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JAN/FEB 2014  
ISSUE 49



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- Research on Biological Specimens
- Research Involving Children: Framing and Applying Additional Protections

### **Faculty:**



**Dr Susan Fish**

*Professor of Biostatistics and Epidemiology  
Boston University School of Public Health  
USA*

### **ii) Consent: Processes, Criteria, and Considerations for Obtaining Informed Consent**

This workshop will enable participants to comprehend the difference between the process of informed consent and consent form documentation requirements. Special topics to be addressed include parental permission, assent of research participants, exceptions to informed consent, and cross-cultural issues.

### **Faculty:**



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*Harvey M. Meyerhoff Professor of  
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# Seeing things through...



**MANY OF US ENTER A NEW YEAR** with renewed optimism and vigour. But often, inertia soon gets the better of us. We make resolutions that — let's face it — we are always unlikely to follow. We make plans to improve our health and fitness, while continuing with bad habits. So how does one go about turning over a new leaf and sticking to our resolutions?

Perhaps, as in our cover story on volunteerism, you will find inspiration in helping others (page 8). It has been proven that giving your time to help others lowers your stress levels, which benefits your health. Volunteering is not reserved just for retirees, and we feature a pair of inspiring young people with a passion for helping others (page 10). Their stories and those of other volunteers in the National Healthcare Group family have inspired us and we hope they inspire you, too.

Another person who has been a source of inspiration is Professor Clayton Christensen of the Harvard Business School in the United States. The esteemed author and cancer survivor shared his insights on the need for innovation in healthcare (page 18).

On a separate note, we turn our attention to the humble bacterium, which in its many forms can either be bad for you — such as when bad germs proliferate on dirty kitchen utensils (page 28) — or beneficial to health — such as in probiotic food and drinks (page 32).

If these bacteria can make you better from inside out, what about an issue that is purely external: your hair? If you have ever wondered how and why people go bald — and whether or not the process can be stopped — turn to page 14 to find out.

One thing that cannot be reversed, though, is the march of time. But, as you will find out on page 25, you can — and should — stave off the classic effects of age-related frailty (a decline in muscle strength, the loss of function, for example) by making changes to lifestyle and diet. Because, as you will discover, frailty as a medical syndrome is something that has so far been somewhat overlooked but deserves serious attention as Singapore's population steadily ages.

There is some good news related to ageing, however, particularly if you are in a loving relationship and 'growing old together' with a significant other. Being in love is good for you, something to note as you celebrate Valentine's Day in February. And speaking of celebrations, as we prepare to indulge — in moderation, of course — in some Chinese New Year cheer, we would like to wish our Chinese readers *Gong Xi Fa Cai!*

**THE EDITORIAL TEAM**



RELATIONSHIP SCIENCE

## THE DOWNSIDE OF WEIGHT LOSS?

A romantic relationship can change when one partner loses weight — and not always in a good way, says Dr Lynsey Romo, author of a recent paper published in the journal *Health Communication*. In her study of 21 couples in which one partner lost an average of 27kg over two years, she found that most relationships usually changed for the better. Couples reported that they felt closer, both physically and emotionally, after their weight loss journey.

However, when a partner who did not lose weight was not supportive or resisted changes in diet or exercise routines, the effect was negative. Some reported feeling threatened or jealous as their partners slimmed down and they did not. Others, who did not need to lose weight, felt that they were somehow losing their “role” as the healthy partner. “People need to be aware that weight loss can change a relationship for better or worse, and that communication plays an important role in maintaining a healthy relationship,” Dr Romo concluded.

“WHEN A PARTNER WHO DID NOT LOSE WEIGHT WAS NOT SUPPORTIVE OR RESISTED LIFESTYLE CHANGES, THE EFFECT WAS NEGATIVE”

### ENDOCRINOLOGY

## Diabetes Takes Its Toll

A survey conducted in Singapore by pharmaceutical company Bayer has shown that the psychological burden of diabetes remains high, despite increasing understanding and better management of the condition. There is a strong association between poorly-controlled diabetes and depression, which in turn can create significant obstacles to effective diabetes management.

Out of 150 diabetes patients and caregivers involved in the survey, more than 70 per cent believe they have to give up many things in life because of the chronic condition.

Speaking at the annual World Diabetes Day event on 10 November 2013, Parliamentary Secretary for Health, Associate Professor Faishal Ibrahim, said early detection is crucial in managing diabetes. In Singapore, about half of the people who have diabetes do not know they have it, he said, so everyone is encouraged to go for regular screening.



PHOTOS: CORBIS, SHUTTERSTOCK



## AUDIOLOGY

# MUSIC TO OLD YEARS

All those music lessons your parents put you through as a child might actually yield benefits as you get older, according to a study published in the *Journal of Neuroscience*. It reported that seniors who had taken music lessons at a young age experienced less difficulty in understanding speech under challenging listening conditions — even if they had not picked up a musical instrument in 40 years.

“It did not matter what instrument you played, it just mattered that you played,” said neuroscientist and author of the study, Professor Nina Kraus of Northwestern University in the United States, who believes that the study underscores the need for musical education.



“**SENIORS WHO HAD MUSIC LESSONS WHEN YOUNG HAD LESS DIFFICULTY WITH HARD-TO-HEAR SPEECH**”

## CARDIOLOGY

# New Scan Identifies Heart Attack Risk



“**THE SCAN USES A RADIOACTIVE TRACER TO BUILD A HIGH-RES IMAGE OF THE HEART, WITH PLAQUE BUILD-UPS HIGHLIGHTED**”

Early tests conducted by researchers at the University of Edinburgh in Scotland suggest that a scanning technique, currently used to detect tumors in cancer patients, can help identify individuals who may be at high risk of a heart attack.

The new technique uses a radioactive tracer to build a high-resolution image of the heart and blood vessels, with plaque build-ups clearly highlighted. It is the first time a scan has been able to identify danger zones,

but further tests are needed to see if detecting these build-ups before, rather than after, a heart attack has the potential to save lives.

Cardiologist Dr Marc Dweck told the *BBC*: “Heart attacks are the biggest killer in the Western world. This technique could be useful for identifying high-risk patients who need aggressive therapy,” referring to statins or aspirin, stents or making drastic lifestyle changes.

## calendar JAN/FEB



### GP'S ASSISTANT COURSE — ADVANCED

Topics covered include:

- Basic understanding of managing chronic diseases
- Administration of medication via nebuliser and inhaler
- Use of metered dose inhaler (MDI), spacer, dry powder inhaler
- 12-lead ECG
- An overview of the use, side effects, precautions and medications used to treat common conditions such as URTI, pain, infection, hypertension and diabetes mellitus

#### DATE & TIME

16 and 17 Jan 2014, 1.30pm — 5pm

#### VENUE

Primary Care Academy Learning Centre, Choa Chu Kang Polyclinic, Lvl 3, 2 Teck Whye Lane, S(688846)

#### FEE

\$406.60 (incl GST). Call 6496-6682 or 6496-6683 to register.



### OCCUPATIONAL THERAPY DAY

In celebration of the 10th Singapore Occupational Therapists' Day, the Occupational Therapy Department of Tan Tock Seng Hospital is having a week-long event with the theme “The Art of Daily Living”. It focuses on promoting patients' abilities to return to their normal daily activities and occupations.

The event will showcase patients who have overcome various challenges in performing daily activities due to medical conditions or injuries. Occupational Therapists will be conducting workshops to empower patients and caregivers with the skills and knowledge for more productive living.

#### DATE

13 to 17 January 2014

#### VENUE

Tan Tock Seng Hospital Atrium, Level 1

#### FEE

The free event is open to the public.

## NEUROLOGY

# MAGNETIC FIELDS MAY HELP SMOKERS QUIT

A study has found that using magnetic fields to alter brain activity may help people quit smoking. Researchers from Israel's Ben Gurion University, who presented their findings at the Neuroscience 2013 conference in November in San Diego in the United States, said they had used transcranial magnetic stimulation (TMS) to "undo" nicotine addiction in the brain. TMS stimulates neurons to alter brain function and is used to treat depression.

Dr Abraham Zangen of Ben Gurion University said, "Our research shows we may actually be able to undo some of the changes to the brain caused by chronic smoking. We know that many smokers want to quit or smoke less, and this method could help put a dent in the main cause of preventable deaths." But before TMS can be recommended, further trials are required, say experts.

“**RESEARCHERS FROM ISRAEL'S BEN GURION UNIVERSITY USED TRANSCRANIAL MAGNETIC STIMULATION (TMS) TO 'UNDO' NICOTINE ADDICTION IN THE BRAIN**”



## OPHTHALMOLOGY

# Computers Are Damaging Your Eyes

You might have suspected it all along — but the expert verdict is in: computer use can definitely strain your eyes. Studies have shown that between 50 and 90 per cent of people who work in front of a computer screen have some symptoms of eye trouble.

The problem is so common, there is even a name for it: Computer Vision Syndrome (CVS).

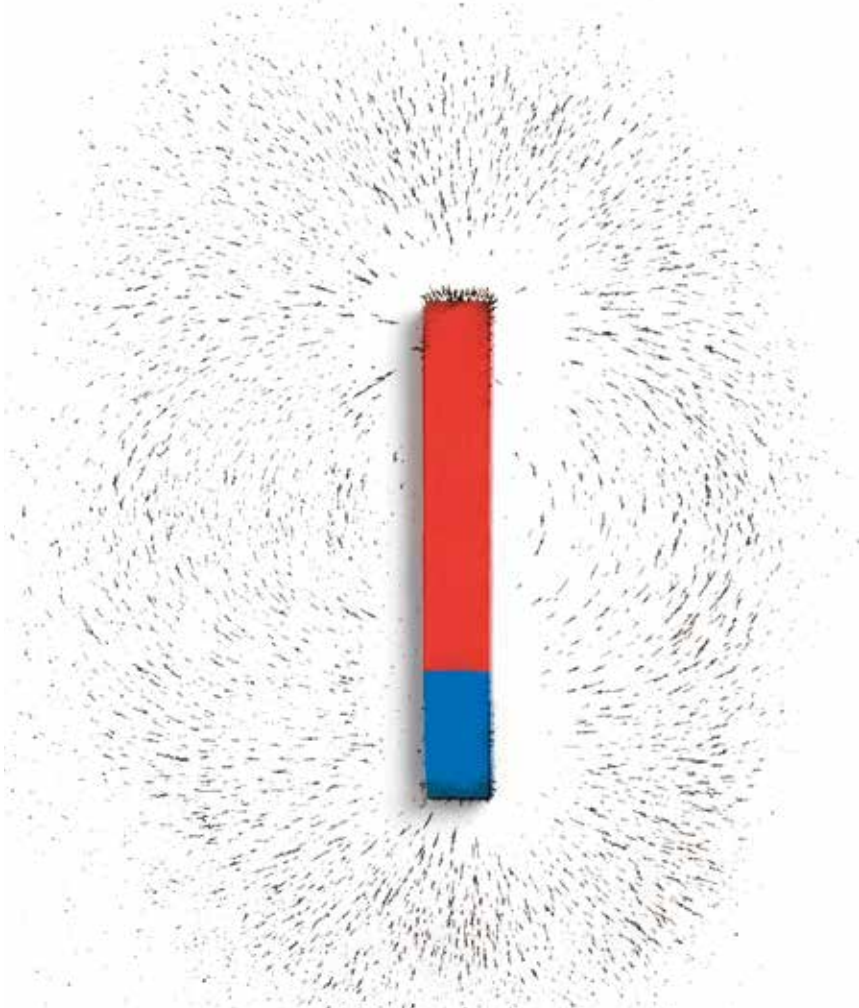
Common symptoms of eye strain and/or CVS include: sore eyes, dry eyes, teary eyes, blurry vision, double vision, light sensitivity, difficulty focusing on images, neck pain, headache or a combination of all of the above.

"We definitely see a lot of people who complain of eye strain," ophthalmologist Dr Brian Wachler told CNN. "Hours upon hours of close focusing without taking a break is usually the main culprit."

To reduce eye strain, you should lower your computer monitor so that the top of the screen is level with the eyes. Angle the screen such that there are no lights reflected in the image.

Finally, take frequent breaks to breathe and blink — breathing properly can relax eye muscles while blinking keeps the eyes moist.

PHOTOS: SHUTTERSTOCK





## NEUROLOGY

# SPEAK MORE LANGUAGES, DELAY DEMENTIA

Researchers from the University of Edinburgh in the United Kingdom have found that speaking multiple languages may delay dementia by more than four years.

The study, published online in the journal *Neurology*, evaluated the case records of 648 people from India who had been diagnosed with dementia. Of these patients, 391 spoke two or more languages. The study found that people who were bilingual were able to stave off three types of dementia, including Alzheimer's disease, for longer than people who were monolingual. This benefit was independent of other factors such as education, sex, occupation, literacy, or whether the patients came from urban or rural areas.

"Bilingualism can be seen as a successful brain training," said study co-author Dr Thomas Bak. "These findings suggest that bilingualism might have a stronger influence on dementia than any currently-available drugs."



“**BILINGUALISM MIGHT HAVE A STRONGER INFLUENCE ON DEMENTIA THAN ANY CURRENTLY-AVAILABLE DRUGS**”

## SOMNOLOGY

# Sleep For Good Health

A study published in the *Journal of Sleep Research* has confirmed what many parents have long nagged about: you will fall ill if you don't get enough sleep.

The study of 56 persons aged 14 to 19 found that those who slept less than seven hours a night were more likely to suffer from colds, gastroenteritis, and the flu. They were also more likely to be tired, irritable and depressed.

A lack of sleep has already been linked in other studies to long-term problems such as high cholesterol, obesity and depression. Dr Kathryn Orzech, lead author behind the study, said research shows that teenagers need 9.5 hours of sleep a night to be healthy, while many get an average of just 7.5 hours.



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# Give a little,

**VOLUNTEERING IS GENERALLY REGARDED AS AN ADMIRABLE BUT THANKLESS TASK, WITH LITTLE TO SHOW FOR THE HARD WORK PUT IN. BUT THAT COULD NOT BE FURTHER FROM THE TRUTH.**

BY **WANDA TAN** IN CONSULTATION WITH  
**MS CATHERINE CHUA** VOLUNTEER PROGRAMME MANAGER //  
CORPORATE COMMUNICATIONS // INSTITUTE OF MENTAL HEALTH

# GET



**EVERY YEAR** on 5 December, International Volunteer Day is universally celebrated.

Designated by the United Nations in 1985, the day is usually marked by rallies, parades and other recognition events in honour of the contributions these unsung heroes make to their communities.

In Singapore, the 2013 celebrations were a full-blown affair with activities held both before and on the day itself. For example, a concert was staged on 30 November at \*SCAPE, where volunteers and beneficiaries from non-profit organisations performed for the public. The Singapore Red Cross also held a fashion runway show on 5 December, showcasing outfits co-created by volunteers and residents of the Red Cross Home for the Disabled.

These events not only raised the profile of volunteers, but also awareness about the numerous volunteering opportunities available in Singapore. Indeed, one of the most critical life lessons is the importance of giving back to society by taking time out for those who are less fortunate. Within a hospital setting, for example, volunteers play an especially vital role — not only do they ease the burden of doctors and nurses, but they also boost patients' spirits by visiting them on a regular basis and building friendships with them.

Recent statistics show that volunteerism is on the rise in Singapore. The National Volunteer and Philanthropy's biennial Individual Giving Survey 2012 reported that out of 1,512 individuals interviewed, 32.3 per cent had volunteered in the last 12 months — up from 23.3 per cent in 2010. The philanthropy rate was even higher, with 90.6 per cent of respondents reporting that they had donated money in the last 12 months compared to 84.9 per cent in 2010.

These findings were mirrored in the Charities Aid Foundation's World Giving Index 2013. In its survey of charitable nations, Singapore was ranked 64<sup>th</sup> overall out of 135 countries. In particular, Singaporeans took 17<sup>th</sup> spot in terms of donating money to charities, but came in 75<sup>th</sup> for volunteering their time and second from last when it came to helping strangers.

The implication behind this is that Singaporeans prefer to donate money when called upon for help. Although neither survey examined the motivations behind respondents' decisions, one could surmise that they may be less willing to engage in acts that require a greater commitment of time and energy, like volunteering at hospitals.

What people do not realise, however, is that the benefits of volunteering far outweigh the effort expended. Ms Catherine Chua, a Volunteer Programme Manager at the Institute of Mental Health says, "Volunteering is a good way to meet others, make friends and bond over common beliefs and goals. It also makes you happy as well as physically and mentally healthy."

From a physiological perspective, this is largely due to the hormone oxytocin — the so-called 'love hormone'.

“**VOLUNTEERING MAKES YOU HAPPY AS WELL AS PHYSICALLY AND MENTALLY HEALTHY.**”

**MS CATHERINE CHUA, VOLUNTEER PROGRAMME MANAGER,  
INSTITUTE OF MENTAL HEALTH**

## Kindness In Action

Volunteerism is essentially an act of kindness or compassion. But it is also good for you, the volunteer. Whenever you reach out to someone else and engage in moments of emotional or physical contact such as hugging or holding hands, the brain releases oxytocin into the bloodstream, triggering an improvement in mood and alleviating anxiety.

Citing a 2012 study conducted by researchers from the University of Michigan's Interdisciplinary Programme on Empathy and Altruism Research, Ms Chua says, "Social connections — including face-to-face contact, sense of touch, prolonged eye contact and smiles — during interactions release oxytocin which lowers stress levels." By lowering stress, blood pressure and heart rate are also reduced.

Oxytocin also inhibits atherosclerosis, or the buildup of plaque in the arteries, thus preventing heart damage. Moreover, oxytocin promotes angiogenesis or the creation of new blood vessels, which are crucial in wound healing. Hence, it can be said that volunteering heals emotional as well as physical wounds — not just for the beneficiary, but also for the volunteer.

The positive correlation between volunteering and improved health involves more than hormonal changes. Again citing the University of Michigan study, Ms Chua adds, "By getting off the couch and leaving the house, volunteering makes you stronger and fitter. The more physically fit you are, the better you are at dealing with stress and the happier you feel, which in turn is associated with a longer and healthier life."

The same conclusion was reached by British researchers from the University of Exeter Medical School in their 2013 analysis of the effect of volunteering on



# A LO T



health. “In their review of 40 published papers, the researchers found that volunteers generally have a lower risk of death, lower levels of depression, increased life satisfaction and enhanced well-being compared to non-volunteers,” says Ms Chua.

To be sure, volunteering is not easy. “Many volunteers, especially those who have full-time jobs, are not always able to make time for regular volunteering sessions in their weekly schedules,” she says. “Another challenge is the language barrier — it might be hard to initiate a conversation with patients if you don’t speak the same language or dialect they do.” However, it is worth persevering through these difficulties, for the rewards and fulfillment at the end of the journey are immense.

## Where To Start

The National Healthcare Group (NHG) offers multiple avenues for interested individuals to volunteer at its various institutions. For example, volunteers can choose to help patients in rehabilitative activities such as arts and crafts or simply befriend them and provide a listening ear.

IMH has its own staff volunteering group with the committee called SPARKS to encourage volunteering within the hospital

for patients’ events.

So, although donating money is to be applauded, you can make a bigger difference to patients’ lives as well as your own by stepping up as an NHG volunteer:

- **Institute of Mental Health** — Register as a volunteer at [www.imh.com.sg](http://www.imh.com.sg) or call the enquiry hotline at 6389 2000.
- **Tan Tock Seng Hospital** — Visit [www.ttsh.com.sg/volunteer](http://www.ttsh.com.sg/volunteer) and fill in the Volunteer Application Form, or call the Volunteer Management Office at 6357 2494 / 2491.
- **National Healthcare Group Polyclinics** — Visit [www.nhgp.com.sg/Be\\_A\\_Volunteer](http://www.nhgp.com.sg/Be_A_Volunteer) and download the application form for submission, or approach any of the clinic operations executives or managers to sign up. **LV**



To complement the contributions of members of the public who serve as volunteers, TTSH launched a staff volunteer pilot programme called TTSHCares in November 2013. The programme encourages TTSH staff to take up to 24 hours off their working hours per calendar year to volunteer in any of the hospital’s inpatient wards.

Unlike traditional task-focused volunteer programmes, TTSHCares is designed such that staff volunteers are trained to be more responsive to the individual needs, values and preferences of each patient. By participating in more direct patient care, volunteers can pick up patient care skills that will allow them to deliver a more personalised and meaningful healthcare experience.

## (VOLUNTEERISM)



**Mr Joseph Ong**, a 72 year-old retiree, is a familiar face at Toa Payoh Polyclinic, turning up three or four times a week — and sometimes staying for the entire day — to help manage the crowds in the waiting area and keep patients company while they wait for their turn. A volunteer for the past six years, he was awarded the NHG Exemplary Patient Award in 2008.

“I believe we are all born with a gift or talent. In my case, I am blessed with the gift of the gab! I love talking to people and putting them at ease. At the polyclinic, I often come across patients who kick up a fuss because they are tired of waiting. By talking to them, I can get them to calm down and feel better.

I may be old, but I am still strong and healthy, and I believe this has a lot to do with my positive outlook on life. Encouraging others to think more positively lifts my own mood and keeps me feeling young.”

**WHAT INSPIRES THEM, AND HOW HAVE THEIR LIVES BEEN ENRICHED BY THE EXPERIENCE? LIFEWISE TALKED TO SOME VOLUNTEERS FROM THE NHG FAMILY.**



# GIVING

# their all

## Mr Michael Poh

had a heart attack on 25 December 1999, which prompted the now-66 year-old insurance agent to help set up the Cardiac Rehabilitation Patient Support Group together with clinicians and patients at Tan Tock Seng Hospital (TTSH), in 2002.

“As volunteer leader for the support group, I formed the Local Exercise Group for previous and current heart patients. Every Sunday morning, 20 to 30 of us gather at Hougang Stadium or Punggol Park for a brisk walk. I also take turns with other volunteers to visit patients in the hospital two or three times a week, and I am involved in the Art of Healing Programme to reach out to patients.

I am lucky. Unlike countless other people, I survived a heart attack. Sharing my experience with patients serves as a reminder to myself that I have been given a second shot at life, and that I must make the most of it. And I can't think of anything more life-affirming than helping others who are going through what I did.”



FROM LEFT: MICHAEL POH, JOSEPH ONG, DINCY LIM AND JUNAINAH EUSOPE.



**Mrs Dincy Lim** is founder and volunteer leader of the Colon Cancer Support Group at TTSH. The 80-something homemaker dedicates her weekdays (except Tuesdays) to lending an ear and giving encouragement to colorectal cancer patients.

"In the nine years that I have led the volunteer team in the support group, I have been able to hone my strength in events planning, sharpen my listening and counselling skills, and gain more confidence in myself. Best of all, I have made many meaningful connections with the people I encountered.

One special friend was a Mandarin teacher in her 60s, whom I called Lao Shi (teacher). When I met her, she was battling stage three colorectal cancer. We became very close. She coached me to deliver one talk in Mandarin. Sadly, she passed on a few years ago. It was painful watching her suffer towards the end, but her tenacity for life was inspiring."



### Ms Deng Xinying

IS A 25 YEAR-OLD RESEARCH ENGINEER WHO LEADS A GROUP OF VOLUNTEERS WHO VISIT IMH'S LONG-STAY WARDS ON SATURDAYS.

"The mentally ill are often the most neglected members of society. That is where I come in — playing games with them, celebrating festivals together and bringing them out. It has helped me see the importance of not giving up. Some patients are reluctant to talk, but I keep trying and eventually they warm up. It makes my day when I feel I've connected with them."



### Mdm Poh Chin Chin,

A 68 YEAR-OLD RETIREE, HAS BEEN VOLUNTEERING SINCE 2012 AS A FALLS AMBASSADOR AT TOA PAYOH POLYCLINIC.

"From my station at the polyclinic entrance, I look out for seniors who walk in alone and seem frail or prone to falling. I go up to them with a smile, and offer them a wheelchair or my arm to hold on to. I enjoy interacting with the elderly and being around them brings back fond memories of my own parents, who I lost in the 1980s. It is also a great form of exercise, and keeps me active."



### Mr Duncun Ho

HAS BEEN VOLUNTEERING AT TTSH FOR THREE YEARS. THE 28 YEAR-OLD RESEARCH ASSISTANT WATCHES OVER ELDERLY PATIENTS AS PART OF THE NIGHT SITTER PROGRAMME AND IS ALSO INVOLVED IN THE MOBILE LIBRARY PROGRAMME, HANDING OUT BOOKS TO PATIENTS.

"It is hard to get young people to volunteer because it's not glamorous, and it can be difficult to balance it with study or work. But besides contributing to patients' happiness, volunteering has made me cherish life more. On a personal note, I met my girlfriend at a befriending programme at the Asian Women's Welfare Association's Community Home for Senior Citizens."



**Mdm Junainah Eusope, 59, teaches patients art at the Institute of Mental Health (IMH) as part of their therapy. Volunteering three days a week for the past four years has helped this mother of two, herself a former nurse, recover from her own depression.**

"I was diagnosed with major depressive disorder in 2002. But interacting with other patients in these classes has helped me to open up and come out of my shell. The participants listen to me and make me realise I have a voice; I'm not invisible. At the same time, they are also comfortable confiding in me because they know I have walked a mile in their shoes and I would never judge them. I was motivated to get better because I wanted to show patients it is possible to break out of whatever mental condition they are experiencing."

INTERVIEWS: WANDA TAN AND FAIROZA MANSOR  
PHOTOS: KELVIN CHIA HAIR & MAKEUP; MANISA TAN

## (EAST MEETS WEST)



**TO SCEPTICS**, traditional Chinese medicine (TCM) is a relic of the past, cloaked in unscientific superstitions and rendered irrelevant by modern Western medicine. But surely, others might argue, a medical system that has served millions of people for thousands of years cannot be all smoke and mirrors? And they would be right because these days, certain forms of TCM are accepted in the medical world as effective complementary treatments.

Of all the TCM treatments, acupuncture has been most extensively studied. While classical acupuncture involves the insertion of needles into the pathways of the body's so-called energy, or *qi*, and then redirecting the energy flow to restore the body's internal balance (see sidebar), Western medicine views the use of acupuncture in the context of neuroscience, as the needles are used to stimulate the nervous system into producing chemicals such as endorphins which reduce pain.



# The SCIENCE

## International Recognition

Since the 1970s, the World Health Organization (WHO) has recognised acupuncture, one of the mainstays of TCM, as an effective treatment for more than 20 ailments. A paper published by WHO in 2003 includes headaches, hay fever, lower back pain, rheumatoid arthritis and nausea as conditions that have been proven to be effectively treated by acupuncture.

Some people might think that the renewed interest in TCM comes largely from Asia, but this is not the case. Acupuncture is being strongly promoted in Western countries as a viable alternative treatment. An article published under the *British Medical Journal* group states that acupuncture is a treatment based in science, and the American Cancer Society

# Of TCM

## HOW TRADITIONAL CHINESE MEDICINE WORKS HAND-IN-HAND WITH WESTERN MEDICINE.

BY **ALEX NGAI** IN CONSULTATION WITH **DR KONG KENG HE**  
HEAD OF COMPLEMENTARY INTEGRATIVE MEDICINE // SENIOR CONSULTANT //  
REHABILITATION MEDICINE // TAN TOCK SENG HOSPITAL

recommends the use of acupuncture to treat side effects of radiation therapy or chemotherapy such as vomiting and headaches.

Medical institutions and research centres like the Mayo Clinic in the United

States and Susan Samuelli Center for Integrative Medicine at the University of California Irvine's School of Medicine continue to conduct studies on how acupuncture can be best utilised in medical treatments.



## THE WORLD HEALTH ORGANIZATION RECOGNISES ACUPUNCTURE AS AN EFFECTIVE TREATMENT FOR MORE THAN 20 AILMENTS



### Embracing Tradition

In Singapore, Tan Tock Seng Hospital (TTSH) is one institution that has incorporated TCM treatment into the practice of medicine. The hospital's Complementary Integrative Medicine (CIM) Clinic provides TCM treatments such as acupuncture to patients as an adjunct to Western medicine.

As Dr Kong Keng He, Head of CIM and Senior Consultant in rehabilitation medicine at TTSH says, "Acupuncture has been proven in many clinical trials to be an effective treatment when conventional methods fail. Though not a front-line treatment, acupuncture has minimal side effects and is especially effective in dealing with pain-related ailments."

The re-emergence of acupuncture in modern medicine has led to Western-trained physicians-turned-TCM practitioners like Dr Kong to push for wider acceptance of acupuncture in modern medicine. Along with his colleague, Dr Yen Hwee Ling, Dr Kong spoke at the Singapore Health and Biomedical Congress 2013 to fellow medical practitioners about the use of acupuncture in treating patients for pain and stroke-related conditions.

One of the biggest benefits of acupuncture is the minimal side effects. Other than slight bruising and bleeding where the hair-thin needles are inserted, the treatment is safe.

Trained professional acupuncturists, like those registered with the TCM board under the Ministry of Health in Singapore, use disposable needles to prevent contamination and nightmare scenarios such as the puncturing of vital organs are unlikely to happen.

Other than patients with bleeding disorders or patients who use a pacemaker due to heart problems, almost everyone can receive acupuncture treatment.

But even as multiple studies are continuously being conducted on acupuncture and other treatments, there are still many members of the public and medical professionals who remain sceptical about TCM.

"A big problem faced when conducting research studies and trials on TCM is the difference in philosophies between Western medicine and TCM," says Dr Kong. "This is made worse by the traditional beliefs regarding TCM, and also the mindset that TCM and Western

medicine are mutually exclusive. The fact is that, while different, the two schools of medical treatment are absolutely capable of complementing each other."

Unlike Western medicine, where specific medicines and treatments are prescribed for different conditions, there is a long history of herbal TCM treatments being touted as cure-all elixirs. Scientific trials have discredited these, which has led to a distrust of TCM. "It is undeniable that the public's concept of TCM is mixed in with a large dose of tradition and mythology, but that is exactly why more research needs to be done," says Dr Kong.

It seems that when it comes to medical treatments, patients are slowly becoming more accepting of the option of acupuncture. "We have sceptical patients come to us because conventional Western treatments have proven ineffective, and they end up receiving great relief from our treatments," says Dr Kong. And if you thought that the only believers in TCM are older Chinese people, you would be wrong. "We get plenty of younger patients and patients from other races who swear by our treatments.

"At the end of the day, acupuncture is not a front-line treatment. It is something complementary, an option that can be taken when conventional methods are ineffective," Dr Kong emphasises. **lw**

## HOW DOES ACUPUNCTURE WORK?

Traditional TCM philosophies revolve around the existence of internal energy within the body known as *qi*, which flows along defined pathways that affect different parts of the body. Acupuncture is the insertion of needles along these pathways to strengthen or control the flow of *qi* in order to effect changes in the patient's health.

The Western understanding of acupuncture, however, is that the needles are actually inserted along nerve pathways that affect the nervous system. This, in turn, stimulates parts of the brain to produce chemicals like dopamine and endorphin, which mitigate pain.



The Western application of acupuncture is compatible with the traditional one, with some believing that the original TCM philosophy was based on a rudimentary understanding of neuroscience and the nervous system.

Today, acupuncture is mainly used in treating pain, from sports injuries to chronic back pain and even headaches.

It has also been found to be effective in treating nausea, vomiting and addictions to alcohol and nicotine.

(BALDNESS)

# The MANE issue

**THINNING CROWN  
MAKING YOU FROWN?  
DON'T LOSE YOUR HEAD —  
THERE MIGHT BE SOME HOPE  
OF REGROWING YOUR HAIR.**

BY **GENE KHOR**  
IN CONSULTATION WITH **DR LUCINDA TAN**  
ASSOCIATE CONSULTANT DERMATOLOGIST //  
NATIONAL SKIN CENTRE



**MANY PEOPLE GO** to great lengths to ensure that their locks are well-looked after.

But don't just take our word for it — according to a market research report by business data collection firm MarketLine, the global haircare market had a total revenue of US\$50.2 billion (about S\$62.94 billion) in 2012. It was also forecasted that this market would increase in value to US\$60.6 billion by the end of 2017.

But no matter what we do, each of us loses an average of 50 to 100 strands of hair every day. This is no reason to fret however, as this is a natural cycle with new hair growing to replace the ones lost.

What causes alarm though is baldness. Thinning hair, and for men, receding hairlines and male pattern baldness are just some of the hair loss



PHOTO: GETTY IMAGES



problems we face. Hair can also start thinning rapidly due to stress caused by illness, accidents, surgery, childbirth, weight loss, dieting or certain medications. This condition is referred to as telogen effluvium, and it can be acute or chronic depending on its duration. There is good news though as this condition is self-limiting and typically reverses when the stress factor is addressed.

Another common cause of hair loss is androgenetic alopecia, more commonly known as male pattern baldness. Don't be fooled by the name as this hereditary condition can affect males and females. Genetic factors, **androgenic hormones** and increasing age all possibly play a role. For example, if your parents or grandparents have a history of androgenetic alopecia, it appears likely that you will develop the condition too.

However, hair loss pattern does in fact differ by gender. "In males, there is a gradual recession of the frontal hairline with the hair thinning over the top portion of the scalp," says Dr Lucinda Tan, Associate Consultant Dermatologist at the National Skin Centre. "In females, there is thinning of hair over the top portion of the scalp while the frontal hairline is preserved. Treatment involves the use of either or both topical [hair regrowth medication] minoxidil, and oral medications — finasteride for males and spironolactone for females. A surgical hair transplant is also a viable option."

## GLOSSARY

### ANDROGENIC HORMONES

Although women have them, the male body produces and uses these hormones more. They play a big part in the development of male sex organs.

### IMMUNOTHERAPY

A treatment that uses certain parts of the immune system to fight diseases such as cancer. One way is the stimulation of the immune system to work harder or smarter to attack the diseased cells.

### PHOTOTHERAPY

Using light, especially ultraviolet light, to treat various inflammatory skin disorders.

There is cause for concern if round bald patches appear on your scalp. A cause of this type of hair fall is alopecia areata, an autoimmune condition that occurs in individuals who are genetically predisposed to it. "The immune system's white blood cells help to protect the body from harmful substances and infections," explains

## ANDROGENETIC ALOPECIA IS A HEREDITARY CONDITION THAT CAN AFFECT BOTH MALES AND FEMALES

Dr Tan. "However, in certain patients with an inherited genetic pattern, the immune system mistakenly attacks normal tissue. In the case of alopecia areata, the immune system attacks hair follicles, which results in hair loss."

Because most sufferers do not notice any symptoms, these bald patches are often first discovered by a hairdresser. But a minority of patients may experience a burning sensation or itch over the affected areas of the scalp.

There is no particular ethnic group that is more likely to suffer from alopecia areata, nor does it matter if you are male or female. Spontaneous recovery is common among patients. However, treatment can still be sought to hasten hair regrowth. Frequently used are the application of steroid medication on the scalp or a steroid injection into the affected area, while steroid pills are given to patients with rapid active hair loss. In addition, hair products containing minoxidil have been proven to reduce the rate of hair loss and stimulate new hair growth.

"Topical minoxidil can also be used concurrently with steroids," says Dr Tan. "For patients with extensive alopecia areata or cases that don't respond to conventional treatment, **immunotherapy** and **phototherapy** can be offered. Unfortunately, the condition can recur, so patients may have repeated attacks requiring treatment. Hairpieces and wigs also play an important role in the holistic management of this condition." **LV**

## THE BALD TRUTH

### Dr Lucinda Tan separates fact and fiction about hair loss

#### ▶▶ Some haircare products accelerate hair loss

There is no clinical evidence to substantiate this claim.

and minerals like zinc, copper and iron, the nutritional deficiencies may result in hair loss.

#### ▶▶ Washing your hair in very hot or cold water can accelerate or decelerate hair loss

Temperature does not play a major role in affecting hair loss.

#### ▶▶ Shaving your head bald causes more hair to grow

The perception that hair grows faster after shaving may be due to the individual's increased awareness and self-consciousness of the shaved area.

#### ▶▶ Certain types of food can accelerate or decelerate hair loss

There is no clinical evidence that certain types of food will affect hair loss. However, if one's diet is restrictive or lacking in vitamins like B12 and folate

#### ▶▶ Products like gel and hairspray, straightening products and dyes accelerate hair loss

The frequent use of straightening products and hair dyes may damage the hair roots, resulting in hair loss.

#### ▶▶ Wearing headgear accelerates hair loss

Avoid using tight headgear or frequently tying hair too tightly. These may contribute to traction alopecia, a form of hair loss caused primarily by a constant pulling force on the hair which loosens it from its roots. The hairs fall out and their follicles may become inflamed, resulting in a bald patch.

#### ▶▶ The following beliefs have not been validated in clinical studies:

- Washing your hair frequently and not letting the scalp's natural oils seep through the strands will cause baldness.
- Pulling out a white hair causes five more to grow in its place.
- Applying alcohol to a balding spot causes more hair to grow.



# When doctors make **MISTAKES**

THE LESSONS ONE CLINICIAN LEARNED FROM HIS ERROR.

BY **ASSOCIATE PROFESSOR CHONG SIOW ANN**  
VICE-CHAIRMAN MEDICAL BOARD (RESEARCH) // INSTITUTE OF MENTAL HEALTH



**THROUGHOUT OUR MEDICAL** training and in the actual practice of medicine, it is expected that as medical practitioners, we should always do the best for our patients and their care must be our first and foremost professional concern.

In our interaction with patients, it is assumed that we will give our full and undivided attention to them and focus exclusively on their problems. Most times we do but at times, it can be difficult. Other irrelevant and unrelated thoughts intrude: that pile of unfinished and overdue medical reports sitting on one's table, an ailing parent, a child's impending school enrolment, and all that array of life's minutiae. And that can lead to bad consequences.

## **A Real Example**

A few years ago in my outpatient clinic, I attended to a patient whom I have known for years and treated for schizophrenia. She had still the occasional auditory hallucination but was otherwise well enough to have meaningful relationships and hold a steady job.

It was a routine clinic visit: for me to check that everything was fine and for her to get her usual prescription filled. She was indeed fine, we chatted and with a couple of taps on the keyboard of my computer, I printed her prescription. As I handed her the prescription, my mind strayed to the next patient and a meeting later that afternoon. Fixing the date for her subsequent visit (I had been seeing her on a two-monthly basis), I realised that I would be away then on a trip abroad. I told her this and gave an appointment date in 10 weeks' time.

Nine weeks later and on the day of my return to work, I found out that she had been hospitalised. She had suffered a severe relapse after her medication ran out. Mortified and stricken with guilt, it dawned on me that I had omitted to make that change to her prescription. She told me later that she thought that a couple of weeks off medicine wouldn't make much difference.

In 1999, a report from the non-profit Institute of Medicine, which is the health arm of the National Academies in the United States, estimated that medical errors contributed to 44,000 to 98,000 preventable deaths each year in US hospitals. These were startling figures which were disputed in some quarters for the way that the study was done. However, a slew of subsequent studies were consistent in their findings of the common occurrence of medical errors and clear in their demonstration of the harm (physical and emotional) that followed in the wake of these errors. Among the most common mistakes are medication errors.

## **Preventing Medical Errors**

In the successive years, herculean efforts have been made to lessen these medical errors. Extensive re-engineering of the complex medical system has been implemented — mostly based on the premise that

medical errors are not made by bad people in health care but rather by good people working in bad systems. Policies have been implemented to encourage reporting of adverse events arising from care and taking a non-punitive systems approach.

Concepts and paradigms have been borrowed and adapted from industries like Motorola's Six Sigma, and Toyota's model of empowering workers on the shop floor to put the brakes on the assembly line to fix problems as soon as they are spotted. Information technology has been brought in, including computerised prescribing systems like the one I used to make out my prescription for my patient which, among other things, is meant to reduce dispensing errors by eliminating the illegible scrawl that doctors are infamous for.

But it is impossible to have, in the



**ADMITTING TO A MISTAKE CAN BE VERY DIFFICULT FOR A DOCTOR. THERE IS THAT SENSE OF SHAME WHICH INCITES A DESIRE TO HIDE OR EVEN COVER UP, THERE ARE THE FEARS OF A TARNISHED REPUTATION, OF ANGRY RECRIMINATION FROM THE INJURED PATIENT AND FAMILY, AND OF A MEDICAL LIABILITY LAWSUIT.**



A/PROF CHONG SIOW ANN, VICE-CHAIRMAN  
MEDICAL BOARD (RESEARCH),  
INSTITUTE OF MENTAL HEALTH



poet T S Eliot's words, "systems so perfect that no one needs to be good". In an essay in *The New Yorker* magazine, Dr Atul Gawande, who is a surgeon in Boston's Brigham and Women's Hospital, wrote of his own medical mistake and noted that, while this retooling of the structure and processes of health care can make "dramatic improvements", there is still human fallibility to contend with.

He went on to write: "But there are distinct limitations to the industrial care, however necessary its emphasis on systems and structures. It would be deadly for us, the individual actors, to give up our belief in human perfectibility... This isn't just professional vanity. It's a necessary

part of good medicine, even in superbly 'optimised' systems... No matter what measures are taken, doctors will falter, and it isn't reasonable to ask that we achieve perfection. What is reasonable is to ask that we never cease to aim for it."

## Owning Up To A Mistake

And so strive as we would, we would also falter and when that happens, we can't dodge personal responsibility and owning up to it. Admitting to a mistake can be very difficult for a doctor and the reasons are not noble: there is that personal sense of shame which incites a desire to hide or even

cover up, there are the fears of a tarnished reputation, of angry recrimination from the injured patient and family, and of a possible medical liability lawsuit.

It is not unusual that healthcare providers, hospital administrators and lawyers would worry that disclosure, apologies and even expressions of regrets are an invitation for litigation and can be used as discriminating evidence in malpractice suits.

The adversarial tort system may give some sort of justice to the patient and family but relatively few cases make it to the court. Research has also found that litigation does not reduce medical errors. Accounts of some of those who sued revealed that they did so not for financial reasons but because they felt frustrated, aggrieved and betrayed when the health-care providers stonewalled them. This despite the oft-repeated point that being candid and saying sorry may forestall some lawsuits or would at least lead to a quick settlement and lessen the toll on patients, families and doctors.

"Apologising," said Dr Lucian Leape, the Harvard professor and former paediatric surgeon who is acknowledged as the father of the patient safety movement, "may be the most important thing we do after a serious event, both to help the patient begin to heal and to heal ourselves."

So one afternoon in a room in the hospital ward where my patient was recovering, I sat down with another senior colleague and a hospital administrator, and explained to the patient, her sister and elderly father how it had happened. (There was an extra layer of check by the dispensing pharmacist, but somehow that failed, too.)

I apologised for my mistake and acknowledged the distress caused to them. They listened quietly and without interruption to the end; the sister asked about the hospital bill — which of course was waived — and expressed her hope that it would not happen to other patients.

The title of the 1999 report by the Institute of Medicine was *To Err Is Human*; when I next saw this patient and her father in my clinic a week after her discharge from the hospital, they had already forgiven me. **LV**

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## (ANALYSIS)



**SINCE WORLD WAR II**, the United States has been through nine recessions. According to US-born bestselling author and renowned management thinking guru Professor Clayton Christensen, after each of the first six recessions, it took about six months for employment to rebound.

“But then, in 1991/1992, it took 15 months for employment to rebound. In 2001/2002, it took 39 months. And now, with the recession that began in 2008, it has been 68 months and we see no rebound yet,” he said. “So there is something fundamentally wrong with the US economy... and this has implications for how capital is deployed in healthcare.”

The Kim B Clark Professor of Business Administration at Harvard Business School was speaking at the inaugural Tan Tock Seng Hospital (TTSH) Value Festival Day on 24 October 2013. In his talk about making healthcare more efficient and effective, Prof Christensen distinguished between three categories of innovation: empowering innovations, sustaining innovations and efficiency innovations.

Empowering innovations use up capital but create jobs. In fact, almost all jobs are created by empowering innovations that kick-started industries; for example, the automobile industry. Sustaining innovations on the other hand, use limited capital but create few jobs. Efficiency innovations allow manufacturers to sell the same product



# An INNOVATIVE look at Health

WHAT LESSONS CAN HEALTH GROUPS LEARN FROM A RECESSION?  
HARVARD BUSINESS SCHOOL PROFESSOR CLAYTON CHRISTENSEN SHARES HIS INSIGHTS.

BY NIRMALA SIVANATHAN





# care

or service to the same customer at a lower price.

“Efficiency innovations eliminate jobs but they also free up capital,” said Prof Christensen. “And as long as organisations use that freed-up capital to invest in empowering innovations, you have a neat system going. But over the last 20 years in the developed world, something has gone wrong.”

The problem is caused by the way organisations and countries measure their success and how efficiently they use capital. In a system that values short-term gains and innovations that create capital, empowering innovations are cast aside. “We are not investing in the innovations that create growth,” said Prof Christensen. “This is why in America, you see finance people making all kinds of money but unable to create jobs. The world is awash in capital and yet countries such as the US and Japan cannot invest to create jobs.”

## A Lesson For The Healthcare Sector

“The lesson is to use the abundant capital to produce what is scarce and costly — which, in this case, are doctors and nurses.

Historically though, he said, “we have wasted our healthcare professionals thinking they are abundant and tried to minimise our deployment of capital. Now it is the other way around. We need to optimise our use of *people*, not capital. We need to think how we can help our professionals be more productive, and how we can measure this.”

For example, would it not be wonderful, suggested Prof Christensen, to have miniature CT scanners in every doctor’s office instead of having to send patients to be examined at a radiology department? This way doctors would have the capability to carry out the same scans at every point of care, thus optimising the use of people rather than capital.

The professor — who himself has survived a heart attack, cancer and a stroke — also talked about the second theme of his speech: how healthcare organisations can provide better care to their patients at a lower cost.

According to him, business school professors have got this all wrong, too. “The traditional thinking is that we have to understand what our customers or patients need.” This approach, he explained, has resulted in a sort of one-size-fits-all organisation with

## ABOUT THE SPEAKER

Described as “one of the world’s foremost experts on innovation and growth”, Prof Clayton Christensen, 61, is a five-time recipient of the McKinsey Award, an accolade given each year to the two best articles published in the *Harvard Business Review*. His first book, *The Innovator’s Dilemma*, received the Global Business Book Award in 1997, and in 2011 the work was named by *The Economist* magazine as one of the six most important books about business ever written.



bloated processes and high overhead costs.

“But thinking about what customers need is the wrong unit of analysis. What we have to understand is the *job* the customer or patient is trying to do,” said Prof Christensen.

Some patients don’t want to see a doctor, he explained. “They know what is wrong and they just want you to fix it. Other patients want you to help them care for themselves or a loved one. Yet another patient could want from the organisation something as simple as ‘help me stay healthy’.

“So the question the healthcare industry needs to ask is, if that is the job to be done, what can we do to nail the job perfectly? What and how do we need to integrate to provide the best possible experience?” His assertion is, if an organisation could organise its delivery around the job to be done, it would streamline the provision of care. “If you organise your company by the jobs to be done, you could cut back on bloated processes and overhead costs.” **lw**



**WE HAVE WASTED OUR PROFESSIONALS THINKING THEY ARE ABUNDANT AND TRIED TO MINIMISE OUR DEPLOYMENT OF CAPITAL. NOW, IT IS THE OTHER WAY AROUND. WE NEED TO OPTIMISE OUR USE OF PEOPLE, NOT CAPITAL.**



# 'A Bigger Heart, Mind'

DR ALEX SU, 46, SENIOR CONSULTANT AND CHIEF OF GENERAL PSYCHIATRY AT IMH, IS KNOWN FOR HIS LOVE OF TRAVEL, SINGING AND A DESIRE TO HELP.

INTERVIEW ARTI MULCHAND

➔ "I USED TO do a talk show on UFM 100.3 several years ago and one guest, a mental health nursing officer, related how she was hit by a car when she was younger while running across the road to get her brother ice cream. She almost died but when she recovered, her first thought was to apologise for not getting his ice cream.

This left an impression because it showed me how much selflessness there is in the mental health profession. It is not a glamorous speciality but you can make such a difference.

My colleagues tend to be very positive so they can instill hope, which is such an important part of getting patients back on their feet. When I started in Woodbridge Hospital — now known as the Institute of Mental Health (IMH), a young patient asked if he would end up in the long-stay ward. I was determined to help him get home, and he did.

One of the biggest misconceptions about mental illness is that it cannot be treated or that patients are a threat. But, these days, there are biological, social and psychological forms of intervention, and with holistic treatment, they can go back to living normal lives.

My days can be tough, but when the work you do is meaningful, you don't feel tired or frustrated. I do clinical and administrative work, as well as attend meetings. I often give media interviews because putting the information out there helps to de-stigmatise mental illness and prompts people to come forward to be helped.

What I really hope for is more coordination and communication in the various services that support early detection and treatment for mental illness. I also wish more people would volunteer and visit our 1,200 long-stay patients, who really appreciate all we do. Even an outing, a meal, seeing the Christmas lights — things we take for granted — make a difference to them.

On the personal front, I want to backpack around the world like I did in 1999, when I saw 34 countries and experienced cultures I had only read about. When you travel, you come back with a bigger heart and mind.

I also hope to put out a second Mandopop album. Many people have requested it and even patients have said that the music helps them when they are down. Singing is not just about technique — you're telling your life story and sharing your experiences, so people connect." LW

PEOPLE HAVE REQUESTED THAT I RELEASE A NEW ALBUM — PATIENTS SAY THE MUSIC HELPS THEM WHEN THEY ARE DOWN





# Peeling Back the Layers

ASSOCIATE PROFESSOR CHUA SZE HON, 49, A SENIOR CONSULTANT AT THE NATIONAL SKIN CENTRE, ON HOW DERMATOLOGY GOES MORE THAN SKIN DEEP.

INTERVIEW WANDA TAN



“DERMATOLOGY IS A FASCINATING FIELD of medicine. A lot of my work is visually oriented because skin is an external organ, so it is possible to match symptoms to the underlying cause of disease without resorting to expensive, elaborate lab tests. In fact, I can make about 90 per cent of diagnoses this way, as my years of experience have allowed me to recognise different patterns of disease. And even when tests are required, it is easier to perform and analyse a skin biopsy, for example, compared to internal organs like the brain or liver.

At the same time, however, dermatology does not just have a superficial or cosmetic bias — the impact of skin diseases is no less than that of other diseases such as diabetes. Take eczema and acne, two common skin problems among youth, as examples. Many sufferers tend to have low self-esteem and are embarrassed to interact with their peers due to their scars. By improving their skin, I can help improve their quality of life.

**WE NEED TO STEP OUT OF OUR COMFORT ZONE AND CHALLENGE OURSELVES IF WE ARE TO IMPROVE**

My two main areas of interest are procedural dermatology and immunodermatology. Procedural dermatology —

the use of lasers in skin surgery — has undergone rapid development in the last decade. I love playing with these new machines, not just to understand the science behind them but, more importantly, to learn how they can be used to treat patients better.

Immunodermatology is the treatment of skin diseases caused by immune-mediated mechanisms. For example, pemphigus is an autoimmune disorder in which the body attacks its own skin, causing widespread painful blisters. In some cases, patients have multiple medical problems and I have to manage them with other specialists.

Besides working with patients, I am also actively involved in teaching undergraduates and training residents through my role as Head of the Division of Medical Education. As doctors — or people of any other profession, for that matter — one of the most dangerous pitfalls to avoid is to be too ‘comfortable’. We need to step out of our comfort zone and challenge ourselves if we are to improve, and the only way to do that is by cultivating lifelong learning — clichéd as that may sound.

Outside of work, I enjoy visiting various natural wonders around the world. I have been to national parks and coral reefs in Malaysia, New Zealand and Australia. These nature trips help me unwind, focus my thoughts, explore new ideas and broaden my horizons.” **LW**





# The power of

# LOVE

**AS VALENTINE'S DAY COMES AROUND, KNOW THAT BEING IN A STABLE, LOVING RELATIONSHIP IS AN EFFECTIVE PRESCRIPTION FOR YOUR OVERALL HEALTH AND MENTAL WELL-BEING.**

BY **FAIROZA MANSOR**  
IN CONSULTATION WITH **DR MANU LAL**  
CONSULTANT // GENERAL PSYCHIATRY //  
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**THE REFRAIN TO THE BEATLES'** hit song, *All You Need Is Love*, may not

necessarily be words to live by, but John Lennon might have been onto something when he wrote it. For as it turns out, love is more than just butterflies in the tummy, quickened heartbeats and the other things teenage dreams are made of. The companionship and security that come with being in a stable, loving relationship can also improve one's mental well-being and health.

That top-of-the-world feeling people speak of when they've found "the one" is more the brain's doing than the heart's. As Dr Manu Lal, Consultant in the General Psychiatry department of the Institute of Mental Health explains, "A number of neurotransmitters — brain chemicals such as dopamine, norepinephrine, oxytocin and vasopressin — are released in the brain of the person in love, resulting in a feeling of euphoria."





## NUMEROUS STUDIES HAVE SHOWN THAT COMPANIONSHIP CAN LOWER ONE'S STRESS LEVELS, THUS ENHANCING WELL-BEING

The brain also sends such signals to other organs, causing that quickened pulse and the sensation of butterflies in the stomach. Thus, the mind also benefits significantly from having deep, meaningful and loving human connections.

### Head Over Heels

Numerous studies have shown that companionship can lower one's stress levels, thus enhancing well-being. "Companionship acts as a buffer against developing depression. It also facilitates recovery in depressed individuals," says Dr Lal.

He provides three explanations for this. Firstly, companionship provides a sense of belonging, thereby warding off loneliness. Just knowing that one is not alone can go a long way toward coping with stress, he says. Secondly, companionship increases one's self-esteem as it conveys that he or she is valued and cherished by another. Thirdly, companionship gives a feeling of security, which can prevent one's mood from dipping further. "This connection and social network gives one the confidence that there are trusting people around who are able to come forward and offer help should there be a need," adds Dr Lal.

In 2006, a neuroscientist at the University of Virginia in the US, Associate Professor James Coan, conducted experiments in which he gave an electric shock to the ankles of women in happy, committed relationships. They were then given a shock once more — this time while holding their partner's hand. It was found that the same level of electric current produced a significantly lower neural response throughout the brain when the women felt protected. However, among

women in troubled relationships, this protective effect did not occur. The study shows that a loving touch is enough to ease one's response to stress and soften physical pain.

Being sexually intimate with one's significant other can also enhance mental well-being. "Sexual intimacy solidifies emotional bonds, decreases stress and improves self-image," says Dr Lal.

### Tough Love

That special someone may also do more than simply melt your heart; he or she can help to lower blood pressure as well. In 2001, researchers from the State University of New York at Oswego found that when people are with their partners, their blood pressure is lower than when they are alone or socialising with less familiar people. The researchers concluded that the presence of a loving partner acts as a safety signal and provides a calming effect, while interacting with less familiar people may involve uncertainty.

Being in a positive relationship can also make one less susceptible to illnesses. Dr Lal attributes this to the complex relationship between stress and our immune system, as stress is known to weaken our immune system. "One of the ways this happens is through the release of certain hormones that have a detrimental effect on the cells that guard against diseases," he says. Furthermore, stress is known to accelerate ageing.

Meanwhile, loneliness and social isolation have been linked to poor health, and this applies to non-romantic love as well. A study published in March 2013 of 6,500 British men and women aged over 52 found that being isolated from family and friends was linked with a 26 per cent higher death risk over seven years.

Being in a happy relationship may also translate to falling into a set of better health habits. It has been known that having a positive partner will discourage a person from indulging in vices such as binge drinking and smoking, Dr Lal says. In fact, just being in a satisfying relationship can motivate one to adopt a healthier lifestyle. **lw**

## GIVE YOUR HEART A BREAK

When a serious relationship fails to work out, the natural human response is despair. Reminding oneself that the grief is transitory will help. Coping can be easier with the following advice from Dr Lal.



- DO NOT BOTTLE UP YOUR EMOTIONS. TALK TO YOUR FRIENDS OR FAMILY.
- KEEP YOURSELF OCCUPIED. ALTHOUGH THIS MAY SEEM DIFFICULT AT FIRST, KEEPING YOURSELF BUSY WITH CONSTRUCTIVE WORK CAN BOOST YOUR SELF-ESTEEM AND HELP YOU TO BOUNCE BACK.
- TRY TO FIND MEANING IN OTHER THINGS OR ACTIVITIES THAT GIVE YOU YOUR SENSE OF IDENTITY. THIS COULD BE YOUR WORK OR HOBBIES.
- FOCUS ON YOUR STRENGTHS WHICH WILL HELP YOU TIDE OVER THE EMOTIONAL CRISIS AND HELP YOU MOVE ON.
- FOCUS ON YOUR OTHER SATISFYING RELATIONSHIPS.
- ENGAGE IN PHYSICAL EXERCISE AND AVOID DRINKING OR INDULGING IN DRUGS. YOU WANT TO REGAIN CONTROL, NOT COMPLETELY LOSE IT.

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**ALBERT PANG,** 20s, student

"The diversity of topics makes *Lifewise* an entertaining read. As a fitness buff, I enjoy the Workout section most as it offers many well-researched suggestions on improving my exercise routines, such as knowing which sports accessories are useful."





**UNTIL RECENT TIMES,** 'frailty' was a general concept typically used to describe the physical state

of the old and weak, those who are invalid, and children who fall ill regularly. Medically, however, the concept of frailty refers to a state of vulnerability in which a person is at increased risk of disability, or of losing the ability to perform one's accustomed activities of daily living — the latter known more specifically as 'loss of function'. Previously, the concept of frailty was not well understood. With the advent of recent studies in the medical literature to clarify our understanding, a simple questionnaire has been recommended in the screening of frailty of all people above the age of 70.

Professor John Morley, Director of the Division of Geriatric Medicine at Saint Louis University in the United States is one of the world's foremost authorities on frailty, and the lead author of an article published in the ...▶

# FRAILTY, thy name is...

**STAYING ACTIVE AND EATING RIGHT ARE KEY TO WARDING OFF THE EFFECTS OF THIS INCREASINGLY COMMON CONDITION AMONG THE ELDERLY.**

BY **ALEX NGAI** IN CONSULTATION WITH **DR LIM WEE SHIONG**  
SENIOR CONSULTANT // DEPARTMENT OF GERIATRIC MEDICINE // TAN TOCK SENG HOSPITAL

## (SILVERGLOW)

*Journal of American Medical Directors Association* in which the recommendation of the questionnaire was made. “Frailty is extraordinarily common, affecting between five and 10 per cent of those who are older than 70,” he stated in the article.

According to Prof Morley, frailty leads to increased death rates, a reduced ability to function and an increased number of hospitalisations. But there is hope yet. “Frailty is treatable, and we are asking doctors to spend 15 seconds to conduct a screening that could prevent bad outcomes,” he said during his keynote speech at the Singapore Health and Biomedical Congress (SHBC) 2013 organised by the National Healthcare Group (NHG) last September.

Although it has yet to be validated in Singapore, the F.R.A.I.L. questionnaire was effective in predicting physical limitation and death after four years, in a recent study of 4,000 elderly in Hong Kong.

### Know The Symptoms

The questionnaire, known as **F.R.A.I.L.**, checks for the patients’ **F**atigue, **R**esistance, **A**erobics, **I**llnesses and **L**oss of muscle. Sarcopenia — the gradual loss of muscle — is commonly associated with ageing, and is one of the biggest contributors to frailty. The loss of muscle leads to fatigue and reduced strength, which often results in the patient being less able to exercise. Thus begins a cycle that exacerbates the situation: with the patient less inclined to exercise, more and more strength is lost.

In many cases, frailty is a visible syndrome but there are times when frailty can set in for someone who is outwardly healthy, too. “Many people who function reasonably well may actually be medically frail,” Prof Morley said. “For these individuals who may attribute their symptoms of fatigue to old age, a simple injury incurred in everyday life might have severe consequences.”

Knowing whether a person is frail is the first step in preventing him or her from later suffering from disability or a loss of function. Patients who have been identified as being frail — while possibly still technically healthy — are often one illness or accident away from deleterious health consequences such as long-term hospitalisation or loss of physical function. While



## The Simple **F.R.A.I.L.** Questionnaire Screening Tool

**FATIGUE:** Do you constantly feel fatigued? YES/NO

**RESISTANCE:** Are you unable to walk up one flight of stairs? YES/NO

**AEROBIC:** Are you unable to walk 200m without feeling winded? YES/NO

**ILLNESSES:** Do you have more than five illnesses? YES/NO

**LOSS OF WEIGHT:** More than 5% of your weight in the past 6 months? YES/NO

**IF YOU ANSWERED ‘YES’ TO 3 OR MORE, YOU ARE LIKELY TO BE FRAIL; 1 OR 2, AND YOU ARE AT-RISK OF BEING FRAIL.**

certain conditions are usually considered inevitable in old age, early identification and treatment of frailty can be the difference between a simple fall and a broken hip.

Older patients tend to be more likely to be frail because of the number of physical ailments that they are prone to suffer from. Dr Lim Wee Shiong, a senior consultant in the Department of Geriatric Medicine at Tan Tock Seng Hospital, says, “An elderly person with poor vision from cataracts, knee pain from osteoarthritis and reduced foot sensation from diabetes would be less able to walk steadily, and is consequently more vulnerable to a serious fall. In these cases, even an otherwise minor problem — a urinary tract infection, dehydration or a change in medication — can tip the balance and result in adverse outcomes like complications from the acute illness,

increased dependency and limitations in carrying out daily activities, or even death.”

### Not Irreversible

The good news is that frailty can be easily treated — making some simple lifestyle changes can have dramatic effects on a patient’s condition. “Daily exercise, like walking and stair-climbing, has been shown to be highly effective in combating the onset of frailty,” says Dr Lim. “And because weight loss is a major component of the frailty syndrome, adequate nutrition — especially in terms of calories, protein and vitamin D — are also important in treatment,” Dr Lim recommends. Prof Morley advises increasing the intake of protein as it is necessary to help maintain muscle mass.

Singapore’s sunny weather, according to Dr Lim, is theoretically beneficial in the prevention of frailty, as exposure to sunlight “can help meet some of the daily needs for vitamin D, which is necessary for bone

**FRAILTY IS PREVENTABLE,  
AND ITS TREATMENT CAN LOWER  
THE RATE OF HOSPITALISATION AND  
THE BURDEN OF THE HEALTHCARE  
INDUSTRY AND SOCIETY IN GENERAL**

PROFESSOR JOHN MORLEY





PHOTO: CORBIS

strength and preventing sarcopenia”. But many elderly folks avoid the sun, so they should supplement their diet with vitamin D-rich foods like fatty fish like salmon, tuna and mackerel, and dairy products.

On top of the recommended dietary changes and increase in exercise, frail seniors should consider their medication as over-medication — or ‘polypharmacy’ — is a major contributor to frailty. Elderly patients who are taking more than five medications are advised to consult their doctors to review for inappropriate medication use. According to Prof Morley, “Studies have shown that elderly people who consume 10 or more types of medications regularly are 25 per cent more susceptible to suffering from side effects.”

Older people tend to be more worried about their health and at the same time, rely on multiple medications to manage their health conditions which are often age-related. In addition, their prescriptions may be based on standard benchmarks meant for average healthy adults, and this may mean that they are being dosed more than is necessary or suitable for them.

## Frailty Is Preventable

The rising importance placed on identifying signs of frailty has come about as a result of the shift in focus from curative medicine — treating an existing condition — to preventative medicine, which is about taking steps to stop the onset of conditions. Still, more steps have to be taken before the concept is familiar to the public, and educating them and medical professionals alike will be vital to this. “Individuals found to be frail should undergo a comprehensive geriatric assessment by a doctor to look for reversible medical causes and a review for inappropriate medication use,” Dr Lim says.

As Prof Morley pointed out, “Frailty is preventable, and its treatment can prevent disabilities for the old, hence lowering the rate of hospitalisation and the burden on the healthcare industry and society in general. With ageing populations in major cities like Singapore, treating frailty can make a big change in the health of the people and improve their quality of life.”

Knowing that frailty is both treatable and preventable, older people need not resign themselves to a life of illness and disability. Instead, they should understand that simple lifestyle changes and increased physical activity can have a major beneficial impact in their golden years. **lw**



**UNLESS YOU GO** out to eat every day, chances are you spend a considerable amount

of time at home in the kitchen, be it whipping up a simple meal or toiling over the stove making a lavish feast. What often gets overlooked, however, is the importance of food safety. It does not matter how good the food looks or tastes if you do not handle, cook or store food properly. And if your kitchen is dirty, your food might become contaminated.

The most common food contaminants are bacterial agents such as salmonella, campylobacter jejuni and escherichia coli (E. coli). These are found in raw meats and eggs, and if ingested in large quantities, can cause vomiting and diarrhoea — a reaction usually referred to as food poisoning. Other pathogens such as staphylococcus aureus and the hepatitis A virus can also be transmitted from human carriers to food,



# KITCHEN

# Confidential

KEEPING YOUR FOOD PREPARATION SPACE CLEAN IS KEY TO STAYING HEALTHY.

BY WANDA TAN

and then to other household members.

For people with lower levels of immunity — such as young children, the elderly and those who are already sick — the consequences of foodborne illness are even graver. The bacteria may spread from the intestines to the bloodstream and other parts of the body, resulting in severe food poisoning with symptoms like persistent vomiting or diarrhoea, blood in vomit or stools, and even an altered mental state and blurry vision. If not treated promptly with antibiotics, this could lead to acute dehydration or possibly even death.

Therefore, it is imperative to know the proper procedures for preparing, cooking and storing food.

## Washing And Drying

One of the most effective ways of preventing the spread of germs is by washing your hands before and after you handle raw meats or raw eggs. The Health Promotion Board (HPB) recommends that you spend 15 to 30 seconds scrubbing your hands, between fingers and under your fingernails using soap and running water. Dry your hands completely afterwards, as

moist surfaces encourage bacterial growth.

After preparing or cooking the food, thoroughly wash all utensils involved in the process. In addition, use soap and water to wipe down all work surfaces that have come into contact with raw foods.

Sponges and rags, if not cleaned regularly, can port bacteria to other surfaces. This is why some people prefer to dry their hands and countertops with paper towels despite these being less environment-friendly. To keep your kitchen clean without the waste, sanitise your sponge by wetting and microwaving it on high for two minutes.





## Storage Wars

All perishable foods must be stored properly, which means that the main compartment of the refrigerator should be set to 4°C, while the freezer should be set to -18°C, as the proliferation of bacteria will accelerate at temperatures higher than this. Most refrigerators also have drawers or compartments for meat or vegetables at the bottom, where cold air sinks, but remember to separate the two types of foods.

Leftover food should be refrigerated immediately. If possible, store it in plastic containers that have airtight lids, which keep the food fresh for longer. Label the containers with the date they were refrigerated, and if the food looks or smells bad, throw it out straight away before the bacteria infects other foods.

## Cleanliness Is Key

The refrigerator itself should also be kept clean. According to the United States Food and Drug Administration (FDA), you should clean your fridge weekly. To do so, first remove all foods from the refrigerator, wipe the compartments and shelves with soapy water, dry these and then replace the foods in their designated places. Discard foods that might have expired.

Take out the rubbish every day, and use disinfectant to sanitise your rubbish bin once a week — wash your hands thoroughly after handling the garbage. Sweep and mop the kitchen floor regularly and wipe up any spills immediately. Use a disinfectant to clean surfaces that you often touch with your hands, such as doorknobs, refrigerators, cupboard handles, light switches and taps.

Always keep cleaning agents away from food preparation areas, as they may contain harsh chemicals like ammonia that can contaminate the food. **LV**

## MOST PATHOGENS THRIVE IN ROOM TEMPERATURES AND CAN ONLY BE KILLED THROUGH HIGH HEAT

Perishable goods should be refrigerated as soon as possible, and raw meats should be consumed within two days of purchase, depending on their expiry date — or they can be frozen for prolonged storage. In general, raw ground meats can be frozen for up to four months, while other raw meats and poultry can be frozen for up to a year if sealed in a freezer bag. Thaw frozen foods in the main compartment of the fridge instead of leaving them out. Once they are cooked, you can refrigerate them for a few days.

## Better Than One

It is not enough to use a clean cutting board — you also need to use different ones for meat and vegetables. This will prevent the bacteria present in uncooked meat from spreading to vegetables. In addition, do not use boards that have deep gouges, as bacteria can set inside the grooves.

For the same reason, use separate knives for slicing meat and vegetables, and use a clean platter to serve the meat. Cross-contamination may occur if you use the same platter that was used to prepare the raw meat.

## The Heat Is On

Most pathogens thrive in medium or room temperatures and can only be killed through exposure to high heat. The safe cooking temperature for solid pieces of meat such as beef and pork is 65°C (medium-rare). For ground meat, bacteria on the surface may spread throughout, so it needs to be cooked to at least 75°C.

Chicken and other poultry carry a higher risk of fostering bacteria because they are less dense than red meats, making it easier for bacteria to travel through the flesh. Thus, poultry must be cooked to well done — typically, 80°C.

The best way to tell if your food has been cooked properly — and if the bacteria have been destroyed — is by using a meat thermometer, which measures the internal temperature of meat. Meat thermometers can be found in many supermarkets.

## WAX ON, WAX OFF

Many fruits and vegetables have natural or commercially-applied waxes on their surfaces. A common example is carnauba wax, which creates a shiny coating and prevents moisture loss, enhancing the appearance of produce and increasing their shelf life. Though safe for consumption, it locks in any previously-applied pesticides.

Monitoring the over-application of pesticides is the role of the Agri-Food and Veterinary Authority



of Singapore (AVA), which carries out routine inspections on imported and locally-produced fruits and vegetables.

Nevertheless, you should still wash fruits and vegetables before eating or cooking them to remove surface dirt, bacteria and pesticide residues. The AVA recommends scrubbing

the skin of fruits and rinsing them with clean water before cutting them. For vegetables, a 30-second rinse followed by a 15-minute soak and a final rinse is sufficient.

In particular, the bases of vegetable stems should be rinsed thoroughly, since dirt and pesticides tend to get trapped there.

(**WORKOUT**)

# Exercises, EVOLVED

SOME OF YOUR FAVOURITE WORKOUTS HAVE BEEN GIVEN A REBOOT. *LIFEWISE* LOOKS AT SOME NEW TAKES ON OLD FITNESS REGIMENS.

BY FAIROZA MANSOR



#### THE ONLY CONSTANT IN LIFE

is change. Just as the concept of sport is said to have begun for men to develop the skills needed in primitive hunting and warfare, so too does the evolution of exercise.

These days, out of a desire to stay fit, healthy and stress-free, we expect the rewards of working out to be amplified and the effects to manifest faster.

As a result, some workouts have been adapted to fulfill our need for instant gratification, an increased level of challenge and enjoyment, as well as more therapeutic benefits. Here are some examples.



#### ➔ Aerial Yoga

The evolution of yoga is a good example of an exercise that has been given a revamp. This ancient physical and spiritual discipline that originated in India reportedly more than 5,000 years ago has seen multiple spin-offs over the years, including Hatha, Ashtanga, and Bikram yoga just to name a few.

But arguably none can compare in terms of theatricality and spectacle of one of the latest iterations, AntiGravity Yoga. Also referred to as 'aerial yoga', this practice can turn one's fitness regime upside down, literally. Founded in 2007 by US former gymnast and dancer Christopher Harrison, and subsequently brought to Singapore in 2012, AntiGravity Yoga involves getting into various poses — forward bends, backbends, inversions and even the final 'corpse' pose — while being suspended in a hammock hung from the ceiling. This



enables one to stretch further and hold positions for longer without overstressing the joints or compressing vertebrae. AntiGravity Yoga helps to build flexibility and agility as well as core and upper-body strength, and is said to be effective in relieving stress.

Local AntiGravity Yoga instructor, Ms Thicha Srivisal, 44, learned the practice in New York City from Mr Harrison in 2011. "I love how liberating it feels to be floating and soaring in the air. Unlike other types of yoga, AntiGravity Yoga is easy on the joints which is great as I have a knee problem developed after years of ballet," says Ms Srivisal, who now conducts AntiGravity Yoga courses four days a week.

## ➔ Crossfit and Tabata

Anyone who lifts weights regularly will tell you that repeating the same exercises in the pursuit of sculpting one's body can get boring. Enter CrossFit, a strengthening and conditioning programme founded in the United States in 2000. CrossFit regimes consist of short intense activities like sprinting, rowing, climbing, weightlifting and even flipping tyres in prescribed



workouts lasting 45 minutes to an hour. Each series is referred to as a Workout of the Day (or WOD) and the challenge is to complete as many WODs as possible.

"After my first session, I was a heap on the floor just like everyone else. But the post-workout endorphin rush was so addictive I kept coming back for more to push my limit," said 32-year-old Mr Jerry Lim, a civil servant who has been doing CrossFit since November 2012. "Also, the camaraderie among my fellow CrossFit participants is something you do not find in a typical gym, with CrossFitters cheering each other on during WODs."

If you can't spare the hour that CrossFit or other exercise regimes often require, you could consider Tabata, a form of high-intensity interval training with workouts lasting for just four minutes, and is said to boost aerobic fitness. Exercising for the duration of an average pop song may sound like a walk in the park, but do not be fooled.

Tabata was originally used by the Japanese Olympic speed skating team, and named after scientist Professor Izumi Tabata who studied its effects on male college students.

The regime involves a 10-minute warmup, followed by a combination of intense activities such as bicycle sprints, squats, jumps, lunges and push-ups, going at it all-out for 20 seconds, with 10 seconds of rest in between, for four minutes. Hardcore practitioners of Tabata also stack multiple four-minute routines together, taking a minute of rest in between each workout.

Prof Tabata claims that four minutes of high-intensity interval training is the equivalent of an hour of jogging, an hour of moderate cycling, two hours of walking, an hour of Zumba or two hours of yoga.

## ➔ Aqua Cycling

Indoor cycling, usually conducted in groups, was also spawned at the gym. When it was introduced in the late 1980s, many urbanites got on board for its promise of an extraordinarily toned lower body. These days however, some fitness enthusiasts exercise not just for

## QUICK CHECK

Before you decide to make a new-and-improved exercise part of your fitness regimen, keep the following guidelines in mind.



▶▶ Consult a doctor, especially if the workout you are interested in is considered high-intensity. Some regimens require you to be already in somewhat good shape.



▶▶ Do not eat within two hours of doing vigorous exercise.



▶▶ Drink plenty of fluids before, during and after your workout.



▶▶ Adjust your activity level according to the weather, and reduce it when you are fatigued or ill.

IT IS CLAIMED THAT FOUR MINUTES OF TABATA HIGH-INTENSITY INTERVAL TRAINING IS EQUIVALENT TO AN HOUR OF JOGGING OR TWO HOURS OF WALKING OR YOGA

the physical benefits but also for the mental effects. Thus developed aqua cycling, which is cycling in place while submerged chest-deep in a pool.

Having first gained popularity in Europe before being brought to America by Esther Gauthier in April 2013, aqua cycling is said to be therapeutic. During a workout, the lights are dimmed and cyclists are not pressured to keep pace as there are no speed adjustments to make to the waterproof bikes. Participants work instead against the friction of the water.

Like in a traditional spin class, the instructor calls out various positions like standing or jumping, but instead of sweat, pool water gets splashed about during class. Aqua cycling also purports to be a good alternative for people with sports injuries, joint pain and even women who are pregnant. **lw**

# Better from INSIDE OUT

A DIET THAT INCLUDES PROBIOTICS AND PREBIOTICS CAN IMPROVE THE BODY'S DEFENCES AGAINST DISEASES.

BY GENE KHOR

IN CONSULTATION WITH MS AGNES WONG XIAO YAN  
DIETITIAN // NATIONAL HEALTHCARE GROUP POLYCLINICS



#### MENTION THE WORD

'BACTERIA' and some people will automatically reach for the nearest bottle of hand sanitiser. But not all these micro-organisms cause disease and infection. In fact, some bacteria provide considerable health benefits when consumed.

According to Ms Agnes Wong Xiao Yan, dietitian at the National Healthcare Group Polyclinics (NHGP), probiotics are an example of 'good' bacteria. "Research suggests that probiotics can improve digestion and help with the possible side effects of some antibiotics," she says.

"Probiotics can also help to reduce the risk of certain acute common infectious diseases. They can improve tolerance to the milk sugar called lactose which many people have difficulty digesting. They can also enhance immune function."

Probiotics can be found in fermented dairy foods such as cultured milk drinks, yogurt, fermented soybean paste or *miso* and fermented soybean cakes called *tempeh*, as well as some juices, smoothies, and soy-based drinks.

YOGURT AND CULTURED MILK DRINKS ARE A COMMON SOURCE OF PROBIOTICS.

## Food For Thought

But just as the human body needs to be fed in order to function, probiotics require sustenance to work better and more efficiently. This nourishment comes in the form of prebiotics, which are nondigestible food ingredients that selectively stimulate the growth or activity of probiotics.

Prebiotics also help the body stay healthy. "Certain prebiotics, when taken in sufficient amounts, have been shown to provide health benefits," explains Ms Wong. "These include better digestion, a better intestinal environment, positive modulation of

immunity and metabolism, improved lipid metabolism and absorption of dietary minerals such as calcium."

Prebiotics usually come in the form of oligosaccharides — a type of carbohydrate — which occurs naturally in foods such as leeks, asparagus, garlic, artichokes, onions, wheat and oats as well as soybeans.

It can also be added as dietary supplements — in powder or pill form — to foods like yogurt, cereal, bread, beverages and even infant formula.

## Not Proven Yet

Apart from flatulence, there have not been any major side effects recorded from the consumption of prebiotics and probiotics. But before you flood your kitchen and refrigerator shelves with foods that contain them, Ms Wong highlights that the data on the safety of their long-term consumption is limited.

She also warns that women who are pregnant or lactating and people who have underlying health conditions such as a weakened immune system, weak intestines, or those recovering from surgery should take probiotics only under the advice of a healthcare provider.







## THE POTENTIAL BENEFITS OF PRE- AND PROBIOTICS INCLUDE IMPROVED DIGESTION AND LOWER CHOLESTEROL

What complicates the matter further is the fact that there are thousands of probiotic strains. And so far, only a handful have been clinically tested.

“Individuals respond differently to various strains, so the effects can vary from one person to another,” says Ms Wong. “More research is necessary before blanket statements about the safety of probiotics can be made.”

### Be Informed

At the moment, the Agri-Food and Veterinary Authority of Singapore (AVA) has not approved any health claims for probiotics. However, for products like yogurt and cultured milk drinks that contain probiotics, AVA does allow manufacturers to display function claims — like how probiotics

“help to maintain a healthy digestive system” or “help to maintain a desirable balance of beneficial bacteria in the digestive system”, for example — as long as the claims are not misleading.

In addition, you can look for the genus and species of the probiotics on

the nutrition label. Ms Wong’s advice for consumers is to check the website of the company that sells the product in question to find out more about the probiotic strain, and how much of the probiotic the product contains.

Consumers should also look into the kind of research the company conducted to derive the health benefit from the probiotic in question, and the amount of probiotic that was used in the research.

As for prebiotics, the most widely accepted ones are fructooligosaccharides (FOS) or galacto-oligosaccharides (GOS). Consumers should look for FOS, inulin (a type of FOS), GOS or TOS (trans-GOS) on the nutrition labels.

Some supplements include both probiotics and prebiotics, and the synergistic combination of both is

## A LOOK BACK

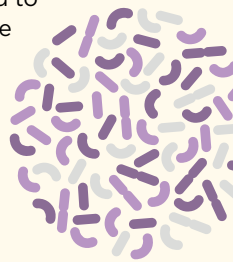
### PROBIOTICS

At the beginning of the 20<sup>th</sup> century, Russian scientist Élie Metchnikoff observed that certain rural populations in European countries such as Bulgaria had longer life spans. He attributed this to their consumption of fermented milk which contained lactic acid-producing bacteria that helped decrease the growth of bad bacteria in the intestines.

The term ‘probiotics’ was coined by German scientist Werner Kollath in 1953 when he was discussing factors that would increase the growth of bacteria, as opposed to antibiotics, which are known to inhibit bacterial growth or kill bacteria.

### PREBIOTICS

Prebiotics were first identified by biochemist Marcel Roberfroid in 1995. He found that prebiotics encouraged the growth of specific bacteria, while additional research indicated that a sufficient amount of prebiotics helped regulate lipid metabolism, a process that could help control cholesterol levels.



usually referred to as synbiotics. These work in tandem to generate more healthy bacteria in your body.

An announcement at the American Gastroenterological Association’s Digestive Disease Week in May 2013 stated that a range of optimised synbiotics might soon be available.

Scientists from food and beverage research and development company Increnevo, food research firm NIZO, and pharmaceutical and medicine manufacturers Chemi-Source presented a screening study which claimed to have found the best match between prebiotics and probiotics. Of the seven commercially-available prebiotics screened, four boosted the growth of commercially-available probiotics. **lw**



## Q1) Not Too Late To Run

**I am in my late 30s. I like to go jogging at about 11pm, about an hour before I go to bed. My wife says it is bad to exert myself so late, but is there a medical reason why I should not do this?**

There is no evidence on what is the best time to exercise, neither is there any evidence on what is the worst. Advice on not exercising before bed is normally applicable to those with chronic diseases such as diabetes, and this advice is mainly for precautionary purposes as exercise might lead to hypoglycemia — a medical emergency in which there is not enough glucose in the blood — which is dangerous when one is asleep.

Depending on the intensity of the physical activity, exercise affects us for the next 24 to 48 hours. A Japanese study has shown that the right amount of physical activity at night reduces the feeling of tiredness the next day. As long as exercise does not affect our sleep and recovery afterwards, it should be fine to exercise just before bedtime.

**MR RAY LOH**

EXERCISE PHYSIOLOGIST // SPORTS MEDICINE & SURGERY CLINIC // TAN TOCK SENG HOSPITAL

## Q2) Can TCM Fix Alcoholism?

**My brother is a recovering alcoholic and my fear is that he will have a relapse. Are there natural remedies or Traditional Chinese Medicine (TCM) therapies that may prove effective? We would rather he refrain from using prescription drugs as he may become dependent on them in the future.**

No herbal medicines have proven to be effective for the prevention of relapse of alcohol addiction, but some Western medications such as Naltrexone have been effective in preventing relapses without becoming addictive. You should consult an addictions specialist for more information on medications.

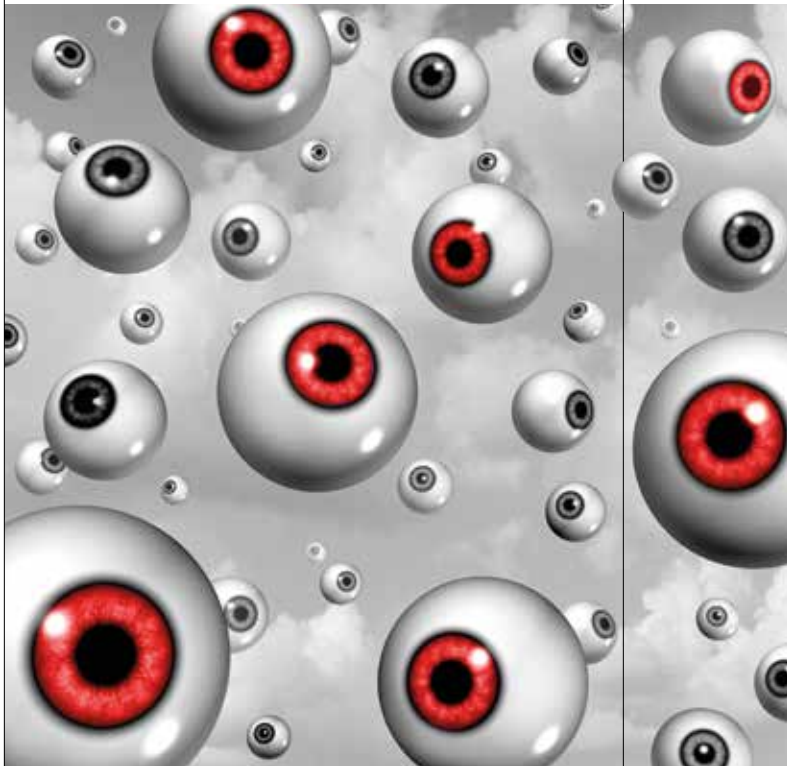
Acupuncture is a TCM treatment that can aid in recovery from addictions like alcohol dependence. At the National Addictions Management Service (NAMS), acupuncture complements existing psychiatric and psychological treatments for addictions, which include medication and psychosocial intervention.

Acupuncture helps patients deal with withdrawal symptoms and reduces craving so as to help prevent relapses. Your brother may wish to consider making an appointment at our NAMS Acupuncture Clinic for an assessment on his suitability for acupuncture treatment.

**DR GUO SONG**

HEAD OF RESEARCH & SENIOR  
CONSULTANT // NATIONAL ADDICTIONS  
MANAGEMENT SERVICE (NAMS) //  
INSTITUTE OF MENTAL HEALTH





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## Q3) Eye Worry

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**My mum, who is in her 60s, was told by her optometrist that she has a small cataract in one eye. The optometrist said that this is normal, but should she be worried?**

Let me first assure you that cataracts are the most common form of reversible visual loss in developed countries. They are formed by the clouding of the lens inside the eye, resulting in blurred vision and often glare in bright light and decreased contrast, as well as poorer colour vision. Cataracts are most commonly the result of ageing, where the lens hardens and becomes less transparent although there are other causes such as injuries, acquired eye conditions and even genetics.

Cataracts caused by ageing progress very slowly, taking many years to significantly affect a person's vision. Depending on the severity, cataracts can be managed either conservatively or with surgery, which has an excellent success rate in terms of restoring vision.

I would suggest that your mother consult an ophthalmologist, who will be able to advise her according to her needs by examining the cataract and the rest of the visual system.

If the cataract is mild, then the option of using spectacles to correct any refractive error they may have caused is usually sufficient. However, if the cataracts cause impairment, for example, making it difficult to recognise faces, the doctor may discuss the option of cataract surgery with you.

Cataract surgery has become very advanced and involves minimal pain. Most cataract surgeries in Singapore are now performed on an outpatient basis and result in quick recovery of vision. Our centre performs over 5,000 cataract surgeries per year with excellent safety and good outcomes. We would be happy to discuss any concerns and queries you might have.

**DR DON PEK**

ASSOCIATE CONSULTANT // NHG EYE INSTITUTE @ TTSH

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## Q4) Head Case

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**I am prone to migraines brought on by stress. I work the late shift and when I go outside in the day, my head hurts. Can the sun be a trigger for migraines?**

Yes, bright light and sun glare can trigger and sustain a migraine. Other sensory stimuli such as loud sounds and smells — paint thinner, secondhand smoke or perfume — can also trigger migraines, as can stress. For patients who work shift duties, changes in wake-sleep patterns may also trigger migraines.

Other triggers include:

- Hormonal changes in women. Migraine can occur due to changes in oestrogen levels during menstrual cycles, pregnancy and menopause or the use of oral contraceptives or hormone replacement therapy.
- Foods. Certain foods are known migraine triggers. Being able to identify these sources will certainly be helpful. Food offenders include aspartame, a sugar substitute; foods that contain tyramine (a substance that forms as foods age), such as aged cheeses and hard sausages; foods that contain monosodium glutamate or MSG, a key ingredient in Asian food and processed foods; and foods that contain nitrates, like hotdogs and bacon. Skipping meals or fasting may also increase migraine incidence.
- Alcohol, especially beer, red and white wine, and highly-caffeinated beverages.
- Intense physical exertion.
- Changes in weather or altitudes.
- Certain medications such as nitroglycerin.

Keep a 'headache diary' to help pinpoint your triggers. Note the time the headache starts, what you ate or drank in the 24 hours preceding the headache, where you were and what you were doing. For women, note the days of the menstrual cycle. Note types and dosages of medications used for relief. Having your doctor review your journal may help him or her pinpoint possible triggers. Start by avoiding those triggers as best you can. If one occurs anyway, record that information and share it with your doctor.

**DR ANG LAI LAI**

FAMILY PHYSICIAN ASSOCIATE CONSULTANT // CLEMENTI POLYCLINIC // NATIONAL HEALTHCARE GROUP POLYCLINICS

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## Q5) Fruit Is Best

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**My father has a fasting blood sugar level of 6.7 mmol/l, and was told a reading of 7.0 and above indicates diabetes. He used to drink pre-packaged fruit juice as part of his breakfast, but since his diagnosis, has switched to fresh apple or orange juice. Is this preferable to packaged juice? Are freshly-squeezed juices more suitable for diabetics?**

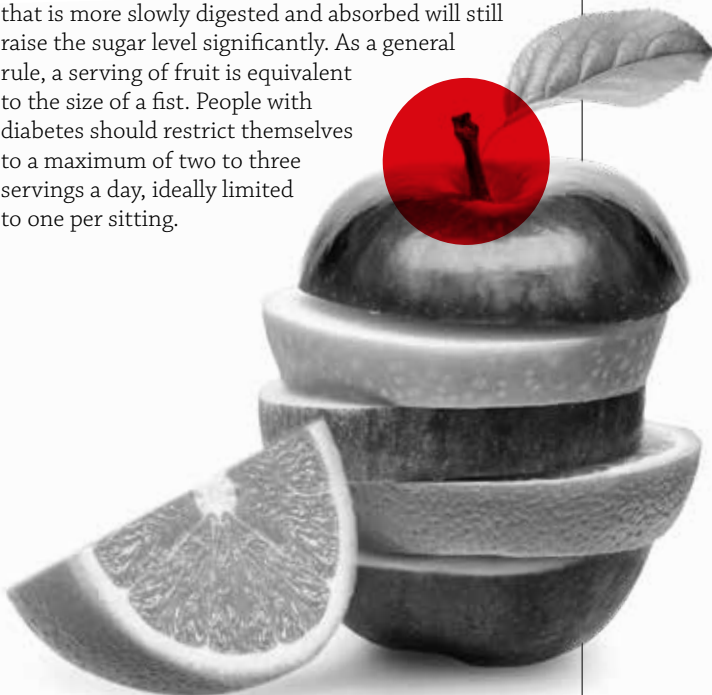
●

Your father may have impaired fasting glycaemia, known as 'pre-diabetes'. In short, while fruits are encouraged, fruit juices are not recommended.

The main reason is simple — it usually takes at least three oranges to make a cup of juice, the equivalent of eating more than three oranges at a go — but without the fibre. The sugar is concentrated from a few fruits into a small volume of drink, similar to consuming a drink loaded with sugar, albeit of the natural sort. Packaged juices are often labelled with "no added sugar" which is misleading because there is still a significant amount of sugar in them.

Compared to juices, consuming fruit is a better choice as the fibre slows down the digestion and absorption of the fruit, hence preventing a sugar spike. The fibre also gives you satiety, the satisfied feeling that makes you less likely to over-consume.

Contrary to hearsay, a diabetic patient is in fact encouraged to consume a variety of fruits. Though certain fruits have a lower glycemic index — that is, they raise the blood sugar less quickly after consumption — we should focus on portion size instead. Eating too much of a low glycemic index fruit that is more slowly digested and absorbed will still raise the sugar level significantly. As a general rule, a serving of fruit is equivalent to the size of a fist. People with diabetes should restrict themselves to a maximum of two to three servings a day, ideally limited to one per sitting.



Also, a recent study found that a higher level of fruit juice consumption is associated with a higher risk of diabetes. So put the juice away and instead have two servings of fresh fruits daily.

**MS LIM SUT YEE**  
DIETITIAN // YISHUN POLYCLINIC //  
NATIONAL HEALTHCARE GROUP POLYCLINICS

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## Q6) Guitar Grief

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**I enjoy playing the guitar but of late have been experiencing pain in my wrist. Is this carpal tunnel syndrome? What is this condition caused by and is there a remedy? And though it sounds ironic, can playing the guitar more actually serve to strengthen my hand?**

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Carpal tunnel syndrome is caused by compression of the median nerve in the wrist. There are many factors that cause this and in guitarists, overuse and poor positioning of the wrist can play a part.

Patients with carpal tunnel syndrome usually complain of numbness of the hand rather than outright pain. However, it is not uncommon for guitarists to have carpal tunnel syndrome when the wrist is put in a hyperflexed position for a prolonged period.

Three common diagnoses in musicians are muscle-tendon pain syndromes, nerve entrapments and focal dystonias (neurological movement disorders). Nerve entrapments and focal dystonias are more serious in nature but musicians are more prone to be afflicted with the first.

From the description, it is more likely that you have tendonitis. Treatment of musculoskeletal pain syndromes in musicians includes relative rest (instead of absolute rest), physical therapy, splinting and medication (including both non-steroidal anti-inflammatory drugs and steroids). Very rarely is surgery required.

Prevention of musculoskeletal pain problems is more important to ensure a healthy prolonged musical career. In guitarists, the following can be done:

- Choose the appropriate guitar in terms of neck size that fits the size of your hand.
- Proper posture during practice is essential. Attending formal courses may be useful for beginners to learn the proper posture.
- Avoid overflexing the thumb or wrist when playing.
- If a footstool is used, ensure it is set at the proper height to prevent back pain.
- If the guitar is heavy, use a broad cushioned strap to prevent neck and shoulder pain.





- Pre-practice stretching, taking frequent breaks incorporating stretches and paying attention to correct posture can prevent much misery.

As for strengthening exercises, light resistance work with many repetitions to build up endurance is more important than strength training. Playing more does not always strengthen your wrist and can precipitate musculoskeletal pain syndromes instead. If your symptoms persist, you should seek a hand surgeon for a checkup.

**DR CHEE KIN GHEE**

ASSOCIATE CONSULTANT // HAND AND MICROSURGERY SECTION // DEPARTMENT OF ORTHOPAEDIC SURGERY // TAN TOCK SENG HOSPITAL

**ASK THE SEXPERTS**



**ITCHING TO KNOW**

**I am a 19 year-old student with a girlfriend with whom I am sexually active. I have recently developed an itch on my scrotum and around the crotch, and I am afraid my girlfriend might have given me a sexually-transmitted infection. She says it is a fungal infection from me playing sports, but I don't know what to believe. Could my itch be due to an STI or is my girlfriend correct in thinking it's just a topical infection?**

**Q7) Laser Poser**

**I am a 59 year-old woman with sensitive skin. Is cosmetic laser rejuvenation treatment effective for clearing age spots? Will the spots come back?**

Age spots, also called solar lentigines, commonly form on the sun-exposed skin of older persons. There are other pigmented spots or growths which may appear with age, including conditions that may be cancerous. It is important to get an accurate diagnosis of the spots before deciding on treatment. For solar lentigines, management includes avoiding excessive sun as well as the use of sunblock, medicated creams, freezing (cryotherapy), chemical peels and laser treatments.

Laser treatments are effective and typically require a few sessions to completely clear such lesions. New spots can appear over time and if needed, laser treatment can be performed again. All laser treatments have potential side effects including localised temporary irritation and occasionally, discolouration. Laser rejuvenation, among other treatment options, may be considered for persons with sensitive skin.

Please see your dermatologist for a personalised discussion on the treatments available.

**DR HENG YEE KIAT**

ASSOCIATE CONSULTANT DERMATOLOGIST // NATIONAL SKIN CENTRE

There are many causes of groin itch. In clinical practice, the common causes encountered include eczema, lichen simplex chronicus (a form of chronic thick eczema), superficial fungal infection of the skin, as well as irritant skin inflammation from the use of harsh soaps and cleaning reagents. Certain sexually-transmitted infections such as genital warts and secondary syphilis may be itchy as well while infections such as gonorrhoea and chlamydia can present as an itch in the urethra.

I would advise you to consult your family doctor or dermatologist for further evaluation and management. If appropriate, a skin scrape can be performed to exclude a fungal infection. It would also be advisable to undergo a screen for sexually-transmitted infections if you have not done one recently, as some of these infections may not show any clear symptoms in the early stages.

**DR EUGENE TAN**

ASSOCIATE CONSULTANT DERMATOLOGIST // NATIONAL SKIN CENTRE

## RECOGNISED FOR OUTSTANDING EFFORT

TTSH SENIOR MEDICAL SOCIAL WORKER WINS THE PROMISING SOCIAL WORKER AWARD.



Every year since 1998, the Singapore Association for Social Workers (SASW) has recognised the extraordinary efforts of social workers. Since 2008, in addition to naming Outstanding Social Workers, the awards have included the Promising Social Worker Award to celebrate those newer to the field who have demonstrated “outstanding dedication and contribution in serving both their clients and the community”.

The awards are supported by the Ministry of Social and Family Development, the National Council of Social Service and ExxonMobil Asia Pacific. Winners are selected by a panel after having been nominated by colleagues or members of the public. The awards come with a \$1,000 cash prize in addition to sponsorship for leadership development training as well as a personal development grant.

This year, Ms Carmen Wu of Tan Tock Seng Hospital (TTSH) was one of two social workers to receive the Promising Social Worker Award. Ms Wu, 32, has been with TTSH for four years and in that time, has set up a clinic for elderly people with cognitive and memory problems. She also started TTSH’s first palliative care programme for volunteers that trains and recruits volunteers to assist patients facing end-of-life issues. Beyond contributing in a hospital setting, Ms Wu is also a member of the Family Violence Workgroup in Tanglin,

where she helps to promote a violence-free society.

“It is really a great honour to receive this award,” said Ms Wu, who derives satisfaction when she sees her patients becoming empowered through the acquisition of new knowledge, knowing more about themselves and their own strengths. “It is a big recognition for the hard work of going the extra mile for every needy patient.”

Palliative care is a branch of healthcare that aims to lessen the suffering of patients, which in turn has its unique challenges.



Above: Ms Carmen Wu of TTSH set up a clinic for seniors with cognitive and memory problems. She also started the hospital’s first palliative care programme for volunteers.

“There was a lady suffering end-stage cancer who was given three months to live. Upon learning of her prognosis, this independent single woman cut off contact with her loved ones. I did not give up hope and slowly built up rapport with her until one day, I suggested she make a trip home to visit her mother. I managed to persuade her into doing so and we even had a rehearsal to prepare her.

“It was an emotional moment when the patient’s mother saw her and was told of her daughter’s condition. But after that day, the patient was relieved after she realised her mother’s love for her and the support of her family. In the end, the patient passed on peacefully in the company of her family.”





Below: CareConnect is a new one-stop information hub that allows patients, their families and caregivers to access resources within and beyond the hospital.



# PUTTING PATIENTS FIRST

THE TTSH SINGAPORE PATIENT CONFERENCE CONNECTED HEALTHCARE PROFESSIONALS WITH PATIENTS AND THE COMMUNITY.

The patient experience is an aspect of healthcare that institutions are striving to improve. And to get a dialogue on the matter going, Tan Tock Seng Hospital (TTSH) held the first Singapore Patient Conference on 25 October 2013.

The conference was conceived as an annual forum for healthcare staff, patients, their families and the wider community to share their thoughts and experiences. It also gave participants the opportunity to learn from one another and look at healthcare from the perspective of both provider and consumer.

More than 300 people attended the conference, including Associate Professor Faishal Ibrahim, Parliamentary Secretary for the Ministry of Health and Ministry of Transport. Patients, caregivers, volunteers and healthcare professionals alike shared insightful and inspirational stories on how to create and deliver more meaningful, patient-centred care.

The conference highlighted the contributions of community members who serve as volunteers at hospitals and other healthcare institutions. Some of the volunteers opened up about their involvement in hospital-run initiatives, such as the Night Sitter and Patient Befrienders programmes, while others revealed their motivations behind setting up colon cancer and

cardiac rehabilitation patient support groups. (Read about what motivates these individuals on page 10.)

TTSH staff also expressed their appreciation for the dedication of the volunteers. Their efforts complement the work of doctors and nurses and they carry out essential tasks such as reassuring and counselling patients to alleviate their suffering and enhance their recovery.

Another focus of the conference was on the active role of the patients and their families. A running theme was the importance of fostering a culture in which families can work together with healthcare institutions to improve the quality and safety of patient care.

Caregivers related personal anecdotes about acting as patient advocates pushing for better care.

TTSH staff also shared the valuable lessons they learned from patients. In particular, they learned that they should not only concentrate on medical outcomes but also help to allay patients' fears and anxieties where possible. This would ultimately transform hospital service provision such that the individual concerns of each patient are addressed.

Speaking ahead of the conference, TTSH's CEO Professor Philip Choo said, "Beyond good outcomes and safe care, being attentive to patients' and their loved ones' needs, feelings and relationships is imperative in healthcare delivery today."

The conference also coincided with the official opening of CareConnect — a new centre within TTSH dedicated to improving the patient experience and positively impacting healthcare delivery.

Guided by the 3E principles of 'Empower, Engage and Experience', CareConnect is a one-stop information hub that gives patients, their families and caregivers access to resources within and beyond the hospital.

This will help to advance patient care and allow patients to co-create a better healing environment.

Above: The Singapore Patient Conference was a dialogue between healthcare providers and the community. Below: More than 300 people attended the conference.





## A YEAR TO REMEMBER

THE INSTITUTE OF MENTAL HEALTH (IMH) CELEBRATED ITS 85<sup>TH</sup> ANNIVERSARY IN 2013 WITH A SERIES OF IMPORTANT — AND ENTERTAINING — EVENTS.

**A**s part of celebrations to mark the Institute of Mental Health's 85<sup>th</sup> anniversary in 2013, IMH staff, volunteers and patients brought mental health issues to the stage in a play called *8-5*. Staged twice — once as a matinee and subsequently as an evening performance on 14 December — at the Lee Foundation Theatre at the Nanyang Academy of Fine Arts, the play highlighted the impact mental illness has on friends and family members of the sufferers.

More importantly, the play aimed to show that people with mental health conditions are not that different from everybody else.

Said IMH's Dr Lambert Low, the play's producer, "In celebrating IMH's 85<sup>th</sup> anniversary through this play, we want to remind ourselves and our patients how important it is to stay resolute to our mission of not only making them better, but more importantly, getting them well.

"We hope that through this production, the audience understands what our patients are going through." The staging of *8-5* was one in a series of events organised by IMH over the course of the year.

Another of the year's highlights was a pottery exhibition titled "Metamorphosis", held jointly by IMH and the Singapore Association for Mental Health, from 11 to 23 September at the Arts House, showcased approximately 100 ceramic artworks made by people suffering from mental illness. The unique artworks were

representations of the patients' transformation on the road to recovery. They were also the manifestation of ideas inspired by their favourite poems or perspectives on life. By the end of the exhibition, 70 per cent of the art pieces had been sold.

On 27 and 28 September, the inaugural Singapore Mental Health Conference was held at the MAX Atria at Singapore EXPO, in conjunction with the annual Singapore Health and Biomedical Congress (SHBC) 2013. The conference began with an address by Dr Amy Khor, Minister of State for Health and

**THE PLAY, TITLED *8-5*, AIMED TO SHOW THAT PEOPLE WITH MENTAL HEALTH CONDITIONS ARE NOT THAT DIFFERENT FROM EVERYBODY ELSE**

Manpower, who said that it was time to reassess the mental health landscape in Singapore and overseas. She added that it was also time to identify how mental health capabilities could be further enhanced to cope with the changing needs of patients.

Following that was a plenary speech from Speaker of Parliament Mdm Halimah Yacob, who addressed the direction of mental healthcare in Singapore and questioned how it could be better managed in the





Far left: 8-5 challenged the audience to see mental illness in a new light. The play told the story of three individuals whose lives are affected by mental illness.



Left: A pottery exhibition titled 'Metamorphosis' charted the transformative journey of individuals recovering from mental illness.

future. Mdm Halimah said there was a need to change the “negative perception” towards people with mental health issues, saying, “I think there is this perceived fear about people with mental illness — that they either cannot perform, or that they may just go berserk.”

Mdm Halimah told a packed conference hall that a steering committee for mental healthcare-related issues would be useful as a feedback mechanism for policymakers as Singapore moves from a system of centralised care to a community-based one.

The conference also saw a recovered patient recounting his personal battle with mental illness and how he overcame it.

### MENTAL HEALTH SYMPOSIA

Also held in conjunction with the Singapore Mental Health Conference was the Psychosis Symposium. Held on 26 September at IMH with the title “Unique Challenges and Innovations in Delivering an Early Intervention Programme in Asia,” the symposium brought together local and international experts from the Asia-Pacific region to share their insights and research findings on Early Psychosis. Recovered IMH

patients, Mental Health Advocate Chan Lishan and Peer Support Specialist Neo Lee Chai were also invited as panelists.

Earlier on 8 April, another symposium titled “Improving the Mental Health of the Population — an Asian Perspective” was also held at the institute. Participants of this one-day symposium learnt about the various multidisciplinary approaches to improving mental health from leading professionals and researchers.

The participants also formed smaller groups for sessions focusing on specific areas such as child and geriatric mental health as well as the cost of mental health delivery, where they discussed the issues in greater depth using case studies.

Finally, rounding out a year of significant events,



Right: Speaker of Parliament and mental health advocate Mdm Halimah Yacob at the Singapore Mental Health Conference last year. Far right: IMH staff and senior management cutting the 85<sup>th</sup> anniversary cake on 29 November 2013.

IMH held a gala dinner on 29 November to celebrate its birthday. IMH pioneers — including past Medical Directors Prof Tsoi Wing Foo (1971 to 1979) and Prof Teo Seng Hock (1979 to 1996), as well as past Nursing Directors Mdm Lucy Cheng, Mdm Mary Yeo and Ms Pauline Tan — graced the event held at the Marina Bay Sands Convention Centre.

A publication on the development of mental health services in Singapore will be released soon.



## A SCAR-FREE WAY TO REMOVE STOMACH CANCER

TTSH SURGEONS CAN NOW OPERATE ON EARLY-STAGE PATIENTS WITHOUT LEAVING EXTERNAL SIGNS.

A new procedure to remove cancer cells from the stomach without leaving an unsightly scar on the patient's torso is now available at Tan Tock Seng Hospital (TTSH). The operation involves inserting a long tube with an encased blade into the patient's mouth, down into the stomach.

Using this blade, which is shaped like a needle, surgeons carefully cut a part of the top layer of the stomach's inner lining, which is where gastric cancer usually starts. This inner stomach lining is just 2mm thick. The operation, which takes between one and one-and-a-half hours, leaves the patients with an ulcer in the stomach that should heal in about three months.

According to Assistant Professor Stephen Tsao, a surgeon in the gastroenterology and hepatology departments at TTSH, the procedure is also used to rid the intestines of polyps that can cause colon cancer. Dr Tsao learned the method, called "endoscopic submucosal dissection", in Japan.

Over the past two years, TTSH has screened more of its patients for gastric and colon cancer. This is because, in order for the procedure to be effective, the disease has to be caught at the very early stage. Of the patients screened, some 20 per cent turned out to have early stage gastric or colon cancer.

So far, about 20 patients have tried the new procedure. One of them was taxi driver Mr Koo Kam Loy, 67, who was operated on in early 2013. When Mr Koo was diagnosed with early stage stomach cancer, he was offered the option of endoscopic submucosal dissection — and he did not hesitate to take it.

Said Mr Koo, "New technology means it is an improvement. This operation is also more comfortable, with no scarring and no pain." After surgery, he spent four days recovering in hospital.

## NHG HQ MOVES

The National Healthcare Group (NHG) Headquarters has moved to Nexus@one-north, 3 Fusionopolis Link, near Buona Vista and one-north MRT stations. Since the end of 2013, staff from the current offices at GMTI Building in Commonwealth and Jackson Square in Toa Payoh are housed under one roof.







# TTSH LAUNCHES SINGAPORE'S FIRST HANDY GUIDE TO PALLIATIVE CARE

THE *BEDSIDE PALLIATIVE MEDICINE HANDBOOK* IS A USEFUL RESOURCE FOR HEALTHCARE PROFESSIONALS TREATING PATIENTS WITH CANCER AND CHRONIC ILLNESSES.

One of the realities Singapore faces is the growing number of elderly. This greying of the population means an increase in the number of deaths. The Department of Statistics Singapore reported a total of 18,027 deaths in 2011, a figure that has been increasing over the past four years. Furthermore, according to the department, the top two causes of death from 2007 to 2011 were cancer and end-stage heart diseases.

There is thus an increasing demand for palliative care in Singapore for both cancer and non-cancer patients. Palliative care aims to prevent and relieve the suffering of patients in all stages of illness.

In light of this, the Palliative Medicine Department at Tan Tock Seng Hospital (TTSH) has developed and published a resource handbook for healthcare professionals — including house officers, residents, medical officers, family physicians, senior clinicians and nurses — who attend to patients with advanced life-limiting illnesses. The 220-page *Bedside Palliative Medicine Handbook*, edited by Drs Allyn Hum and Mervyn Koh and launched on 17 October 2013, will serve as a handy reference for these and other medical personnel as the profile of elderly patients increases.

The handbook contains information on improving pain, symptom management and enhancing the quality of life at the final stage as well as fulfilling the patient's and family's preferences. It also covers a selection of

clinical conditions commonly encountered in palliative care as well as the latest guidelines on how to manage them. Practical issues such as how to facilitate the discharge from hospital of a terminal patient and where to find community hospices are also covered.

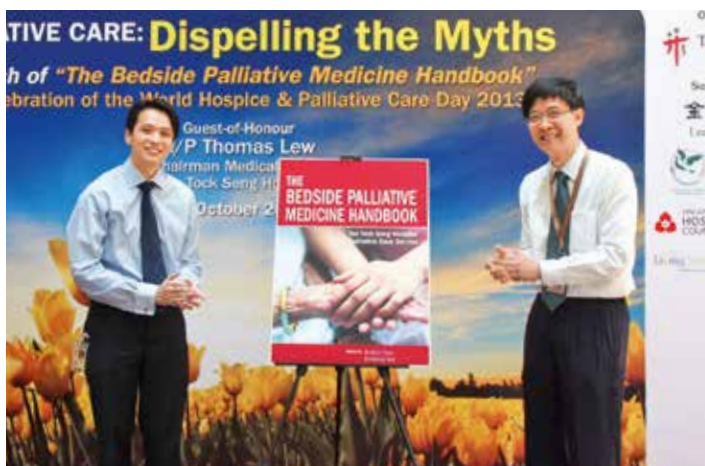
The launch of the book in October coincided with the World Hospice and Palliative Care Day event at TTSH, the theme of which was "Palliative Care: Dispelling the Myths".

Associate Professor Chin Jing Jih, Chairman of Singapore Medical Association and Divisional Chairman of Integrative and Community Care at TTSH, said, "As we embrace the transformation of Singapore into a first-world society, achieving a 'good' death is increasingly recognised as a medical goal and core competency for the medical profession and its practitioners. Good palliative care in life-limiting conditions goes beyond mere medical treatment; it also includes the psychosocial and ethical aspect of care."

**GOOD PALLIATIVE CARE GOES BEYOND MEDICAL TREATMENT; IT ALSO INCLUDES THE PSYCHOSOCIAL AND ETHICAL ASPECT**

A/PROF CHIN JING JIH

Below: The book's co-editor Dr Mervyn Koh (left) at the launch with TTSH Chairman Medical Board A/Prof Thomas Lew.



Editors of the book, Dr Hum, Senior Consultant and Dr Koh, Head and Senior Consultant of the Palliative Medicine Department, said, "We remember as junior doctors years ago how we had found succinct, informative and reader-friendly handbooks like *The Acute Medicine Handbook* and *The Bedside ICU Handbook* to be invaluable companions in helping to treat our patients.

"When we first started out in palliative care, we struggled to find a similar handbook which would guide us in managing patients towards the end of life. We also wanted a book which catered to our local palliative care population with drug dosages which would be more appropriate for our patients."

The books have been distributed to hospices, polyclinics, nursing homes and medical schools, and sold in selected stores at \$23.54 (inclusive of GST) per copy. Interested buyers may also call Armour Publishing at 6276 9976.

## BETTER COVERAGE, BETTER CARE

IMPROVEMENTS MADE TO THE COMMUNITY HEALTH ASSIST SCHEME WILL ENCOURAGE MORE PEOPLE TO SEEK OUTPATIENT TREATMENT AT PRIVATE CLINICS.



After months of policy reviews and engagement sessions, enhancements to the Community Health Assist Scheme (CHAS) were recently announced. These changes took effect on 1 January 2014 and will alleviate healthcare costs, as well as make outpatient services more affordable for Singapore citizens from lower-income families.

CHAS is a two-tiered subsidy programme for lower- and middle-income families to access private primary care. By receiving subsidies, eligible parties pay less for outpatient treatment for chronic and/or acute illnesses as well as selected dental services at participating general practitioners and dental clinics.

One of the key policy shifts to CHAS is the removal of the qualifying age. Now, eligible Singapore citizens from lower- and middle-income households can access subsidised care. The qualifying income has also been adjusted slightly upward for both Blue (lower-income) and Orange (middle-income) CHAS cardholders.

**AMONG THE ENHANCEMENTS TO CHAS IS THE REMOVAL OF THE QUALIFYING AGE CRITERION. NOW, CITIZENS OF ALL AGES CAN QUALIFY**

Eligibility for Blue CHAS is pegged at \$1,100 or less per capita monthly household income and annual value of \$13,000 or less for households with no income. Eligibility for Orange CHAS is pegged at more than \$1,000 but \$1,800 or less per capita monthly household

income and annual value of more than \$13,000 but \$21,000 or less for households with no income.

Other changes include extended CHAS coverage for five more chronic conditions — osteoarthritis, benign prostatic hyperplasia, anxiety, Parkinson's disease and nephritis/nephrosis — under the Chronic Disease Management Programme. Subsidies will also be given to CHAS members for recommended screening tests under the Integrated Screening Programme. Visit [www.chas.sg](http://www.chas.sg) for details.

### ENHANCEMENTS TO CHAS:

CHAS TYPE	CRITERIA	BEFORE	AFTER
BLUE CHAS	Qualifying Age	40 years and above	<b>All ages</b> will qualify
	Qualifying Income	\$900 or less per capita monthly household income Annual Value of \$13,000 or less for household with no income	<b>\$1,100 or less</b> per capita monthly household income Annual Value of \$13,000 or less for household with no income
ORANGE CHAS	Qualifying Age	40 years and above	<b>All ages</b> will qualify
	Qualifying Income	More than \$900 but \$1,500 or less per capita monthly household income	<b>More than \$1,000 but \$1,800 or less</b> per capita monthly household income Annual Value of more than \$13,000 but \$21,000 or less for households with no income





GPs attended the discussion to understand the value NHGP brings to chronic patients under CHAS.

## ENGAGING GPs ON CHRONIC CARE

NHGP TALKS TO GENERAL PRACTITIONERS TO GET THEIR SUPPORT IN CARING FOR LOWER-INCOME PATIENTS WITH CHRONIC CONDITIONS.

In June 2013, National Healthcare Group Polyclinics' (NHGP's) PEACE (Patient Empowerment and Community Engagement) department organised a dialogue with GPs at Ang Mo Kio Polyclinic. The session was part of NHGP's efforts to engage GPs certified under the Community Health Assist Scheme (CHAS) in managing patients with stable chronic conditions who are eligible for or on CHAS.

Six interested representatives from Frontier Medical Associates, Tan's T&T Clinic and Surgery, Wong Clinic and Surgery, Joyspring Family Clinic, Raffles Medical AMK and Healthway Medical Corporation attended the discussion to understand the value NHGP brings to chronic patients under CHAS. Dr Djoni Huang, Deputy Head of Ang Mo Kio Polyclinic, shared with them the types of patients who could be referred to CHAS-certified GPs. He also outlined a workflow to facilitate the transfer of these patients to the GPs' care.

To help these CHAS-certified GP partners understand the costs to be borne by chronic patients under the scheme, Mr David Kok, Deputy Director of Finance at NHGP explained the range of NHGP charges typically experienced by the Blue CHAS card holders, who are more heavily subsidised than Orange CHAS card holders.

The partner GPs expressed their willingness to receive stable and newly-diagnosed Blue CHAS card holders. These are patients who are not yet on medications or possibly with one or two types of medications from NHGP.

## SETTING A WIDER SAFETY NET

POLYCLINIC PATIENTS FROM LOW-INCOME FAMILIES CAN NOW USE MEDIFUND TO HELP COVER THEIR BILLS.



Patients at polyclinics can now use Medifund to pay for their medical bills. Available at National Healthcare Group Polyclinics (NHGP) since 28 June 2013, the facility to access this endowment fund provides an additional safety net to needy patients for whom Medisave and MediShield coverage may be insufficient.

Medifund was set up by the government in 1993 to help patients at tertiary, intermediate and long-term care facilities pay for their medical expenses. Following approval by the Ministry of Health (MOH), this scheme with funding from the same ministry has now been rolled out to polyclinics as well.

The endowment fund is available for Singapore citizens in three categories: Medifund Junior for children below the age of 18, Medifund for adults between 18 and 64 years old, and Medifund Silver for seniors aged 65 years or above.

NHGP's financial counsellors will assess patients based on the Medifund criteria. They will also continue to provide advice on other financial schemes such as Medisave and Baby Bonus, and encourage patients to become financially self-reliant.

To ensure proper oversight, a Medifund committee was formed and approved by MOH on 5 June 2013. This committee is responsible for the disbursement of funds, and will also review and approve all non-straightforward applications. In addition, Medifund accounts will be subject to annual audits by MOH.

## OPTIMISING DIABETES MANAGEMENT WITH PROJECT NEMO

PROGRAMME AIMED AT SLOWING THE PROGRESSION OF DIABETIC KIDNEY DISEASE YIELDS POSITIVE RESULTS.

The prevalence of diabetes in Singapore among people aged 18 to 69 years is 11.3 per cent, according to the National Health Survey 2010. Alarming, nearly half of those with diabetes did not even know they had it. Of those who did, 32 per cent had poor control over their condition.

Poor management of diabetes leads to a variety of complications including diabetic kidney disease (DKD), which affects half of diabetic patients. DKD occurs when high blood sugar levels damage kidney filters, allowing unhealthy amounts of protein to enter the urine.

In an bid to slow the progression of DKD in diabetic patients, the National University Hospital (NUH) and National Healthcare Group Polyclinics (NHGP) have collaborated on a programme called Project NEMO, which began in April 2011. NEMO stands for Nephrology Evaluation, Management and Optimisation, and the programme has been rolled out at the nine NHGP polyclinics across Singapore.

Between the project's initiation nearly three years ago and September 2013, nearly 24,000 diabetic patients at NHGP were evaluated for DKD, and 4,200 of them with early DKD were considered suitable for participation in Project NEMO. Of the 1,200 patients who have successfully completed the optimisation cycles, preliminary findings showed the programme improved the kidney status of more than 40 per cent of patients.

Patients under the care of Project NEMO are prescribed medication to reduce the level of protein in their urine. They are also monitored by a coordinator who also educates patients on how to manage their diabetes through the diet and by making lifestyle changes. Patients undergo the programme for an average of seven to nine months.

Project NEMO co-director and Deputy Director



**OUR DOCTORS WORK WITH COORDINATORS TO SPEND TIME WITH THE PATIENTS TO UNDERSTAND THEIR LIFESTYLES AND DIETARY HABITS, ADVISING THEM TO MODIFY THESE WHERE NECESSARY**

DR LIM CHEE KONG ON THE NEED FOR MONITORING PATIENTS



Top: Mdm Susila being advised by NEMO coordinator Ms Samantha Lim. Above: Project NEMO programme director Prof A Vathsala, Head and Senior Consultant, Division of Nephrology at NUH (left) and co-director Dr Lim Chee Kong.

of Clinical Services, Family Physician-Consultant at NHGP, Dr Lim Chee Kong, underlined the need for monitoring patients. "NHGP participates in the NEMO project with a focus on providing 'whole-person' care for our patients through a team-based approach. Our doctors work with the NEMO coordinators to spend time with the patients to understand their lifestyles and dietary habits, advising them to modify these where necessary so as to empower them to manage their conditions better. Discussions with nephrologists from NUH are also ongoing to optimise the care of our patients at the primary healthcare level," he said.

One diabetic patient, 55 year-old Madam Susila Rengasamy, showed signs of having kidney problems last year, and urine tests revealed she had the onset of diabetic kidney disease. After a year under Project NEMO, her condition improved and she has since been released from the programme. She said, "I learned a lot about what kind of food and what amounts I should take."

Through this close collaboration between tertiary and primary healthcare on diabetic kidney care, patients understand that by being informed and empowered with the right information, they can participate in their own care and be self-disciplined to achieve treatment goals and better health outcomes.





## EMPOWERED FOR FASTER CARE

NHGP NURSES CAN NOW ORDER X-RAYS FOR PATIENTS WITH LIMB INJURIES AND EXPEDITE THE TREATMENT PROCESS.

Nurses at National Healthcare Group Polyclinics (NHGP) are now empowered to send patients for X-ray screening for limb fractures without the need to first consult a doctor beforehand — resulting in waiting times being cut nearly in half.

Using a triage questionnaire developed with the help of doctors, nurses can determine if patients require an X-ray. Those who meet the criteria have their fractures immobilised before being sent straight to radiology.

This improvement to the triage process has reduced the waiting time for patients with limb injuries from 186 minutes to 100 on average. In the past, patients seeking treatment close to the clinic's closing time would often have to postpone their X-rays to the following day because the radiology department would have closed before they could be referred. Now, patients can be attended to before the closing time.

The initiative to empower nurses to prescribe X-ray screening began at Clementi Polyclinic in 2011. "We felt that there could be a better way to meet the patients' needs, and so embarked on this process improvement project," said Nurse Manager Seah Hui Min.

The nurses conducted a pilot test from January to June 2011. During that period, they ordered about 60 per cent of the total X-rays. An audit revealed that among these cases, there was full compliance with the triage questionnaire. NHGP introduced the initiative at its eight other clinics by February 2012. Since then, nurses have referred some 3,000 patients to radiology.

There have been negligible costs associated with implementing the project and it has not resulted in more work for the nurses. Doctors have also given their collective approval to the system, as it makes for smoother consultations.

## A BETTER PATIENT EXPERIENCE

NATIONAL HEALTHCARE GROUP POLYCLINICS INTRODUCES NEW SYSTEMS TO IMPROVE CLINIC VISITS.

National Healthcare Group Polyclinics (NHGP) strives to provide outstanding, compassionate care and service. Offering clinical care and putting patients first requires that every aspect of the experience is taken care of. NHGP has implemented two initiatives to improve the patient experience at its polyclinics.

One new facility is the Missed Queue Number display installed in the registration areas of all nine NHGP polyclinics from June 2013. With this system, patients are less likely to miss their appointments. Always putting patients first, NHGP staff make it a point to call out queue numbers when there is no response to the buzzer.

Another new system put in place is the enhanced self-payment kiosk. Since August 2013, all NHGP polyclinics had these upgraded, making it easier for patients to pay bills via NETS, NETS Flashpay, NETS Cash Card and EZ-Link. The enhancements to these easy-to-use machines include a facility for patients to make payment using Medisave or through third-party payment and financial assistance schemes like Medifund.

In a survey conducted in 2012, before the roll-out of the enhanced self-payment kiosks, more than 90 per cent of patients said they preferred to pay for their treatment at the clinics. Most preferred to pay in cash although more than 80 per cent of respondents said they would use a self-payment kiosk if one were available.



Right: The enhanced self-payment kiosks at all nine NHGP polyclinics accept payment via NETS, NETS Flashpay, NETS Cash Card and EZ-Link.

## DIRECTORY

WE'VE MADE IT EASY FOR YOU TO CONTACT OR LOCATE US.

### NATIONAL HEALTHCARE GROUP CORPORATE OFFICE

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#03-08, Nexus @  
one-north  
Singapore 138543  
Tel: 6496-6000 /  
Fax: 6496-6870  
[www.nhg.com.sg](http://www.nhg.com.sg)

The National Healthcare Group (NHG) is a leader in public healthcare in Singapore, providing care through our integrated network of nine primary care polyclinics, acute care hospital, national specialty centres and business divisions. NHG's vision of "Adding Years of Healthy Life" is more than just about healing the sick. It encompasses the more difficult but more rewarding task of preventing illness and preserving health and quality of life. As the Regional Health System (RHS) for Central Singapore, it is vital for NHG to partner and collaborate with other stakeholders, community advisers, volunteer welfare organisations and others in this Care Network together with our patients, their families and caregivers to deliver integrated healthcare services and programmes that help in "Adding Years of Healthy Life" to all concerned.

### TAN TOCK SENG HOSPITAL

11 Jalan Tan Tock Seng  
Tel: 6256-6011 /  
Fax: 6252-7282  
[www.ttsh.com.sg](http://www.ttsh.com.sg)

The second largest acute care general hospital in Singapore with specialty centres in Endoscopy, Foot Care & Limb Design, Rehabilitation Medicine

and Communicable Diseases. It covers 27 clinical specialties, including cardiology, geriatric medicine, infectious diseases, rheumatology, allergy and immunology, diagnostic radiology, emergency medicine, gastroenterology, otorhinolaryngology, orthopaedic surgery, ophthalmology and general surgery.

### INSTITUTE OF MENTAL HEALTH

Buangkok Green Medical Park, 10 Buangkok View  
Singapore 539747  
Tel: 6389-2000 /  
Fax: 6385-1050  
[www.imh.com.sg](http://www.imh.com.sg)

Specialist mental health services are provided to meet the special needs of children and adolescents, adults and the elderly. There are sub-specialty clinics such as the Neuro-Behavioural Clinic, Psychogeriatric Clinic, Mood Disorder Unit and an Addiction Medicine Department. The treatment at IMH integrates evidence-based therapies, supported by the departments of Clinical Psychology, Nursing, Occupational Therapy and Medical Social Work, to provide holistic care for patients. IMH also provides a 24-hour Psychiatric Emergency Service.

### NATIONAL SKIN CENTRE

1 Mandalay Road  
Tel: 6253-4455 /  
Fax: 6253-3225  
[www.nsc.gov.sg](http://www.nsc.gov.sg)

The centre has a team of trained dermatologists to treat patients with various skin problems. To serve patients better, there are sub-specialty clinics for the different skin disorders and laser surgeries.

### NATIONAL HEALTHCARE GROUP POLYCLINICS

Contact centre: 6355-3000  
[www.nhgp.com.sg](http://www.nhgp.com.sg)

National Healthcare Group Polyclinics (NHGP) forms NHG's primary healthcare arm. NHGP's nine polyclinics serve a significant proportion of the population in the central, northern and western parts of Singapore. NHGP's one-stop health centres provide treatment for acute medical conditions, management of chronic diseases, women-and-child health services and dental care. NHGP also enhances the field of family medicine through research and teaching. NHGP has also been awarded the prestigious Joint Commission International (JCI) accreditation under the Primary Care Standards. Through the Family Medicine Academy and the NHG Family Medicine Residency Programme, NHGP plays an integral role in the delivery of primary care training at medical undergraduate and post-graduate levels.

#### ANG MO KIO POLYCLINIC

Blk 723 Ang Mo Kio Ave 8  
#01-4136 Fax: 6458-5664

#### BUKIT BATOK POLYCLINIC

50 Bukit Batok West Ave 3  
Fax: 6566-2208

#### CHOA CHU KANG POLYCLINIC

2 Teck Whye Crescent  
Fax: 6765-0851

#### CLEMENTI POLYCLINIC

Blk 451 Clementi Ave 3  
#02-307 Fax: 6775-7594

#### HOUGANG POLYCLINIC

89 Hougang Ave 4  
Fax: 6386-3783

#### JURONG POLYCLINIC

190 Jurong East Ave 1  
Fax: 6562-0244

#### TOA PAYOH POLYCLINIC

2003 Toa Payoh Lor 8  
Fax: 6259-4731

#### WOODLANDS POLYCLINIC

10 Woodlands St 31  
Fax: 6367-4964

#### YISHUN POLYCLINIC

30A Yishun Central 1  
Fax: 6852-1637

### NHG COLLEGE

Tel: 6340-2362 /

Fax: 6340-3275

[www.nhg.com.sg/college](http://www.nhg.com.sg/college)

The unit develops healthcare professionals to their maximum potential so that they will provide quality, cost-effective and safe evidence-based care to patients.

### NHG DIAGNOSTICS

Call centre: 6275-6443

(6-ASK-NHGD) /

Fax: 6496-6625

[www.diagnostics.nhg.com.sg](http://www.diagnostics.nhg.com.sg)

National Healthcare Group Diagnostics (NHG Diagnostics) is a business division of NHG.

It is the leading provider in primary healthcare for one-stop imaging and laboratory services that is accessible, cost effective, seamless, timely and accurate. NHG Diagnostics supports polyclinics, community hospitals, nursing homes, general practitioners and the community at large via its extensive network in Singapore, Indonesia and Vietnam. Its services are available in static and mobile centres. Mobile services include general X-ray, mammogram, ultrasound, bone mineral densitometry, and medical courier. It also provides tele-radiology service, laboratory and radiology management, and professional consultancy services in setting up of imaging centres and clinical laboratories.

### NHG PHARMACY

Tel: 6340-2300

Fill your prescription online:

[www.pharmacy.nhg.com.sg](http://www.pharmacy.nhg.com.sg)

NHG Pharmacy manages the dispensary and retail pharmacies at all nine NHG Polyclinics. Services include Smoking Cessation Clinics, pharmacist-led Anti-Coagulation Clinics and Hypertension-Diabetes-Lipidemia Clinics, where pharmacists monitor and help patients optimise their medication. Patients may also consult our pharmacists for treatment of minor ailments or for travel

or nutritional advice. NHG Pharmacy also provides comprehensive medication management services to Intermediate Long Term Care facilities (ILTCs) such as nursing homes. Under the ConviDose™ programme, medication is conveniently packed into individual sachets for patients according to the stipulated quantity and time the pills need to be consumed.

### PRIMARY CARE ACADEMY

Tel: 6496-6681 /

Fax: 6496-6669

[www.pca.sg](http://www.pca.sg)

The Primary Care Academy (PCA), a member of NHG, was set up to meet the professional training needs of primary healthcare professionals in Singapore and the region. PCA aims to be a platform for sharing of expertise and capacity building among community healthcare leaders and practitioners in and around ASEAN.

### JOHNS HOPKINS SINGAPORE INTERNATIONAL MEDICAL CENTRE

11 Jalan Tan Tock Seng

Tel: 6880-2222 /

Fax: 6880-2233

[www.imc.jhmi.edu](http://www.imc.jhmi.edu)

Johns Hopkins Singapore International Medical Centre (JHSIMC) is a licensed 30-bed medical oncology facility located in Singapore, a joint venture between the NHG and Johns Hopkins Medicine International (JHMI). It is the only fully-branded Johns Hopkins facility outside the United States, providing inpatient and outpatient medical oncology care, medical intensive care, laboratory services, hospital and retail pharmacy, general internal medicine and health screenings.



NHG IS THE REGIONAL HEALTH SYSTEM FOR CENTRAL SINGAPORE



# Adding Years of Healthy Life

Our vision of “Adding Years of Healthy Life” encompasses the fundamental challenge of promoting health, preventing illness and preserving quality of life.

A leader in public healthcare in Singapore, our mission is to provide patient-centred care through our integrated network of acute care hospitals, national specialty centres, primary healthcare polyclinics, specialist and business units. We are recognised both at home and globally for the quality of our medical expertise and facilities.

We are the Regional Health System (RHS) for the Central region in Singapore – a prime mover in the patient-centric healthcare ecosystem with valued partners from the primary, acute and step-down care sectors, all working closely to deliver integrated healthcare services for our patients.

With our 12,000 staff, we aim to provide care that is patient-centric, accessible, seamless, comprehensive, appropriate and cost-effective.

**We are NHG. The National Healthcare Group.**



Adding years of healthy life



Tan Tock Seng  
HOSPITAL



INSTITUTE  
of MENTAL  
HEALTH



National Healthcare Group  
POLYCLINICS



NATIONAL  
SKIN  
CENTRE



National Healthcare Group  
NHG COLLEGE  
Adding years of healthy life



National Healthcare Group  
DIAGNOSTICS  
Adding years of healthy life



National Healthcare Group  
PHARMACY  
Adding years of healthy life



PCA  
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