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## NATIONAL CANCER CENTRE SINGAPORE

A Leader in Research,  
Education and Clinical Care

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Cancer is and remains the number one killer disease in Singapore. This trend is expected to continue with our greying population and the lifestyle of our young Singaporeans.

For the National Cancer Centre Singapore (NCCS), this trend poses a real challenge as our doctors have to continually keep abreast of the new developments in medical science against a backdrop of an ever changing social environment.

Patients are more knowledgeable about cancer. They are asking more questions and demanding more treatment options from the doctors. We are tapping on the services of Advanced Nurse Practitioners to assist the doctors in some areas in order to relieve their workload. Space is a perennial constraint and hence the NCCS is working on the building of a new Centre to cope with the demands on its services.

I am pleased that several of our oncologists have been able to sub-specialise because I envisage that this is the best way forward if we are to raise our level of expertise to treat our patients. We will continue to encourage sub-specialisation and to send doctors overseas for training and to gain more exposure. Research is another platform for the NCCS to maintain its position

as a global leading cancer centre. We will relentlessly pursue our research and clinical trials, including collaborating with other countries. Results from multi-institutional trials are more robust and better accepted.

The NCCS has been studying the latest in the field of medical technology for cancer treatment. Medical knowledge must be complemented with technology if we wish to improve on cancer care.

**PROF SOO KHEE CHEE**

Director, National Cancer Centre Singapore

Deputy Chief Executive Officer (Research and Education), SingHealth

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## PATIENT CARE

The NCCS celebrated several milestones in 2010. In September, it became the first ambulatory cancer centre in Asia to be credited with an audit score of 98% for US-based Joint Commission International (JCI) accreditation.

The accreditation followed a strenuous external audit and close scrutiny of the NCCS' work flow and practices. Thanks to the hard work by the NCCS team, the Centre was granted the accreditation, ranking it alongside world-class organisations that have been recognised for having practices that ensure safety, confidentiality and quality healthcare for patients.

For the NCCS patients, the JCI accreditation means that they can be further assured of high quality inpatient assessment and treatment, improved clinician-patient and caregiver communication, patient privacy and confidentiality, and a safe environment from stringent infection control amongst many others.

Also in September 2010, research findings from a team led by the NCCS scientist, A/Prof Balram Chowbay, Principal Clinical Pharmacologist, enabled doctors to better identify the suitability of their patients for receiving the anti-cancer agent Irinotecan, which is widely used in the treatment of colorectal cancer.

“Learning to be a doctor is still foremost about apprenticeship and mentoring others.”

DR GOH-FUNG CYNTHIA RUTH  
Senior Consultant & Head,  
Department of Palliative Medicine

*(“Behind the Stethoscope: Personal Reflections on Life in Medicine”, p.39)*

As a result of their findings, the Health Sciences Authority has directed that Irinotecan's package insert be updated. The findings have also resulted in several oncologists sending their patients' blood samples to the Clinical Pharmacology Laboratory at the NCCS for genetic tests prior to patients receiving Irinotecan.

Findings from genetic studies done by the team suggest that certain ethnic groups may be more susceptible to increased toxicity when given Irinotecan and that prior testing of their genetic constitution can aid in the selection of a right dose to match the individual's metabolic capacity and alleviate the risk of toxicity. A/Prof Balram's laboratory has started providing these genetic tests to patients being treated with Irinotecan at the NCCS.

Within the same year, patients with advanced abdominal and pelvic cancers, who previously had six to 12 months of survival, now have a vastly improved chance to live due to a surgical procedure the NCCS has pioneered in the region.

The procedure, known as peritonectomy, seeks to remove all visible tumours in the lining of the abdominal cavity for patients with diseases such as colorectal and ovarian cancers.

About 80 patients have undergone peritonectomy since the NCCS introduced it 10 years ago. A recent analysis of results has shown that the procedure offers more than 65% overall survival rate in three years.

The first patient who underwent the procedure at the NCCS is still alive today. That marks the longest survival at 10 years to date. Previously, patients depending on conventional chemotherapy seldom survived beyond a year.

## EDUCATION

The NCCS' efforts to nurture a teaching culture continued into FY2010 which saw the Centre organising a course and workshop focused on new treatment options available for breast cancer patients. The NCCS shared its expertise on advances in breast imaging, oncologic surgery, systemic therapy

and radiotherapy and the variety of options for breast reconstructive surgery.

The meeting was aimed at providing participating surgeons with the optimal care and treatment strategies for breast cancer from clinical experts from the NCCS and SGH, with whom we collaborated in this event.

The NCCS continued with its series of lectures from international experts under the banner of the Humphrey Oei Distinguished Lecture Series. The Centre aspires for the Lecture Series to be one of Singapore's leading forums for intellectual inquiry and discussion on cancer research. In all, two lectures were organised for the 2010/2011 period for the NCCS researchers to learn from the best and to spur their efforts in cancer research.

A team of oncologists and nurses from the NCCS spent a month with the director of surgical oncology at the Washington Cancer Institute and Washington Hospital Center, Dr Paul Sugarbaker. He is widely regarded as a pioneer in the field of peritonectomy. The visit enabled the team to sharpen their skills in the procedure.

Returning to Singapore, they shared their experience with more than 60 surgeons, oncologists and professionals at the NCCS in March. The intention is to extend the practice to other institutions so that the technique, which vastly improves the chances of survival for cancer patients, can evolve into mainstream surgery. The demand for such surgeries subsequently led to the setting up of the Centre for Peritoneal and Pelvic Cancers (CPPC) in January 2011.

The establishment of the CPPC supports the development of a strong research programme. Research projects lined up include using animal models that mimic the pattern of human abdominal cancer, allowing the testing of chemotherapy agents.

## RESEARCH

A/Prof Patrick Tan of the Laboratory of Molecular Development, together with Prof Teh Bin Tean, Director and Principal Investigator, the NCCS-VARI



**PROF TEH BIN TEAN**  
**Director, NCCS-Van Andel Research Institute**  
**Translation Research Programme**

**Group Director, Translational Research,**  
**SingHealth**

Prof Teh Bin Tean says the best advice he has ever received in his medical career is to take on any task with the heart as well as the mind.

And he has boiled down his approach to mentoring to just that. Mentoring, to this much-awarded clinician, is “to cultivate young clinician scientists who care about their work and patients, and who work with both their hearts and brains, not just for accolades and awards.”

Prof Teh, a STaR award winner says a mentor should also nurture an individual to grow “intellectually, scientifically, socially”.

One such individual whom Prof Teh recalls with great clarity till today, was a young doctor who impressed him with not just his heart for his work but also his diligence and “tremendous tolerance”.

Curious about his background, Prof Teh found out that this young man was from Pulau Ubin, and as a child, had to trek everyday from home to catch a boat to the mainland to study. In his opinion, Prof Teh feels that this man with humble beginnings was a clear example of heart at work.

Translational Cancer Research Laboratory, have developed the use of *Targeted Deep Sequencing*, a cutting-edge medical research tool which allows for the screening of numerous genes simultaneously, in the field of gastric cancers.

A/Prof Tan has, together with Prof Teh, set up a targeted deep sequencing facility at the NCCS, supported by a grant from the Lee Foundation. In the first application of this technology, A/Prof Tan tapped on this newfound technology to screen over 500 kinase genes in a panel of gastric cancers. Within a short time frame of two weeks, A/Prof Tan and his team were able to identify 300 novel kinase single nucleotide variants and singled out genes that were frequently altered in gastric cancers. The conventional method would have taken the team about a year to complete the same task.

Looking beyond his early findings, A/Prof Tan said he envisages an age where every single cancer patient will have their individual genomes analysed using these types of deep sequencing approaches and based on the unique repertoire of mutations uncovered in that patient, will have the benefit of customised treatments and diagnostics from the current one-size-fits-all treatments.

Separately, a scientific team led by Prof Kanaga Sabapathy, the Principal Investigator in the Laboratory of Carcinogenesis, has found a way to inhibit DNp73, a protein that is present in cancerous cells contributing to their growth and conferring resistance to therapy. The study helped to shed light on how DNp73 over-expressing cancers can be made sensitive to chemotherapeutic regimes.

The findings provide answers to why some patients do not respond well to chemotherapy and will ultimately lead to the development of more effective drug regimes. The publication of the findings, *The Anti-apoptotic Delta Np73 is Degraded in a c-Jun-dependent Manner upon Genotoxic Stress through the Antizyme-mediated Pathway*, was accepted by the Proceedings of the National Academy of Sciences of the United States of America (PNAS), one

of the most cited multidisciplinary scientific serials that publish cutting-edge research reports.

Also in FY2010, the NCCS' head of medical oncology, Dr Toh Han Chong, and fellow oncologist Dr John Chia engaged in a Phase Three clinical trial to determine if aspirin can reduce the risk of colon cancer recurring after surgery or chemotherapy. The trial involves a three-year treatment administered along with the standard chemotherapy.

The trial recruited 2,600 patients with Stage 2 and 3 colon cancer from at least 19 centres in Asia. The study is being funded by the National Medical Research Council, the SingHealth Foundation and the Grameen Foundation.

## OUR PEOPLE

In 2010, the NCCS continued to provide training stints and overseas fellowships to advance the skills and knowledge of its team of medical professionals in their fields of expertise and sub-specialties. The NCCS believes that training and exposure of our doctors to cutting edge treatment ultimately benefits patients, increasing their chances for cancer survival and improving the quality of their lives.

Dr Connie Yip Siew Poh spent 24 months at Guy's and St Thomas Hospital in the UK, acquiring advanced knowledge in radiation oncology. The training provides for better assessment of patient conditions allowing the medical practitioner to prescribe more precise radiation dosage. Dr Siow Tian Rui was also at Guy's and St Thomas Hospital for 24 months acquiring a deeper understanding of radiation technology.

Dr Lena Lo Li Lin returned after six months at the Peter MacCallum Cancer Centre for a programme focused on acquiring multi-perspectives in assessing and diagnosing thoracic cancer conditions. The course prepared her for robust diagnoses and assessments of patient conditions.

Six months of training in functional imaging of head and neck cancers provided Dr Teo Tze Hern the opportunity to acquire a deeper understanding

“We are privileged to be in a position to help people at their time of greatest need.”

DR TOH HAN CHONG  
Head and Senior Consultant,  
Medical Oncology

of oncologic imaging. The imaging expertise allows for the provision of the more accurate assessments of types of cancers.

#### COMMUNITY ENGAGEMENT

In November 2010, the NCCS organised another successful *Run for Hope* annual charity run in support of cancer research. Jointly organised with the Regent Singapore and Four Seasons Hotels & Resort, the event drew 7,000 runners and raised \$320,000 for cancer research. More than 500 volunteers from Temasek Polytechnic, Hwa Chong Institution and Canadian International School helped with race pack collection, marshalling and snacks distribution at the run. Now into its 18th year, Run for Hope is the longest running fundraising event in Singapore.

In another community initiative, the NCCS, together with Young Changemakers, funded a cookbook put together by six students from the Nanyang Technological University.

*Sharing Plates* features 12 heartwarming and inspiring stories of cancer patients and caregivers, along with 40 simple homemade recipes and nutritional tips contributed by the cancer families and verified by the NCCS Principal Pharmacist Ms Chang Yok Ying.

This book aims to dispel the myths that cancer patients can only eat bland food and should follow a very restricted diet. It also aims to encourage cancer patients to eat normally and be able to enjoy similar meals with their family members. Proceeds from the book will go to the NCCS Foundation.

Fundraising efforts were also made by students from Methodist Girls' School who held a charity concert for the NCCS for the second year running. Through sales of concert tickets, food items and MGS souvenirs, and soliciting of donations from parents, the school has raised close to \$128,000 over the two years. The students also went beyond fundraising. In 2010, they embarked on several educational projects such as the creation of cancer blogs and the production of a storybook to create public awareness about cancer.



**DR LIM SOON THYE**  
**Senior Consultant, Medical Oncology, NCCS**

“Medicine is best appreciated by the bedside” says Dr Lim Soon Thye. By that, he means that many of the subtle aspects and insights of medicine, and the art of being a good doctor cannot be learnt from a textbook. They are best taught by a mentor, preferably at a patient’s bedside.

Dr Lim is cognisant of the bumpy road the path to medical learning can be, and says he hopes to make the journey “a little easier” for younger clinicians.

“Many trainees and students, myself included, often feel like “pests” during training. I try whenever possible to lessen this feeling for my mentees,” he says.

Mentoring ultimately benefits his patients, Dr Lim says, “In setting an example, it forces you to improve on your practice, hence translating to better patient outcomes.”

He has this bit of advice to his students, “Be grounded to fly high” as he believes doctors who are down to earth (grounded) will excel in their professions.

KEY FIGURES	FY10	FY09
<b>Workload per annum</b>		
Day Surgeries	10,494	10,967
Specialist Outpatient Clinic Attendances	129,692	128,418
<b>Staffing (as at end Mar)</b>		
Total	591	545
Doctors	126	112
Nurses	119	109
Allied Health Professionals	133	122
Others	214	202

*Note: Staffing figures refer to Filled Posts, in terms of Full-Time Equivalent, and may not add up to total due to rounding.*

## AWARDS & ACCOLADES

### PATIENT CARE

<b>SingHealth Excellence Awards 2010</b>	<b>Distinguished Leader Award Series (Young Leader)</b> Dr Lim Soon Thye
<b>GCEO Excellence Awards 2010</b>	<b>Outstanding Nurse Award</b> Lee Kim Hua
	<b>Outstanding Clinician Award</b> Dr Ho Gay Hui
	<b>Outstanding Allied Health Professional Award</b> Yusnita Bte Omar
	<b>Outstanding Ancillary Staff Award</b> Parvathy d/o Peria Karuppan
	<b>Outstanding Administration Staff Award</b> Amir Ahmad s/o Dabir Ahmad
<b>Healthcare Humanity Award (Courage Fund) 2010</b>	Dr Ho Gay Hui