

# Cover Photos: Khoo Teck Puat Hospital, JurongHealth

# Ed's **Note**

# Dear readers,

t the welcome reception for a high-level study visit in February for Ministers and senior officials from the Pacific Island States and Timor-Leste, Minister for Foreign Affairs Dr Vivian Balakrishnan said, "It is essential for small states like us (Singapore) to remain open, build bridges, build ports, and remain connected". **Pursuing partnerships in the Pacific** looks at how these countries and Singapore learnt from each other on how best to cope with their inherent vulnerabilities.

While the Minister was referring to these countries and Singapore as natural partners, his remarks could have easily been about healthcare too. **Healthcare without borders** shows how Singapore collaborates with other countries to tackle challenges within, and to transform the health industry. These include partnering foreign health institutions and signing training MOUs with neighbouring Cambodia, as well as volunteer stints abroad by Singaporeans.

Healthcare is a prime focus in rapidly-ageing Singapore. In **A prescription that works**, *Experience Singapore* explores how the country keeps its citizens in the pink with an exemplary healthcare system – although health expenditure as a percentage of Gross Domestic Product is among the lowest globally, its residents are among the world's longest-living population.

The country's holistic approach includes promoting an active lifestyle to Singaporeans. Healthcare institutions in Singapore do more than provide medical treatments for patients and visitors. **Healing spaces** shows how, through mindful use of space and modern design features, hospitals and specialist institutions create healing environments that help patients recover quicker, and give their families conducive areas for recreation and respite.

We hope this issue of *Experience Singapore* provides you with a thoughtful read.

Director
Public Affairs Directorate
Ministry of Foreign Affairs Singapore

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The mindful use of space as well as modern design features help patients recover quicker.





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#### Healthcare without borders

Singapore is constantly collaborating with other countries to tackle challenges within, and to transform, the healthcare industry.



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# A PRESCRIPTION **THAT WORKS**

From providing efficient medical services to promoting healthy lifestyles. a multi-pronged approach is taken to keep Singaporeans in the pink.

TEXT BY PHYLLIS HONG



system. Its health expenditure as a percentage of Gross Domestic Product is among the lowest globally while its residents are among the world's longest-living population. Singapore stands out in numerous global healthcare rankings – it was rated second after Hong Kong among 55 countries in the Bloomberg Health-Care Efficiency Index 2016, and also shared the top spot with Iceland and Sweden as one of the healthiest countries to live in, in a United Nations ranking last year.

Singapore's healthcare landscape comprises acute hospitals, intermediate and long term care facilities (such as community hospitals and hospices), day care centres, polyclinics and clinics located island-wide. There are public and private players, with the former providing the bulk of hospitalisation care. For more efficient use of resources, Singapore's public healthcare system will be reorganised from six to three integrated clusters by early-2018. Each cluster will serve about 1.1 to 1.5 million residents, and have a fuller range of assets, services and networks across different care settings. Singapore's Ministry of Health (MOH) said that this change would also mean better career development for healthcare employees.

A key objective was to ensure integration in the public healthcare system while providing a seamless experience for patients. Playing a key role in this is the Agency for Integrated Care which facilitates the transition of patients after they are discharged from hospitals into the community. In 2015, the National Electronic Health Records was implemented for healthcare professionals to access patients' medical history across the national network so as to make the most informed care decisions.

## **GETTING BETTER AND BETTER**

Research and development (R&D) in healthcare enables people to live better and healthier lives. Health and biomedical sciences have been identified as one of four primary domains in Singapore's S\$19-billion Research Innovation Enterprise 2020 Plan - a roadmap for public investment in R&D. Strong support is also given to





innovation efforts by private medical technology companies. Other than protecting and enforcing intellectual property rights, the government provides plug-and-play infrastructure like the Biopolis (see box).

To achieve greater efficiency and improve the quality of patient care, MOH has pledged to drive the sector's productivity – one way is by streamlining procedures to reduce the administrative burdens of healthcare professionals and free them to concentrate on patient care. Technology is used increasingly to reduce labour-intensive processes. An example is the robotic bottle medication dispensing system at KK Women's and Children's Hospital, the largest medical facility in Singapore that provides specialist care for women and children. Here, bottles are automatically picked, packed and labelled so that pharmacy staff can focus on value-adding services like giving medication advice.

Technology has enabled new care models too. For example, the National University Hospital's telehealth service that started in 2015 in which some patients with hypertension, diabetes and heart conditions are monitored online instead of face-to-face. Patients enjoy convenience, cost savings and timely attention, while hospital beds are freed up for urgent cases.

#### **INVESTING IN PEOPLE**

Manpower is increasingly an issue for Singapore; its ageing population means an estimated 30,000 more healthcare workers are needed by 2020. To ease the labour crunch, Singapore has been unrelenting in its pursuit of talents. Grants have been provided to attract Singaporeans studying overseas in healthcare-related disciplines to return and serve, and salary increments implemented to lower the turnover rate.

Minister for Health Mr Gan Kim Yong stressed the importance of developing professionals' ability to contribute to transforming the healthcare system at the Healthcare Scholarships Award Ceremony 2016. "We are training more family physicians, and geriatric and internal medicine specialists to care for our population in the community. We are also grooming more highly-skilled Advanced Practice Nurses to lead and implement complex evidence-



↑ Biopolis was developed as a research hub for Biomedical Sciences.

based care programmes and operate more independently in the community," he said.

The spotlight is indeed on nurses, the backbone of healthcare, in growing the capabilities of the current healthcare workforce. More nurses in Singapore have been trained and entrusted with greater responsibilities, including those previously handled by doctors. The rise in nurse-run clinics has reduced waiting time for patients and enabled doctors to attend to more complex cases. To prepare for an ageing population, on-the-job training in gerontology is available for nursing graduates through a work-study programme.

#### **HEALTH BEFORE HEALTHCARE**

It is without doubt that poor health is an economic burden. Compared to a decade ago, Singapore's healthcare spending has increased almost six-fold to S\$11 billion. This figure is expected to climb with an ageing population and increasing incidence of chronic diseases. Other than focusing on developing healthcare, the government has also been channelling resources to help residents keep in shape, and to detect diseases early.

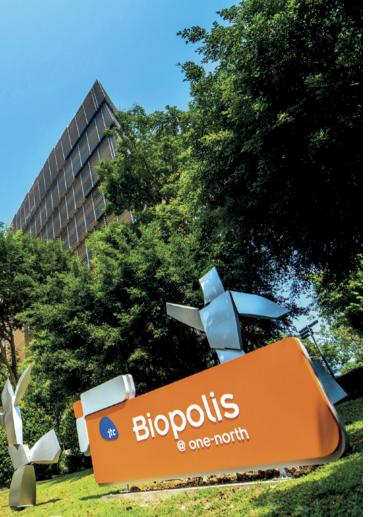
Top of the agenda is the 'war on diabetes' declared by MOH in 2016, after the chronic disease was identified as one of the biggest drains on the Singapore's healthcare system. As of 2015, Singapore has the second-highest proportion of diabetics among developed nations. By 2050, an estimated one million Singaporeans aged 18 and above would have diabetes. To win the 'war', preventive efforts such as encouraging exercise and improving dietary quality in schools, communities and workplaces have been ramped up. There will also be more primary care facilities for health screenings and better disease control.



# **RESEARCH HUB**

- Located in western Singapore, the Biopolis was developed as a leading research centre for Biomedical Sciences.
- It contains state-of-the-art facilities, scientific infrastructure and conference facilities to facilitate R&D in life sciences, including drug discovery, clinical development and medical technology research.
- Public and private research institutes, laboratories and health centres are strategically co-located to promote collaboration. For example, having the Institute of Bioengineering and Nanotechnology (IBN) Eye Laboratory and NUH Eye Centre in Biopolis has enabled research collaboration and strengthened the partnership between NUHS ophthalmologists

and IBN researchers.





TODAY, WE HAVE A VERY GOOD HEALTHCARE SYSTEM IN SINGAPORE. WITHOUT BLOWING OUR OWN TRUMPET, I THINK WE CAN SAY AS A FACT THAT IT IS ONE OF THE BEST IN THE WORLD. WE SPEND LESS ON HEALTHCARE THAN OTHERS, YET WE HAVE BETTER HEALTH OUTCOMES. INFANT MORTALITY IS ONE OF THE WORLD'S LOWEST; LONGEVITY IS ONE OF THE WORLD'S LONGEST

PRIME MINISTER MR LEE HSIEN LOONG AT THE OPENING OF NG TENG FONG GENERAL HOSPITAL AND JURONG COMMUNITY HOSPITAL IN 2015



♠ Prime Minister Mr Lee Hsien Loong officiated the opening ceremony of Ng Teng Fong General Hospital and Jurong Community Hospital.

# **CHECKING IN**

The Healthcare 2020 Masterplan, unveiled in 2012, aimed at enhancing the accessibility, affordability and quality of healthcare for Singaporeans. A review in 2016 showed that the nation is on track to meeting targets.

- ♣ Singapore offers universal healthcare system anchored on the twin philosophies of affordable healthcare for all and individual responsibility.
- Singaporeans. One scheme is the Pioneer Generation Package that is meant to honour, through healthcare subsidies, the contributions of pioneer
- + There are schemes like Medisave, which helps Singaporeans portion part of their salary into a mandatory savings account to meet future medical expenses. More flexibility was introduced in 2016 in the use of Medisave to help

- focusing on developing acute hospitals is not sustainable. The primary care system is particularly emphasised as the first line of care
- Three new acute and community hospitals were opened in 2015, adding about 1,170 beds. Polyclinics are being redeveloped and new

## QUALITY

Quality healthcare is possible only with competent and caring healthcare professionals. workforce of doctors, nurses, pharmacists, and allied health professionals has grown by 24% from 46,000 to 57,000 between 2011







FROM ISLANDS OF VULNERABILITIES TO ISLANDS OF OPPORTUNITIES:

# **PURSUING PART**

# **Singapore hosts Ministers and senior officials** from the Pacific Island States and Timor-Leste for a three-day high level study visit.

INTHE

ingapore hosted a High Level Study Visit for the Pacific Island States and Timor-Leste from 7 to 9 February 2017. At the invitation of Singapore's Minister for Foreign Affairs Dr Vivian Balakrishnan, 42 Heads of State/Government, Ministers and senior officials from the 14 Pacific Island States, Timor-Leste, and the heads of regional organisations in the Pacific participated.

During the welcome reception at the Ministry of Foreign Affairs, Dr Balakrishnan noted that Singapore, the Pacific Island States and Timor-Leste are natural partners. "History has usually not been very kind to small states, meaning our existence, our continued prosperity and our viability are not a benign fact of geography but really a continuous exercise of political will", he shared. "It is essential for small states like us to remain open, build bridges, build ports, and remain connected."

importance Singapore places on engaging the Pacific Island States and Timor-Leste. Singapore has consistently worked closely with the Pacific Islands through groupings

The visit highlights the increasing

such as the Alliance of Small States, Small Island Development States and Forum of Small States to champion common causes such as climate change and development issues. As island communities, we can learn from one another on how best to cope with our inherent vulnerabilities.

#### SHARING SINGAPORE'S EXPERIENCE

Skills development is an area of concern among the leaders of the Pacific Islands.

As part of the visit, the delegation visited the ITE Epitome, a training facility run by Singapore's Institute of Technical Education for students to work with customers in a genuine commercial setting. "What I have found most useful is the emphasis on education," shared Senior Strategic Planning Adviser of the Pacific Community Ms Patricia Sachs-Cornish. "It has been quite critical and instrumental in the development of the country".



→ Minister for Foreign Affairs Dr Vivian Balakrishnan invited the heads of delegation to a traditional Lunar New Year "Lo Hei" to usher in a prosperous new year.





WE AS SMALL ISLAND COUNTRIES, AND NOTING THAT SINGAPORE IS ALSO AN ISLAND COUNTRY, OUGHT TO WORK TOGETHER. THE DIFFERENT CONCEPTS. MODELS, AND THE EXCHANGE OF VIEWS IS VERY IMPORTANT

SAMOAN PRIME MINISTER TUILA'EPA LUPESOLIAI SAILELE MALIELEGAOI

A visit to the Institute of Technical Education College Central where the delegation saw how vocational education was integral to economic development.

This was the second time that Singapore organised the High-Level Study Visit for the Pacific Island States and Timor-Leste.

# **NERSHIPS PACIFIC**



◆ Senior Minister of State Mrs Josephine Teo hosted a tour of MPA to learn about Singapore's port management facilities.

 The heads of delegation. attending a briefing at the Maritime Port Authority

Maritime connectivity is a vital economic lifeline for these Pacific Islands. Senior Minister of State Mrs Josephine Teo hosted a tour of the Maritime Port Authority, to showcase how Singapore managed its port operations as the world's busiest transhipment hub. While Singapore's development journey cannot be transplanted, these learning experiences can serve as useful insights for other island countries. As Niue Minister of Natural Resource Billy Talagi shared, "Niue does not have a port like this, we have a small

port. We won't be able to be like Singapore, but we are able to pick up some of the issues that will assist us in development."

The delegates also received briefings from Singapore officials in charge of tourism, urban planning, water management and trade.

## STRENGTHENING FRIENDSHIPS

As the centre of gravity moves towards the Asia-Pacific, visits such as these are also opportunities for the Pacific states to pursue closer political ties. The delegation

Samoan Prime Minister Tuila'epa Lupesoliai Sailele Malielegaoi shared that the programme was useful in showcasing how Singapore and the Pacific Islands could work together to overcome common challenges. He said, "We as small island countries, and noting that Singapore is also an island country, ought to work together. The different concepts, models and exchange of views is very important." Whilst the visit may have ended, the friendships and partnerships will continue.

THROUGH MINDFUL
USE OF SPACE
AND MODERN DESIGN
FEATURES, THESE
HEALTHCARE INSTITUTIONS
IN SINGAPORE DO MORE
THAN PROVIDE MEDICAL
TREATMENTS FOR PATIENTS
AND VISITORS.

TEXT BY
FAIROZA MANSOR

# HEALII SPACES

ealthcare experts concur that a hospital's physical environment can have a significant impact on patient outcomes and recovery times. This understanding of the role of the environment in patient care has resulted in hospitals adopting design features that take into account space, lighting, exposure to nature and noise level – all of which have been proven to affect patients' wellbeing.



↑ The wards have a fan-shaped design that allow for each bed to be placed next to a window with a view of the greenery outside. Such a design also improves ventilation and natural light, and can help to speed up recovery as chances of cross infection between patients are reduced. This is a first for a public hospital in Singapore, as most existing hospital wards are rectangular, with windows only at the end of the room.

# **RAY OF LIGHT**

# Ng Teng Fong General Hospital (NTFGH)

This 700-bed hospital, located in the western region of Singapore, was opened in June 2015 to complement the Jurong Community Hospital – the first hospital in Singapore to be designed as an integrated development for better patient care, greater efficiency and convenience. The sleek building was constructed to maximise natural light and ventilation; and the building comprises many green features.

- ↑ NTFGH's ward towers are built in an East-West orientation, which takes advantage of prevailing winds to provide ventilation. Sun angles were studied over a year to make sure ward rooms would receive the optimum amount of daylight without too much glare. For example, light shelves above ward windows were constructed to provide shade.
- ♣ Solar energy provides for the hospital's internal hot water supply as well as for landscape lighting. Harvested rainwater is the main source of irrigation for the rooftop garden, while NEWater (used water that has been treated and purified) is used in the cooling towers of the air-conditioning system.





# A HOSPITAL IN A GARDEN

#### Khoo Teck Puat Hospital (KTPH)

Opened in November 2010, this 590-bed hospital located in the northern region of Singapore is set amid verdant landscape and soothing water features. It was developed as a "hospital in a garden, and a garden in a hospital", with features that are eco-driven and aimed at preserving the biodiversity of its natural surroundings.

★ Water from the nearby Yishun Pond is channeled to the hospital's irrigation system and treated before use for landscaping needs within the hospital's premises. This recycling process, complemented by the use of water-saving thimbles throughout the building. has significantly reduced KTPH's water consumption.



OUR INTENTION WAS TO CREATE A HEALING ENVIRONMENT THROUGH GARDENS THAT WOULD ENGAGE THE SENSES OF SIGHT, SOUND, SCENT AND TOUCH. [THESE WOULD] HELP OUR PATIENTS RECOVER MORE QUICKLY. PATIENTS' FAMILIES WOULD HAVE CONDUCIVE SPACES FOR RECREATION AND RESPITE

MR LIAK TENG LIT, CHIEF EXECUTIVE OFFICER, ALEXANDRA HEALTH SYSTEM



♠ ⇒ Pockets of greenery throughout the centre's premises provide a welcoming and calming environment with plentiful natural light and good ventilation. For example, the garden in front of the centre's entrance serves primarily as a healing park and a waiting area. Patients in the cardiac rehabilitation unit on the eight floor can catch a breath of fresh air in the sheltered



## **KEEP CALM, GET BETTER**

# National Heart Centre Singapore (NHCS)

The new NHCS opened in September 2014. Four times its previous size, its architectural concept was inspired by the medicinal courtyard gardens traditionally found in monasteries. "We wanted to make sure we had a calming outpatient environment," said NHCS medical director Professor Koh Tian Hai.





♦ Vertical greening, rooftop gardens and edible gardens planted with herbs and spices provide a calming environment for both patients and visitors. Studies have shown that the therapeutic effects of greenery can help bodies cope with the stress and trauma of being ill. Patients also recover faster from their physical ailments and enjoy better mental health. Greenery on the roof also improves insulation, keeps the building cool and thus reduces energy demand for air-conditioning.



# CONSCIOUSLY GREEN

building features and technologies. These include charging stations for electric vehicles to encourage the consumption of less fuel, and in turn For its various energy-efficient and environmental-friendly features, it was awarded the Building and



# ining Hands

# A TRAINING BOOST

Singapore's Tan Tock Seng Hospital (TTSH) and Cambodia's Calmette Hospital renewed their working relationship in January this year. The agreement - to last another three years - were signed in the presence of Cambodian Prime Minister Hun Sen and President Tony Tan Keng Yam. This renewal comprised a broader range of training that now includes intensive care nursing, intensive care medicine and clinical quality. An earlier Memorandum of Understanding (MOU) covered a training collaboration on trauma care and resuscitation from 2014 to 2016.

For a close-up look at the results of this partnership so far, President Tan was given a tour of Calmette Hospital in Phnom Penh and a demonstration of some medical techniques Cambodian doctors and nurses had learnt under the programme. These included an ultrasound technique to help detect bleeding in the abdomen. The programme's courses were initially conducted by doctors from TTSH, but in 2016, senior specialists in Calmette Hospital also taught alongside the Singapore faculty. The programme was funded by Temasek Foundation International, with a grant of \$\$290,630, and co-funded by TTSH and Calmette Hospital.



# HEALTHCARE WITHOUT BORDERS

Singapore collaborates with other countries to tackle challenges within, and to transform. the health industry.

TEXT BY FAIROZA MANSOR



#### FOR HEALTH'S SAKE

SPRING Singapore - an enterprise development agency under Singapore's Ministry of Trade and Industry - has partnered Dutch medical institution Maastricht University Medical Centre Holding to create more opportunities in the areas of healthcare, life sciences and medical technology.

Witnessed by Special Guest, Mr Johannes Jansing, Ambassador of the Kingdom of Netherlands to Singapore, the MOU signing ceremony took place in June 2013.

The ceremony was also attended by representatives from the healthcare industry and Singapore and Dutch enterprises in the medical technology and biomedical sectors. This partnership has enabled more research and development collaborations, joint product development projects, joint-ventures and investment opportunities with Dutch companies. The Netherlands is Singapore's third largest trading partner in the European Union, and the 16th largest trading partner globally.

← Mr Martijn Lamberti, Director of MUMC Holding with Mrs Kee Ai Nah, Group Director (Innovation, Internationalisation and Entrepreneurship) of SPRING Singapore at a trade delegation visit to Maastricht UMC+ in November 2013.



THIS IS AN IMPORTANT MOVE TO PROMOTE DEEPER ENGAGEMENTS WITH OUR **DUTCH PARTNERS TO FOSTER** STRONGER AND MORE STRATEGIC CROSS-BORDER PARTNERSHIPS BETWEEN **DUTCH AND SINGAPORE** RESEARCH INSTITUTIONS AND SMES, WHICH COMPLEMENT EACH OTHER AND INCREASE OUR COMPETITIVE EDGE TO TAP GROWTH OPPORTUNITIES IN THE EUROPEAN AND ASIAN MARKETS

MR TED TAN, DEPUTY CHIEF EXECUTIVE OF SPRING SINGAPORE AT THE SIGNING CEREMONY WITH MAASTRICHT UMC HOLDING



President Tony Tan and Mrs Tan presenting their gifts to Cambodian Queen Mother Norodom Monineath Sihanouk of Cambodia on their state visit, during which the memorandum of understanding was signed by the two countries.

## **BRACING FOR THE FUTURE**

In October 2016, a healthcare network comprising hospitals and universities was launched to address Singapore's healthcare challenges. The Centre of Healthcare Innovation Co-Learning Network, as it is called, was announced by Minister of State for Health Mr Chee Hong Tat. The Network will help to bring local and overseas institutions together to tackle the twin challenges of Singapore's ageing population and slowing labour force growth.

A total of 21 local and overseas partners have joined the Network, which is hosted by Tan Tock Seng Hospital and the National Healthcare Group, a cluster that takes care of Singapore's central region. Partners of the Network include healthcare centres from Thailand, Sweden and New Zealand, as well as local partners such as the Lee Kong Chian School of Medicine at Nanyang Technological University. On the Network's agenda are tasks such as transforming the healthcare workforce through job redesign and technology; developing new training pedagogies for healthcare workers to support the shift from hospital to community care; and designing future hospitals.





♠ Ms Wong Li Wai dispensing medicines in Sierra Leone.

## A CALLING TO SERVE

At the height of the Ebola epidemic in West Africa in late-2014, former nurse Wong Li Wai packed her bags for its capital city, Sierra Leone. There, Ms Wong, 38, spent five weeks in an Ebola management centre tending to patients' needs every day, undeterred by the risk of contracting the deadly virus. She cleaned, fed and dispensed medications, wearing a full personal protection equipment suit.

In March 2015, Ms Wong, who used to work at the Institute of Mental Health, went back to Sierra Leone with aid agency Doctors Without Borders. For about two months, she visited villages to make sure the people knew how to prevent themselves from getting the disease. "When I came back, I was happy that I did what I did. Although it was a simple job, they needed us and we did our best. As a nurse, I felt it was my calling," Ms Wong said.

# IN THE PIPEPLINE

Announced in 2014, the Centre for Healthcare Innovation (CHI) will be ready by end-2018. This training and medical hub will house innovation spaces, simulation labs and training facilities. The CHI will be supported by the Ng Teng Fong Healthcare Innovation Programme, with an endowment fund of S\$52 million to drive healthcare innovation and training.

