one generation to another.

Diagnosed too late

The biggest hurdle in this cancer is catching it early. The pancreas is hidden behind the stomach and surrounded by other organs. Symptoms such as flatulence, gastric and general discomfort in the upper abdomen after eating are non-specific and seem innocuous to the lay person.

Patients do not act till much later because they only start feeling something is wrong when the tumour has grown to a certain size. By the time they are diagnosed, the condition is usually advanced.

"Compared to colon cancer, where patients will seek treatment when they notice blood-stained stools, people with a pancreatic tumour typically just feel a bit of gastric discomfort. They would be given medication, and symptoms will improve temporarily before becoming more serious later on," said Dr Tai.

More visible symptoms include jaundice, yellowing of the eyes, tea-coloured urine, weight loss and the loss of appetite. In advanced cases, a constant and intense back pain slightly below the shoulder blade.

The symptoms for pancreatic cancer are non-specific, so patients do not act until much later, and diagnosis is usually done only when the condition has become advanced, said Dr David Tai Wai Meng.

But not all diabetics are susceptible to pancreatic cancer.

"There is a difference between a patient who is 45 years old and has had diabetes for the past 20 years and a 68-year-old who has recently been diagnosed with diabetes, coming in with such symptoms," he said. "If the latter patient is slim built and reports not eating very well, we would suspect something."

Surgery and treatment

Dr Tai cited the difficulties faced when treating pancreatic cancer: "Unfortunately, most patients are diagnosed when surgery is no longer possible."

Only 15 to 20 per cent of patients are candidates for surgery. After surgery, most patients revert to their normal state. Some may have diarrhoea but it can be controlled with medication.

Before 2010, there was only one drug approved for advanced pancreatic cancer treatment. But since then, more drugs, and combinations of drugs, have been approved. He is confident that with research picking up, more headway could be made for this condition in time.

Meanwhile, preventive action may keep the cancer at bay.

Dr Tai recommends making lifestyle modifications such as reducing smoking and alcohol consumption, taking control of diabetes through exercise and a healthy diet, and being aware of changes in the body. "Although cysts cannot be prevented, if you detect one, regular surveillance could ensure it does not turn aggressive."

He also advises people with a family history of pancreatic cancer or other tumours linked to it to speak to their doctor about surveillance strategies.

Good nutrition vital in old age

Older people may not be getting real nutrition, even though they think they are eating well.

By Suki Lor

It is important for the elderly to eat a protein-rich diet, as the loss of muscle mass increases after age 70 to about 15 per cent every 10 years, as compared to 7 to 8 percent from age 40 to 70, said Dr Samuel Chew.

MADAM A, A SENIOR CITIZEN, lives alone in a one-room flat. Her diet is often rice porridge with a can of preserved vegetables. It is cheap, easy to store and prepare, and easy on her worn-out teeth and gums.

Mrs B, also a senior citizen, lives with her extended family who care and cook for her. But at dinner, she has been avoiding meat because her ill-fitting dentures make chewing hard.

Experts say these two women's diets have a troubling lack of protein and essential micronutrients such as vitamin B12, which can adversely affect physical and mental health, and if the deficiency is severe, the immune system. Those with an impaired ability to absorb vitamin B12 from their food can also develop these problems.

PHOTOS: ALVINN LIM / ILLUSTRATION: 123RF

Ms Magdalin Cheong and Dr Samuel Chew said that poor nutritional health in the elderly can make them susceptible to medical problems.

Dr Samuel Chew, Senior Consultant, Department of Geriatric Medicine, Changi General Hospital (CGH), said vitamin B12 is needed to produce healthy blood cells (red cells, white cells and platelets), and for muscle strength, balance and the proper functioning of the nervous system. Without it, people can develop anaemia.

"In severe cases, the body may be unable to produce white cells for normal immune system functioning, and patients can easily succumb to infections. In such cases, the production of platelets may also be compromised, and this can predispose the patient to bleeding. A lack of vitamin B12 can also lead to reversible cognitive impairment, with symptoms akin to early dementia," said Dr Chew.

By taking enough oral vitamin B12, even with impaired absorption, these conditions can be turned around.

Eat more protein

Dr Chew said many fail to eat enough or correctly to meet their nutritional needs. Some even give their oral nutritional supplements to their grandchildren, thinking the young ones need it more than them.

But he said the old need more, not less, protein than the young. "Studies suggest they need two to three times more protein to build the same amount of muscle with resistance training, compared to someone in their 20s. After age 70, loss of muscle mass increases to about 15 per cent every 10 years, compared to 7 to 8 per cent from age 40 to 70."

The vicious cycle of poor nutrition is that it leads to physical weakness, which triggers depression and a loss of appetite, which further reduces nutritional intake, and, in a worst-case scenario, leaves patients frail, weak, bed-bound and unable to look after themselves.

"An older person bed-bound for 10 days can lose up to 2kg of his body weight as a result of muscle atrophy. If he gets a chest or kidney infection, he can lose up to 2kg within three days as a result of the illness, poor oral intake and being bed-bound."

To prevent this from happening Dr Chew stressed the importance of good nutrition during illness, and when starting physiotherapy, as soon as the patient is well enough. He said this will need a mindset change in people who see bed rest as "beneficial" for older patients.

A dietitian's take

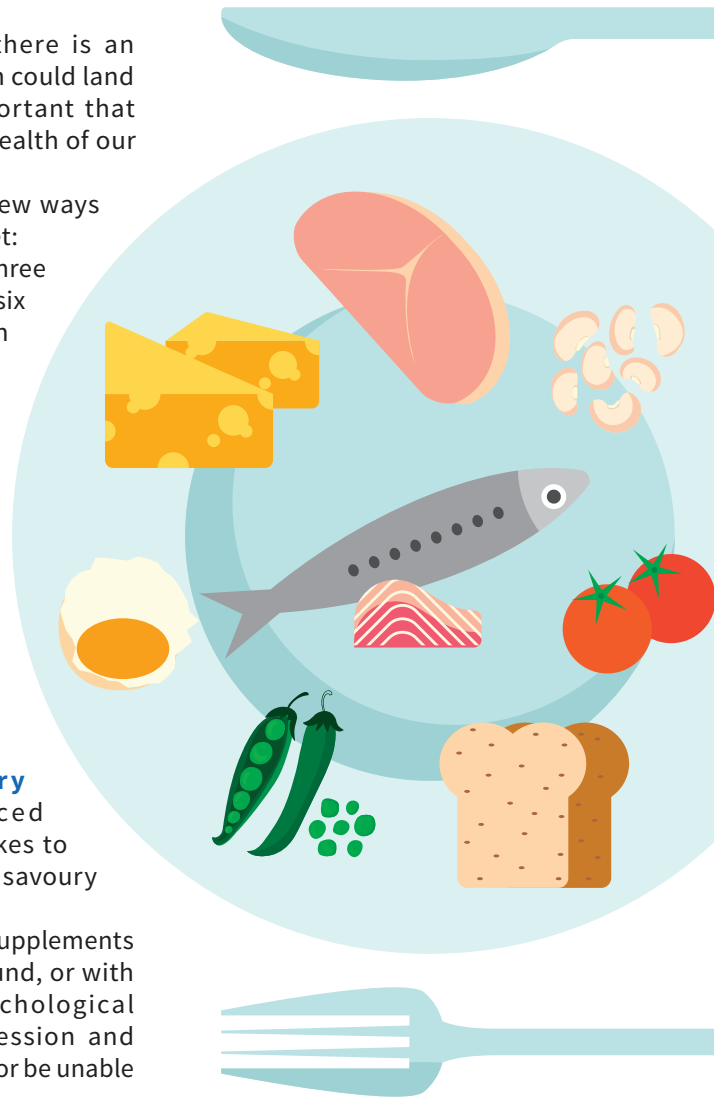
Ms Magdalin Cheong, Head and Deputy Director, Department of Dietetic and Food Services, CGH, has similar concerns.

She said studies confirm that people aged 65 and above reduce their food intake by about 25 per cent. This can lead to a decline in calories, protein, calcium and other micro nutrients consumed. This will lower their body weight and body mass index, and affect their muscle mass and muscle strength.

"When that happens, there is an increased risk of falls, which could land them in hospital. It's important that we look at the nutritional health of our patients in this age group."

Ms Cheong suggests a few ways seniors can improve their diet:

- **Eat regular meals:** Have three big meals a day, or five or six smaller meals, but each must contain protein, calcium, vitamins and sufficient calories.
- **Introduce variety in meals:** Cut food into smaller pieces for easier chewing if you have dental issues. One solution is soup-based meals, but include more ingredients such as vegetables and beans in the soup.
- **Avoid plain or watery porridge:** Add minced meat, chicken or fish flakes to porridge to make it more savoury and nutritious.
- **Take supplements:** Oral supplements can help those home-bound, or with chronic illness or psychological problems such as depression and dementia, who may forget or be unable to eat regular meals.



Clinical study on nutrition in the old

Changi General Hospital, SingHealth Polyclinic (SHP) and healthcare firm Abbott are jointly conducting what it claims is Asia's largest clinical study to evaluate the effects of nutrition management in Singapore's elderly.

About 1,200 Singaporeans in the trial will be given either a nutritional supplement or a placebo, and it is hoped the findings will help hospitals and the community find ways of improving nutrition for the elderly.

Onion juice or eye drops for rich, dark hair?

Why hair greys is still not completely understood, although genetics, nutrition and lifestyle have a role. By Annie Tan

Refrain from pulling out white hair, as this can damage the hair bulb and cause permanent hair loss.

HOW SOON YOUR HAIR will grey is largely fixed – it's a genetic blueprint inherited from your parents. But in general, if you're Asian, expect to see some whites to start sprouting sometime in your late 30s.

So forget about rubbing your scalp with onion juice, using an expensive glaucoma drug and other remedies that purportedly promise to turn grey hair back to black, said Dr Oh Choon Chiat, Consultant, Department of Dermatology, Singapore General Hospital.

"Hair gets its colour from a pigment called melanin. As you grow older, less melanin is produced and your hair gradually loses its colour, and turns from black to grey and subsequently white," said Dr Oh.

Embracing a healthier lifestyle may help forestall the march of time, although studies have not confirmed this. But even if reducing stress, quitting smoking and eating a healthier diet don't bring on the desired effects, they will bestow benefits on general health, said Dr Oh.

In Singapore, the role that diet plays is relatively small, as people generally eat a balanced diet. Otherwise, people who grey prematurely and whose diet is found to be lacking can benefit from eating food rich in copper, vitamin B12 and folic acid. Copper is found in nuts such as walnuts, hazelnuts and almonds; vitamin B12 is present in dairy products such as milk, eggs and cheese; and folic acid can be obtained from broccoli and avocados.

Extreme stress or acute shock has been known to cause hair to turn grey overnight. Such cases are few and far in between, and the link between the sudden greying – if true – and stress has not been proven conclusively.

Still, like following a healthy diet and lifestyle, better stress management is a good approach to healthy ageing in general, said Dr Oh.

PHOTOS: ANNIE TAN & 123RF

A diet rich in copper, vitamin B12 and folic acid can help prevent premature greying, said Dr Oh Choon Chiat.

> **IT IS GENERALLY NOT POSSIBLE TO PREVENT GROWTH OF WHITE HAIRS. ONCE THE DOCTOR HAS RULED OUT AN UNDERLYING MEDICAL CONDITION, THE BEST OPTION IS TO COLOUR IT.**
>
> DR OH CHOON CHIAT, CONSULTANT, DEPARTMENT OF DERMATOLOGY, SINGAPORE GENERAL HOSPITAL

The sun can be as damaging for the hair as for the skin, as sun exposure produces reactive oxidative species or free radicals that can damage hair or cause it to turn grey. So wear a hat to protect the hair, as well as the face, when going out.

Greying is only considered premature if it takes place before the age of 20 for Caucasians, before 25 for Asians and before 30 for Africans. In such cases, Dr Oh suggested consulting a medical expert to rule out underlying health concerns such as thyroid disorders – high or low thyroxine levels may contribute to premature greying.

Other less common diseases include alopecia areata, an autoimmune disorder which causes the body to attack its own hair follicles and pigments, causing hair to fall. The hair that grows back "loses colour", said Dr Oh.

Another is vitiligo, which causes the body's immune system to attack pigment-producing melanocyte cells, giving rise to a loss of melanin, and leaving behind white patches of skin and hair.

When hair turns white because of these conditions, it may re-pigment if the condition is treated, said Dr Oh. "Otherwise, it is generally not possible to prevent growth of white hairs. Once the doctor has ruled out an underlying medical condition, the best option is to colour it."

Commercial hair dyes are generally safe, but some people develop allergic contact dermatitis when exposed to paraphenylenediamine or PPD, a common colouring agent. An allergic reaction may cause the scalp to turn red and itchy, or swelling or a rash to appear along the hairline, neck or face.

"To minimise such reactions, always follow product instructions carefully and consider doing a patch test before dyeing your entire head. If at any point you develop an allergic reaction, stop using the product and see a dermatologist for treatment," said Dr Oh.

People should also resist the urge to pull out white hair. Though it is a myth that three white strands will grow out for each hair you pull, pressure traction can damage the hair bulb and cause permanent hair loss, he said.

"Looking good in this day and age is important for everyone, and for many Asians, this means a head full of beautiful hair. But keep in mind that greying is natural," said Dr Oh.

What decides your hair colour?

The colour of one's hair – and skin – depends largely on melanogenesis, the process of producing melanin pigment.

Human hair follicles contain two types of melanin – the black-brown pigment called eumelanin, which is mainly present in black and brown hair, and the yellow or red pigment called pheomelanin, which is present in auburn and blonde hair.

Hair greys when there is loss of such pigment molecules. And genes are believed to play a role.

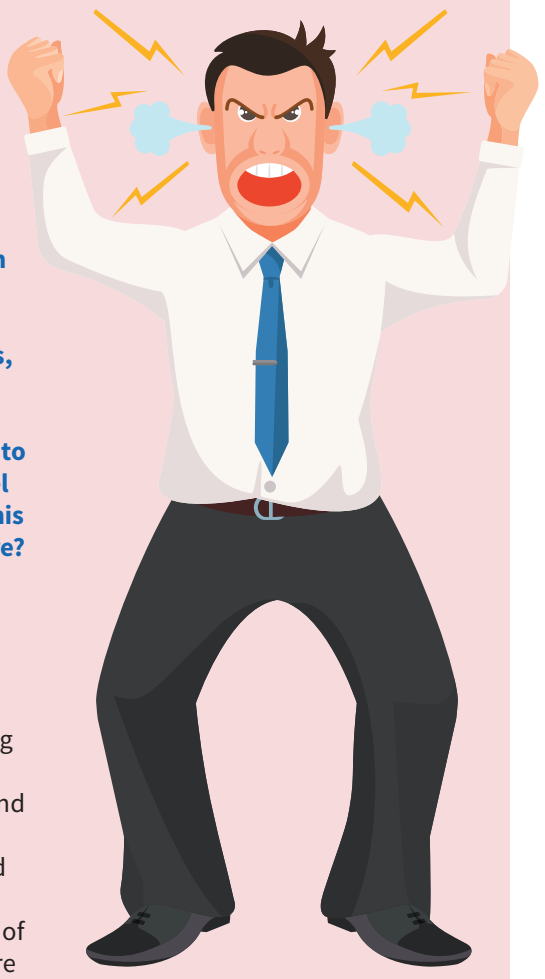
The amount of melanin in the hair is determined by genes from both parents. Each gene is made up of alleles, also called DNA sequences.

Each trait consists of two alleles, one from each parent, and they may be the same or different.

Which allele a person receives is random. This helps explain why siblings are highly unlikely to have the exact same shade of hair colour.

HEALTH XCHANGE

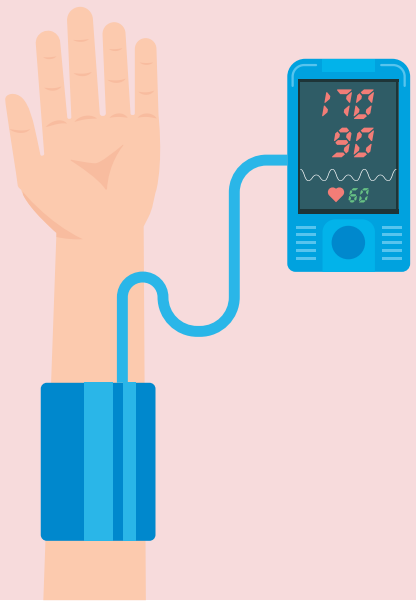
Temper and blood pressure



Do short-tempered people run a higher risk of serious high blood pressure, or is it just a temporary thing when angry. My wife says I am heading for high blood pressure problems because of my temper, but when I check with the doctor once in a while, the reading is still okay. I'm wondering if, because of this, it will suddenly become high someday and remain that way. I watch my salt intake religiously to the point where I sometimes feel slightly dizzy when I get up. Is this a symptom of low blood pressure? What should I do?

Certain psychosocial traits have been shown to be associated with hypertension or high blood pressure. Hypertension has been found to be more common among those with certain personality traits, such as hostile attitudes and impatience. We know that blood pressure fluctuates, going up and down. The question is, how often does it stay up? During moments of stress or agitation, blood pressure increases transiently. However, in between episodes of stress, the blood pressure can be normal.

If these episodes of increased blood pressure are frequent and when averaged out over a day, it means that the person is carrying an overall increased load of high blood pressure. A 24-hour ambulatory blood pressure monitor may be helpful in such situations. Ultimately, the chances of developing persistent high blood pressure depend on many factors, such as age, race, positive family history, alcohol consumption, obesity, high salt intake and diabetes mellitus.



The change in posture from sitting or lying down to standing up can lead to postural hypotension or low blood pressure, causing giddiness when standing up. Patients who have diabetes and are on certain medication may experience this problem.

If your salt intake is too low, it can lead to a low salt state, which may contribute to this as well. While you should not consume more than 3000mg of salt a day to reduce the risk of high blood pressure, some amount is still required by the body system to maintain homeostasis.

It is advisable to check your blood pressure when this occurs, to confirm if it is due to low blood pressure. Consult your doctor because other more sinister causes, such as bleeding, infection and hormonal problems, may need to be excluded.

Dr Tong Khim Leng, Chief, Department of Cardiology, Changi General Hospital

ILLUSTRATIONS: 123RF

Questions after stroke

My brother-in-law suffered a stroke three month ago. He is under rehabilitation now and we have hired a nurse to take care of him. I have a few questions: Is he at risk of another stroke? Is there any diet he should follow from now onwards. And will he be back to being himself after treatment? He's really depressed, as he needs help with everything.

Depending on the cause of the stroke, the risk of a recurrent stroke is about 5 to 10 per cent yearly.

If the stroke is due to the hardening of blood vessels – the most common cause of stroke – he will benefit from a diet low in cholesterol, and should avoid excessive intake of sugar.

If he is taking warfarin, a blood thinner, for prevention of recurrent stroke, he should keep his daily intake of vitamin K consistent to help the warfarin work effectively.

The disability due to his stroke seems severe, as he is dependent on carers for everything.

Overall, among survivors, approximately 30 per cent of patients recover almost completely or with minor impairments. Unfortunately, about 30 per cent will remain permanently bed-bound. The remaining will have moderate disability.

Dr Lee Sze Haur, Senior Consultant, Department of Neurology, National Neuroscience Institute

CONTEST

TEST YOUR MEMORY

Answer these simple questions to stand a chance to win a bottle of Genacol Advanced (120 capsules) worth $48.50, sponsored by Medica Solutions Pte Ltd.

QUESTIONS

- **What percentage of transplant patients took their medications as told?**
- **What do older people require more of than the young in their diet?**

Send your answers with details of your name, age, gender, address and telephone number to:
Email editor@sgh.com.sg (or)
Post The Editor, *Singapore Health*, Singapore General Hospital, Communications Department, #13-01 Surbana One, Blk 168, Jalan Bukit Merah, Singapore 15016.

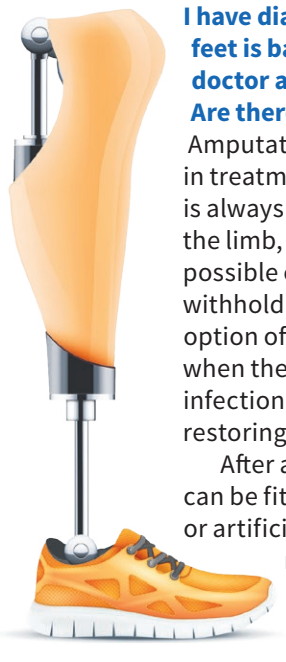
Deadline Jan 31, 2018

Winners will be notified by phone or email. Please remember to send in all the details indicated above. Incomplete or multiple entries will not be considered.

WINNERS OF CONTEST 48

1. Ishwari Sugnomal 2. Kuda Vidanage Deepthi S 3. Geannie Lim 4. Tay Ai Liu 5. Woo Lai Cheng

Can I save my leg?



I have diabetes and one of my feet is badly infected. The doctor advised amputation. Are there alternatives?

Amputation is the last resort in treatment options. The aim is always to try and preserve the limb, and only when it is not possible or the risks outweigh withholding amputation is this option offered – for instance, when there is overwhelming infection or no possibility of restoring blood circulation.

After amputation, patients can be fitted with a prosthesis or artificial limb, and with good rehabilitation, they can still be mobile and independent.

Diabetes is a big risk factor for amputation, so good control of the condition is vital. Poor control of blood glucose levels increases the risk of blockage of the peripheral arteries or blood vessels, leading to poor blood supply to tissues and poor healing of wounds.

To lower the chance of amputation, it's important for people with diabetes to monitor their glucose levels and blood pressure regularly for good control, avoid smoking, and go for annual diabetic foot screening.

Dr Chong Tze Tec, Senior Consultant and Head, Dept of Vascular Surgery, Singapore General Hospital

ADVERTORIAL

Viartril®-S

The Original & Patented Crystalline Glucosamine Sulphate

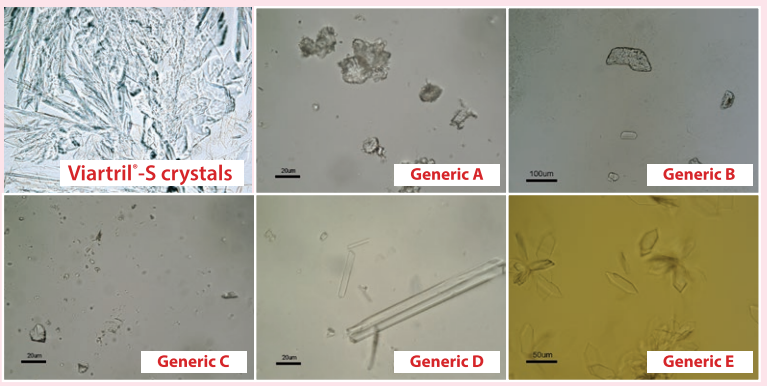
On 11 August 2017, Channel NewsAsia (CNA) reported, "Glucosamine supplements don't help knee or hip arthritis pain"

This is what we have always been saying.

This report analysed generic glucosamine and confirmed what we have been saying: **Generic Glucosamine is Ineffective.**

All studies using Viartril-S, the original patented crystalline glucosamine sulphate, have found it to be effective in the management of arthritis pain.

Even the microscopic structure of Viartril-S vs Generic Glucosamine differs:



The Original & Patented Crystalline Glucosamine Sulphate

Distributor: Pharmline Marketing Pte Ltd
605A Macpherson Road #03-03, Citimac Industrial Complex, Singapore 368240 Tel: 6286 0291

Quoted from a European guideline:
"The European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis (ESCEO) advocates *the differentiation of prescription patented crystalline glucosamine sulphate from other glucosamine preparations*"

O. Bruyere et al, Seminars in Arthritis and Rheumatism 2014

Clinical Studies of Viartril-S vs Generic Glucosamine

More than 100 studies done on Viartril-S, the original & patented crystalline glucosamine sulphate, found it to be SAFE & EFFECTIVE including:

1) The role of diet and exercise and of glucosamine sulfate in the prevention of knee osteoarthritis: Further results from the PRevention of knee Osteoarthritis in Overweight Females (PROOF) study. **Seminars in Arthritis and Rheumatism, 2016.**
- Brand Used: Viartril-S

2) An algorithm recommendation for the management of knee osteoarthritis in Europe and internationally: a report from a task force of the European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis (ESCEO). **Seminars in Arthritis and Rheumatism, 2014.**
- Brand Used: Viartril-S

3) Glucosamine therapy for treating osteoarthritis. **Cochrane Database, 2009.**
- Brand Used: Viartril-S

4) Total joint replacement after glucosamine sulphate treatment in knee osteoarthritis: results of a mean 8-year observation of patients from two previous 3-year, randomised, placebo-controlled trials. **Osteoarthritis and Cartilage, 2008.**
- Brand Used: Viartril-S

5) Glucosamine sulfate in the treatment of knee osteoarthritis symptoms: a randomized, double-blind, placebo-controlled study using acetaminophen as a side comparator. **Arthritis & Rheumatology, 2007.**
- Brand Used: Viartril-S

6) Glucosamine sulfate use and delay of progression of knee osteoarthritis: a 3-year, randomized, placebo-controlled, double-blind study. **Archives of Internal Medicine, 2002.**
- Brand Used: Viartril-S

7) Long-term effects of glucosamine sulphate on osteoarthritis progression: a randomised, placebo-controlled clinical trial. **The Lancet, 2001.**
- Brand Used: Viartril-S

Please consult your health professional for more clinical papers.

The Netherlands study* reported in CNA, analysed only 5 out of 21 eligible studies. The 5 studies which found glucosamine to be INEFFECTIVE are:

*Ref : http://dx.doi.org/10.1136/annrheumdis-2017-211149

1) Glucosamine and chondroitin for knee osteoarthritis: a double-blind randomised placebo-controlled clinical trial evaluating single and combination regimens. **Annals of the Rheumatic Diseases, 2015.**
- Brand Used: Generic Glucosamine

2) Clinical efficacy and safety of glucosamine, chondroitin sulphate, their combination, celecoxib or placebo taken to treat osteoarthritis of the knee: 2-year results from GAIT. **Annals of the Rheumatic Diseases, 2010.**
- Brand Used: Generic Glucosamine

3) Effect of glucosamine sulfate on hip osteoarthritis: a randomized trial. **Annals of Internal Medicine, 2008.**
- Brand Used: Generic Glucosamine

4) Glucosamine, chondroitin sulfate, and the two in combination for painful knee osteoarthritis. **The New England Journal of Medicine, 2006.**
- Brand Used: Generic Glucosamine

5) Effectiveness of glucosamine for symptoms of knee osteoarthritis: results from an internet-based randomized double-blind controlled trial. **The American Journal of Medicine, 2004.**
- Brand Used: Generic Glucosamine

A recent response to the Netherlands review quoted+:

"Glucosamine products other than prescription* crystalline glucosamine sulfate are not effective in hip or knee OA pain and function."

Unlike in Singapore, Viartril-S is a prescription patented crystalline glusosamine sulphate in some countries, including many European countries.

+ *Different glucosamine sulfate products generate different outcomes on osteoarthritis symptoms. Annals of the Rheumatic Diseases, 6 Sept 2017.*

PROSPAN®

Cough Syrup

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dissolves mucus · relaxes airways · relieves cough

Special-Ivy-Extract EA 575®

- Pleasant taste
- Non-drowsy
- Sugar-free
- Alcohol-free
- No colourings

*Consult your doctor where necessary.

NEW LOOK !

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