Médico

UNIVERSITY SURGICAL CLUSTER

IN THIS ISSUE

Colorectal Cancer Wars
Fine Needle Aspiration Cytology: The Key to the Diagnosis of Thyroid Nodules
Recent Refinements in Breast Reconstruction
The Next Line of Therapies for Refractory Erectile Dysfunction
WHAT’S INSIDE

04 Colorectal Cancer Wars  
– May the Force be with You!
10 Fine Needle Aspiration Cytology:  
The Key to the Diagnosis of Thyroid Nodules
14 Haemorrhagic Strokes and  
Novel Keyhole Endoscopic Evacuation  
of Intracerebral Haemorrhage
19 Recent Refinements in  
Breast Reconstruction
22 Can a Dead Penis be Resurrected?  
The Next Line of Therapies for Refractory  
Erectile Dysfunction
26 Specialist in Focus

We will love to hear your feedback on Médico  
Please direct all feedback to: The Editor, Médico  
GP Liaison Centre, National University Hospital,  
1E Kent Ridge Road, NUHS Tower Block, Level 6,  
Singapore 119228

Tel: 6772 5079 Email: gp@nuhs.edu.sg  
Fax: 6777 8065 Website: www.nuh.com.sg/nuh_gplc

The NUHS group

A Publication of NUH GP Liaison Centre (GPLC)

Advisor  
A/Prof Goh Lee Gan

Editors  
Amaranta Lim  
Karin Lim

Editorial Member  
Denise Ho

The information in this publication is meant purely for educational purposes and may not be used  
as a substitute for medical diagnosis or treatment. You should seek the advice of your doctor or a  
qualified healthcare provider before starting any treatment, or, if you have any questions related  
to your health, physical fitness or medical condition(s).

Copyright (2015). National University Hospital, Singapore

All rights reserved. No part of this publication may be reproduced without permission in writing  
from National University Hospital.
UPCOMING EVENTS

NUH ENT Updates for GP

Department of Otolaryngology

NUHS Tower Block Auditorium
2pm – 4pm

NUH Orthopaedics Updates

University Orthopaedics, Hand and Reconstructive Microsurgery Cluster

NUHS Tower Block Auditorium
2pm – 4pm

Event information listed is correct at time of print. While every attempt will be made to ensure that all events will take place as scheduled, the organisers reserve the rights to make appropriate changes should the need arises. Please refer to our events calendar at www.nuh.com.sg/nuh_gplc for more updates and information.
“I am only 52. How could I get colorectal cancer, doctor? Why me?”

My patient asked me these questions the other day in my clinic. He had just been diagnosed with colorectal cancer and unfortunately, his cancer had spread beyond his colon to his lungs and liver. When I broke the news to him and his family, they were devastated.

This patient had been suffering from symptoms of colorectal cancer for the past six months but had simply brushed them aside as nothing serious - until now. Upon further questioning, he revealed that he had previously heard about colorectal cancer screening, but had not seen the need to go for screening upon turning 50.

This scenario is very common in Singapore. We, as doctors, come across this all the time in our clinics.

So, how can we win the war against colorectal cancer?
The ‘Big Shock’ - How Big is the Colorectal Cancer Problem in Singapore?

Let’s face it. Colorectal cancer has been, and is currently the most common cancer among men and women in Singapore since 2003. Approximately 1,800 new cases are diagnosed here every year - and this number is still on the rise.

On top of that, more than 60% of these patients are diagnosed with the advanced stages of colorectal cancer (stages III and IV).

Cancer accounts for more than 25% of all deaths in Singapore. Colorectal cancer is the second highest killer among men and the third highest among women.

The sad reality is that four in 100 Singapore men and three in 100 Singapore women will suffer from colorectal cancer.

Despite these hard facts, Singaporeans have been very unwilling to take up the fight against colorectal cancer. According to the Singapore Health Behavioural Surveillance survey conducted in 2013, only 33.8% of Singapore residents aged 50 to 69 years were screened for colorectal cancer. This is only a slight improvement from the screening coverage of 26.8% in the similar survey in 2011. To further illustrate how little regard Singaporeans have for their own health, statistics from the 2014 Colorectal Cancer Awareness Campaign (CCAM) show that only a dismal 5.3% of Singapore residents bothered to collect their Fecal Immunochemical Test (FIT) kits, and even then, only 80% of these individuals performed the tests and returned the kits for screening!

Duel of the Fates - Screened versus Non-Screened Cancers

The goal of colorectal cancer screening is to detect early cancer at its curable stage. It also detects clinically significant polyps so they can be removed. Colorectal cancer mortality can be reduced drastically through early detection and polypectomy.

However, recent statistics from Singapore still show that more than 60% of newly diagnosed colorectal cancers are in the advanced stages. The later the diagnosis of colorectal cancer is made, the greater the possibility that the cancer is at a more advanced stage, and consequently, the survival rate is far lower.

If colorectal cancer can be detected at the early stages by screening, only surgical resection would be required to put the patient into remission.
In contrast, colorectal cancer at its more advanced stages requires the combination of surgery, chemotherapy and occasionally radiotherapy. These treatments require patients to fork out more money and visit the hospitals more frequently. In addition, patients might face the possibility of unpleasant and sometimes life-threatening side effects of the additional treatments.

Furthermore, statistics also show that more patients with late-stage colorectal cancer present in the emergency setting, usually due to acute intestinal obstruction. These patients would most likely require emergency surgery, requiring longer hospitalisation and more complicated recovery.

**RACE AGAINST TIME**

Singapore’s population is ageing. We are facing a silver tsunami due to both our quality healthcare standards, which prolong the average Singaporean’s lifespan, as well as falling birth rates. Should this trend continue, the number of elderly in Singapore will outnumber the young by 2030.

Figure 3: Our changing population age profile.
(Source: Singapore Population White Paper)

What is the impact of an ageing population on colorectal cancer? The natural history of colorectal cancer has shown that once you hit 50 years of age, the risk of getting diagnosed with colorectal cancer is far greater. Ageing is an inevitable consequence of life, and so the number of colorectal cancer cases will definitely increase with time.

This issue is also compounded by the fact that elderly people usually have more medical problems and therefore, they do not tolerate complicated treatments well. The elderly would take longer to recover, utilising more medical resources and needing more rehabilitative care.

**THIS IS WHERE WE FAIL**

Our present colorectal cancer awareness and screening programme concentrates mainly on individuals who are aged 50 and above. This outreach largely depends on whether the individuals want to take charge of their own health, as it requires participants to sign up to collect the FIT kits. Unfortunately, many Singaporeans are hesitant and do not bother to sign up for screenings, causing this approach to be unsuccessful.

Spreading awareness of colorectal cancer, education about the signs and symptoms of colorectal cancer and promotion of screening should be targeted for everyone of all ages and genders. For those aged 50 years and above, the message is centered on the urgent need to go for screening. As for those below 50 years old, the aim of the campaign is to create awareness and to urge the audience to be advocates for colorectal cancer screening, so that they may convince their loved ones who are above 50 years old to go for screening.

**Suspicious signs and symptoms**

- positive FIT
- passage of blood with or without mucus in feces
- unexplained iron deficiency anemia
- change in bowel habit, especially a recent one (loose stools or constipation)
- undiagnosed abdominal pain
- unexplained rectal or abdominal mass
- unexplained weight loss

Figure 4: Suspicious signs and symptoms of colorectal cancer that must be investigated.
Promotion of screening should be an important agenda in all clinic consultations, especially in the primary healthcare setting. Setting aside a small portion of consultation time to take a short family history of colorectal cancer or other cancers, to stratify the individual cancer risks, to give pertinent advice on the need and type of screening, and to schedule screening is time well spent on ensuring the total care of a patient’s wellbeing.

<table>
<thead>
<tr>
<th>Risk Group</th>
<th>Onset Age</th>
<th>Frequency of Colonoscopy screening</th>
</tr>
</thead>
</table>
| **Average Risk**
Asymptomatic or family history limited to non-first degree relatives | 50 years | Every 10 years |
| **Increased Risk**
Colorectal cancer in 1st degree relative (parent, sibling) age 60 years of younger or two or more first degree relatives | 10 years prior to youngest case in the family or age 40 years, whichever is earlier | Every five years |
| Colorectal cancer in 1st degree relative over the age of 60 years | 10 years prior to youngest case in the family or age 50 years, whichever is earlier | Every 10 years |
| Personal history of colorectal polyps | Three years after polypectomy in the presence of high risk features (>1cm, multiple, villous architecture); otherwise, five years after polypectomy for low risk polyps | |
| Personal history of colorectal malignancy | One year after resection | Every three years |
| Personal history of ovarian or endometrial cancer | One year after resection | |

Going one step further, we can and should provide on-site FIT kits, so that patients have easy access to them. Colonoscopies should also be easy to arrange (direct access scope) so as to make screenings convenient for patients. Hopefully, these changes will increase our dismal screening take-up rates.

**BATTLE OF THE HEROES**

Colorectal cancer screenings done using FIT kits have demonstrated that screened patients have cancers detected at an early and more curable stage, compared to unscreened patients. Over time, this form of screening has demonstrated significant reductions of colorectal cancer mortality. The main reason attributed to this positive result is due to the colonoscopy being performed, which performs the dual functions of detecting cancers as well as actively removing colorectal polyps.

The downside of colorectal cancer screening using an FIT kit is multifold, namely, the inconvenient collection of kits, actually performing the test (which can be unpleasant to some), patients having to go out of their way to return the kits, collection of results and then acting on it. If the result is positive, the individual must complete the loop by completing the colonoscopy procedure. This does not end even if the result is negative, as the individual must still repeat this test yearly.

However, there is strong evidence to show that colonoscopies and polypectomies result in a great reduction of colorectal cancer. Depending on the patient’s family history of cancer, if an individual has no family history of cancer, the frequency of the patient needing to undergo a colonoscopy can be up to every 10 years. This is an attractive point as the individual is no longer required to undergo the yearly FIT screening.

For an increased uptake in colonoscopies in Singapore, patients’ journeys and experiences ought to be enhanced by making it easy, convenient and affordable to all.
A NEW HOPE

This problem of colorectal cancer cannot be tackled alone at the hospital level. It has to be done in collaboration with the public, community clubs, schools, societies, companies, statutory boards, hospitals, polyclinics and primary healthcare clinics. However, the most important role must be played by primary healthcare practitioners who usually have the first contact with both the healthy and sick population.

The new hope here in the Colorectal Centre, National University Hospital is to work with our primary healthcare partners to reduce the incidence of colorectal cancer by:

1. Active creation of awareness and promotion of screening to detect more early stage cancers and
2. To detect and remove more pre-malignant colorectal polyps before they become cancerous.

We aim to be a one-stop centre to coordinate colorectal cancer screening for the residents of Singapore. You are invited to join us via the following ways:

1. Receive free pamphlets and brochures for patients on colorectal cancer screening
2. Participate as a distribution centre for free FIT kits provided by the Singapore Cancer Society
3. Connect with our Colorectal Centre for direct access colonoscopy appointments
4. Be our partner in our annual Colorectal Cancer Awareness Month events
5. Connect with us to discuss and stratify your patients’ lifetime colorectal cancer risk and to plan a screening schedule for them

We will also want to hear from you on how we can work together to improve the colorectal cancer wars in Singapore. Please feel free to leave us a message at colorectal@nuhs.edu.sg or 81812303.

The ability to make colorectal cancer screening accessible is in our hands. Let’s work together to fulfil this dream, and

MAY THE FORCES BE WITH YOU!

ACKNOWLEDGEMENTS

The author acknowledges the team at the Colorectal Centre, National University Hospital for their significant contributions to patient care.

Dr Cheong Wai Kit

Head & Senior Consultant
Division of Colorectal Surgery
University Surgical Cluster

Dr Cheong Wai Kit graduated from the University of Malaya in 1990. He obtained his postgraduate qualification from the Royal College of Surgeons of Edinburgh and Royal College of Physicians and Surgeons in 1997. He is also a Fellow of the Academy of Medicine of Singapore. Dr Cheong is a Senior Consultant and currently heads the Division of Colorectal Surgery at the National University Hospital. He is also a Clinical Lecturer at the Yong Loo Lin School of Medicine, National University of Singapore.
FINE NEEDLE ASPIRATION CYTOLOGY:
The Key to the Diagnosis of Thyroid Nodules
A thyroid nodule is a common presentation to the primary care physician or through ultrasound screening of the neck. Clinical evaluation should be aimed at detecting symptoms or signs suggestive of malignant disease. Patients with thyroid nodules usually have few other symptoms, and there is no clear relationship between histologic features of these nodules and reported symptoms. To make an accurate diagnosis of thyroid nodules, Fine Needle Aspiration Cytology (FNAC) has become the standard of care for pre-operative diagnosis of potentially malignant thyroid nodules.

The worldwide incidence of thyroid neoplasms has risen steadily over the last few decades. Large population studies (e.g., the Framingham study) showed clinically significant thyroid nodules in 6.4% of females and 1.5% males between the ages of 30 to 59 years (total 4.2%). The increasing use of ultrasound scans in the last three decades resulted in an increase in the incidence of thyroid nodules: one study showed up to 76% of females undergoing thyroid ultrasounds had at least one thyroid nodule detected. Furthermore, autopsy surveys show that 37% to 57% of patients have thyroid nodules.

An analysis of the National Cancer Registry data on thyroid cancers treated in Singapore between the 1974 and 2013 shows an increase in the age-standardised incidence by 224% (2.5 per 100,000 in 1974 to 5.6 per 100,000 in 2013, p=0.02). In the same period, the median age at diagnosis has decreased from 55.3 years to 51.5 years. Thyroid cancer affected women more than men by a ratio of 3 to 1. The increased incidence was predominantly seen in the Malays by 290% (2.1 per 100,000 in 1974 to 6.0 per 100,000 in 2013, p=0.02) as compared to the Chinese and Indians. The increase in incidence of papillary subtype is mainly due to the increase in diagnosis of smaller cancers (less than 5cm). However, the percentage of patients diagnosed with micropapillary carcinoma remained the same, (36.3% in 2007 versus 38.6% in 2013, p=0.21). Despite the increasing incidence, the mortality rate due to thyroid cancers in Singapore remained the same.

TYPES OF THYROID NODULES

1) Benign (greater than 90%)
   - Hyperplastic solitary nodules
   - Multinodular goitre (colloid adenoma)
   - Hashimoto’s (Chronic lymphocytic) thyroiditis
   - Cysts: colloid, simple, or haemorrhagic. Up to 7% can be malignant - commonly a papillary thyroid carcinoma with a cystic component and increased size up to 4cm
   - Follicular adenomas: macrofollicular or microfollicular adenoma, Hurthle cell adenomas
   - Papillary micro-carcinomas (isolated and encapsulated papillary thyroid cancers less than 1cm are considered as benign with prognostic significance)

2) Malignant (10%)
   The proportion of thyroid cancers subtypes in Singapore mirror those found worldwide:
   - Papillary carcinoma – 80% of thyroid malignancies - 30% will have metastasis at diagnosis; usually radiation related. Features on histology: psammoma bodies distinguish from benign adenoma. For total thyroidectomy due to contralateral synchronous lesions
   - Follicular carcinoma – 12 to 15% of thyroid malignancies. Distinguished from normal follicular adenomas by invasion of capsule or blood vessels. Difficult to determine on FNAC
   - Medullary carcinoma – 5%. Arise from C-cells that produce calcitonin. Associated with raised serum calcitonin levels
   - Anaplastic carcinoma – less than 5%, highly aggressive with local invasion. Surgery if possible, otherwise tracheostomy with radiotherapy. Prognosis: less than one year survival from diagnosis
   - Primary thyroid lymphoma – treat with systemic chemotherapy
   - Metastatic malignant lesion – treat primary malignancy and perform thyroidectomy

TYPES OF INVESTIGATIONS

1) Laboratory Evaluation
   - A routine thyroid panel is an essential work up for any patient with thyroid diseases
   - Hyperthyroid patients should have TSH receptor antibody (TRAb) blood tests done
   - Hypothyroid patients should have Anti-TPO antibodies done
   - Calcitonin and CEA blood test should be performed if suspicious of medullary thyroid disease
2) Radiological

Ultrasound Imaging
- Recommended for all patients with palpable thyroid nodules or multinodular goiter (MNG)
- Recommended for high-risk patients (history of familial thyroid cancer, MEN2, or external irradiation)
- Not recommended as a screening test in the general population and for patients with a low risk for thyroid cancer
- Criteria for FNA biopsy (with or without ultrasound guidance):
  - FNA should be performed on all hypoechoic nodules which are 10 mm or higher with irregular margins, intranodular hypervascular spots or microcalcifications
  - FNA of nodules of any size in patients with history of neck irradiation or family history of MTC or MEN2 syndrome
  - No FNA for nodules less than 10mm, unless suspicious ultrasound findings or high-risk history

Radionuclide Scanning
- Rarely, thyroid scintigraphy is performed for a thyroid nodule or MNG, if the TSH level is below the lower limit of the normal range, or if ectopic thyroid tissue or a retrosternal goiter is suspected
- A nodule is said to be ‘cold’ if it fails to take up radiiodine and has a 10% chance of being malignant


<table>
<thead>
<tr>
<th>Diagnostic Category</th>
<th>Risk of Malignancy (%)</th>
<th>Usual Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-diagnostic or Unsatisfactory</td>
<td>1 to 4</td>
<td>Repeat FNA with ultrasound guidance in three months</td>
</tr>
<tr>
<td>Benign</td>
<td>0 to 3</td>
<td>Clinical follow up at one year</td>
</tr>
<tr>
<td>Atypia of Undetermined Significance or Follicular Lesion of Undetermined Significance (AUS/FLUS)</td>
<td>~5 to 15</td>
<td>Repeat FNA in three months or offer hemithyroidectomy</td>
</tr>
<tr>
<td>Follicular Neoplasm or Suspicious for a Follicular Neoplasm</td>
<td>15 to 30</td>
<td>Hemithyroidectomy</td>
</tr>
<tr>
<td>Suspicious for Malignancy</td>
<td>60 to 75</td>
<td>Total Thyroidectomy or hemithyroidectomy (KIV completion thyroidectomy)</td>
</tr>
<tr>
<td>Malignant</td>
<td>97 to 99</td>
<td>Total thyroidectomy</td>
</tr>
</tbody>
</table>

* A retrospective cohort analysis of patients who underwent cytological assessment of thyroid nodules between 2008 to 2014 at NUH showed a 27.0% risk of malignancy in the AUS/FLUS group (n=340) with the AUS subgroup having the highest malignancy rate of 41.9%.

Features that suggest an increased risk of thyroid cancer
- Growing solitary palpable nodules are four times more prevalent in women than in men
- Among patients with nodules, rate of malignancy is twice as high in men as in women (8% versus 4%)
- Firm or hard consistency of nodule, ill-defined nodule margins on palpation
- Cervical lymphadenopathy
- Fixed nodule on examination
- Voice hoarseness, dysphagia

Risk factors for malignant thyroid lesions
- Prior head and neck irradiation or exposure to nuclear radiation – 40% risk of developing thyroid cancer in 25 years
- Family history of medullary thyroid cancer or MEN2 mutation
- Elderly (above 60 years old) - more prone to have aggressive thyroid tumours
- Young patients (under 20 years old), thyroid nodules have a 40 to 50% malignancy
- Male sex
This technique was first introduced in Scandinavian countries in the 1950s and gained worldwide popularity in the 1980s. Over the years, it has gained significance as a quick, safe and relatively simple method to differentiate malignant from benign thyroid nodules. It is also minimally invasive, cost effective, and at the same time highly reliable with an accuracy rate as high as 97%. Hence, it is regarded as the gold standard first-line diagnostic test in the evaluation of thyroid nodules. FNAC can be done under ultrasound (US) guidance if nodules are small or if a suspicious area in a thyroid nodule is targeted. The US guidance also helps avoid critical structures in the neck during the FNA procedure. Given the significance of FNAC in the evaluation of thyroid nodules, it is critical to standardise the reporting of FNAC findings, and thereby facilitate the communication of FNAC results between cytopathologists and physicians in terms that are unambiguous and clinically helpful. On this basis, the Bethesda System for Reporting Thyroid Cytopathology was developed in the USA and is utilised in Singapore as the standard for reporting thyroid cytology results.

**ONE-STOP THYROID NODULE DIAGNOSIS SERVICE AT NUH**

Since 2013, the Division of General Surgery (Thyroid & Endocrine Surgery) in conjunction with the Department of Pathology at the National University Hospital has launched a one-stop thyroid nodule diagnosis service featuring a same-day thyroid nodule evaluation and diagnosis. The clinic provides comprehensive assessment, clinical examination, bedside ultrasound, blood tests and FNAC with same-day diagnosis, all at one location. The one-stop thyroid nodule clinic aims to eliminate waiting time as well as the cost and inconvenience of multiple appointments by providing a same-day FNAC diagnosis service. This greatly allays patients’ anxiety during the traditional interval between consult and diagnosis, especially given that the majority of patients will not have a malignant lesion. If the lesion is found to be benign, definitive follow-up plans including repeat visits and thyroid ultrasounds in six months to one year can immediately be communicated to the patient.

Conversely, if a malignant lesion is found, the service facilitates the timely treatment of these lesions through early diagnosis, which makes it possible to schedule surgery and adjuvant therapy at the earliest possible date and decrease the waiting time between initial presentation and definitive treatment.

Using this approach, the endocrine surgery and pathology service at NUH is able to attain 92% concordance between provisional and final reports for thyroid FNACs. Of the discordant reports, the final cytology report did not affect subsequent management. The mean time to FNA diagnosis is reduced from 10.5 days to one day. The median cost to the patient for consultations and investigations to achieve the diagnosis was reduced by 53.7% for subsidised patients, 54.7% for permanent residents and 31.9% for private patients.

Furthermore, patients diagnosed with recurrent, advanced or metastatic thyroid cancers can be
In summary, there is an increasing incidence of thyroid nodules presenting to family medicine practitioners. The diagnosis of these thyroid nodules can now be accurately and expeditiously attained using FNAC according to internationally validated standards at a single clinic, in the same day. This greatly reduces the inconvenience, cost and time to definitive treatment for patients with thyroid nodules.

References:
Mazzaferri EL. Management of a solitary thyroid nodule. NEJM 1993; 328:553-559

Assistant Professor
Ngiam Kee Yuan

Consultant
Division of General Surgery (Thyroid & Endocrine Surgery)
University Surgical Cluster

Following the completion of his Advanced Specialist Training in General Surgery, Asst Prof Ngiam Kee Yuan was awarded a fellowship from the Royal College of Surgeons of Edinburgh, and was accredited as a surgical specialist by the Specialist Accreditation Board, Singapore in 2012. He received the Higher Manpower Development Programme Award in 2012 to complete a Fellowship in Metabolic Surgery. Asst Prof Ngiam’s specialty is in general surgery and his special interests are endocrine surgery, bariatric and metabolic surgery, advanced endoscopy and laparoscopic surgery. He was awarded the ExxonMobil-NUS Research Fellowship for Clinicians in 2007, and his research interests include obesity, surgery for type-2 diabetes and thyroid cancer.
Haemorrhagic Strokes and Novel Keyhole Endoscopic Evacuation of Intracerebral Haemorrhage
INTRODUCTION

Haemorrhagic strokes (or commonly referred to as intracerebral haemorrhage (ICH)) are a heterogeneous group of disorder with clinical manifestations that range from a mild headache to even rapid death. In majority of the cases, hypertension is the most common cause. It results from a weakened vessel that ruptures and bleeds into the surrounding brain. The blood then accumulates and compresses the surrounding brain tissue.

Haemorrhagic stroke is the most severe and least treatable form of stroke and is responsible for almost 50% of stroke-related morbidity and mortality. Many of the survivors are left severely disabled. As of 2013, stroke is the second highest cause of premature mortality and the eight highest cause of disability burden in Singapore. Hence, keeping a patient’s blood pressure under control is the best way to control his/her risk.

The typical locations of ICH are (in order of frequency): basal ganglia (especially putamen), thalamus, pons and lastly, cerebellum (Figures 1-4). The symptoms at presentation are a spectrum ranging from headache, vomiting, focal neurological deficits to altered mental status, coma and collapse.
MANAGEMENT

• Early Recognition of ICH
ICH is a medical emergency. Rapid recognition and early intervention is crucial, because early deterioration is common within the first few hours after the onset of ICH.

The abrupt onset of focal neurological symptoms is presumed to be vascular in origin until proven otherwise. These signs and symptoms include: vomiting, systolic BP (SBP) >220 mm Hg, severe headache, coma or decreased level of consciousness. Symptom progression occurs over minutes to hours depending on the size and location of the clot.

Pre-hospital management involves providing airway and cardiovascular support if needed, and transporting the patient to the nearest facility prepared to care for patients with acute stroke as early imaging and intervention will be required.

The differential diagnosis of the above mentioned symptoms will be an ischaemic stroke. Neuro-imaging in the form of a non-contrast CT brain should thus be performed. A “spot” sign on CT angiogram is a small enhancing foci within the hematoma (Figure 5), related to vascular leak at the point of enhancement; the presence of the “spot” sign seems to independently predict hematoma enlargement. A follow up CT angiogram and contrast-enhanced CT may also be considered to help identify patients who are at a risk of haematoma expansion, and for evaluation of any underlying structural lesions including vascular malformations and tumours when there is clinical or radiological suspicion respectively.

• Blood Pressure control
Pre-existing uncontrolled hypertension is a common cause of spontaneous ICH. In addition to this, high blood pressure (BP) in patients with spontaneous ICH predicts a poor outcome and poses a risk of haematoma expansion. The causes of the elevated BP in such patients are commonly due to a variety of factors including stress, pain, increased ICP, and premorbid acute or persistent elevations in BP.

Thus, early intervention in the form of reduction in blood pressure using appropriate medical measures should be implemented immediately, once the diagnosis of ICH has been established.

There has been a longstanding clinical concern that early intensive BP lowering may induce significant ischaemic injury to the brain or other vascular beds in this patient group. However, the recently completed Intensive Blood Pressure Reduction in Acute Cerebral Haemorrhage Trial (INTERACT2) showed improved functional recovery without any harm from a more intensive strategy of BP lowering (target SBP, <140 mm Hg within one hour using intravenous agents such as labetalol), than contemporary guideline-recommended BP control (SBP, <180 mm Hg) in patients with ICH of mild to moderate severity and hypertension (SBP, 150–220 mm Hg).

One important mechanism underlying the beneficial effects of early intensive BP lowering is likely to be the attenuation of hematoma growth. Other mechanisms were postulated to include the reduction in cerebral oedema, limiting further vascular injury and minimising the likelihood of early recurrence.

• Surgical Intervention
The theoretical rationale for haematoma evacuation revolves around the concepts of preventing herniation and reducing intracranial pressure. Surgery also has the potential to reduce the volume of intracerebral haemorrhage and this might reduce nervous tissue damage, possibly by relieving local ischaemia or removal of noxious chemicals.

For most patients with supratentorial ICH, the usefulness of surgery is not well established. The STICH II trial which compared early surgery with initial conservative treatment for patients with superficial lobar intracerebral haemorrhage did not find significant evidence to support the hypothesis that early surgery improves outcome in conscious patients with a superficial intracerebral haemorrhage. However this trial showed that early surgery might have a small, yet clinically relevant survival advantage in the subgroup of patients with a poor prognostic score, or in patients whose neurological status progressively deteriorates.

Surgical intervention comprises of the conventional craniotomy/ craniectomy and evacuation of ICH, or the minimally invasive endoscopic evacuation of ICH.

The conventional surgical approach is what is commonly referred to as...
decompressive craniectomy in which a large bone flap is raised (location and size depending on the location of haemorrhage), and the clot is evacuated under direct vision followed by securing haemostasis. The surgery attempts to alleviate the mass effect by direct evacuation of the clot, as well as allowing for expansion of brain parenchyma secondary to oedema.

One of the reasons that have been widely speculated as a cause of poor outcome in patients managed with surgical intervention is when haematomas are located in highly inaccessible areas, and the effects of the surgery itself involve damage to the eloquent areas of motor and speech.

Endoscopic approach for surgical evacuation of ICH is a promising minimally invasive surgical method that aims to reduce secondary brain injury, blood loss and operative time. After assessment of patient characteristics and the haemorrhage morphology, our centre assesses the suitability of patients for endoscopic evacuation. The surgical technique involves pre-planning the trajectory of the endoscope using navigation software (Figures 6-7). A small burr hole is usually placed at the forehead. An expandable plastic sheath is inserted along the long axis of the clot which is evacuated under direct visualisation of endoscope. Adequate haemostasis is secured to prevent recurrence.

Preliminary analysis of our centre’s experience with the endoscopic evacuation of ICH has shown that, while the volume of haemorrhage evacuated is similar when compared with conventional decompressive craniectomy, operative time has been reduced to less than an hour and length of stay in intensive care unit/high dependency reduced.

**Prognosis**

J Hemphill et al devised a relatively simple and easy-to-use clinical grading scale called the ICH Scoring System to risk stratify patients with ICH at presentation. Figure 8 shows the various components of the ICH Score. Based on the score, we are able to prognosticate the likely outcome and if any treatment is going to be beneficial. Figure 9 further elucidates the 30-day predicted mortality.

<table>
<thead>
<tr>
<th>Component</th>
<th>ICH Score Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCS Score</td>
<td></td>
</tr>
<tr>
<td>3-4</td>
<td>2</td>
</tr>
<tr>
<td>5-12</td>
<td>1</td>
</tr>
<tr>
<td>13-15</td>
<td>0</td>
</tr>
<tr>
<td>ICH volume, cm³</td>
<td></td>
</tr>
<tr>
<td>≥30</td>
<td>1</td>
</tr>
<tr>
<td>&lt;30</td>
<td>0</td>
</tr>
<tr>
<td>IVH</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Infratentorial region of ICH</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>≥80</td>
<td>1</td>
</tr>
<tr>
<td>&lt; 80</td>
<td>0</td>
</tr>
<tr>
<td>Total ICH Score</td>
<td>0-6</td>
</tr>
</tbody>
</table>

Figure 8: ICH Scoring System.
**SUBSEQUENT MANAGEMENT AND PREVENTION OF RECURRENT ICH**

Post operatively, a multi-disciplinary approach is normally required to ensure that the patient can return to his or her premorbid status as much as possible. This would involve members of the neuro-rehabilitation team and the speech/occupational/physiotherapists. Risk factors contributing to the episode of spontaneous ICH should also be addressed to prevent a second bleed.

The risk of ICH recurrence is driven by the underlying etiology. Control of elevated blood pressure (BP) remains the cornerstone of secondary prevention of recurrent ICH secondary to hypertension. Target blood pressure in patients who have had an episode of ICH should be less than 130 mmHg systolic. Patients who were previously on anti-platelets or anti-coagulants should only have their medications restarted after subsequent clinic reviews with the neurosurgeon.

ICH is a debilitating medical emergency which requires early recognition and intervention. Primary management of ICH involves rapid clinical evaluation, correction of any coagulation defects, admission to an ICU setting, and careful control of blood pressure. Although recent years have improved our understanding of the pathology of ICH, morbidity and mortality remains high. Further development of minimally invasive surgical techniques and research on the pathophysiological mechanisms of ICH will aim to halt early ICH growth and improve outcomes.

**Acknowledgements**

The author acknowledges A/Prof Yeo Tseng Tsai (Head and Senior Consultant, Division of Neurosurgery, University Surgical Cluster), Dr Sein Lwin (Senior Consultant, Division of Neurosurgery, University Surgical Cluster), Dr Swati Jain, Dr Colin Teo (Neurosurgery Residents, Division of Neurosurgery, University Surgical Cluster) for their significant contributions to the article.
Recent Refinements in Breast Reconstruction

INTRODUCTION
In the past years, major achievements have been made in breast reconstruction following mastectomy surgery. Women with breast cancer no longer need to face long, jagged mastectomy scars that impact their self image. Instead, advanced techniques have given plastic surgeons the tools to reconstruct the breast in an immediate setting to achieve a good aesthetic, emotional and functional outcome such that her silhouette is once again whole.

REFINEMENTS
Timing of surgery
More patients now opt for immediate reconstruction compared to delayed reconstruction. Immediate breast reconstruction offers several advantages over delayed reconstruction, including improved cosmetic outcomes, shorter recovery time, and lower costs. Immediate reconstruction is also an important coping mechanism associated with improved quality of life and a reduced risk of depression. It is safe and well-tolerated by patients, and does not lead to an increased risk of complications or delays in further treatment.

Mastectomy techniques
The mastectomy technique has also evolved from a “tissue-eradicating” to a “tissue-sparing” philosophy. Skin-sparing mastectomy technique typically involves a periareolar incision with some type of lateral “keyhole” extension. Surgeons try to encompass the prior biopsy site within the incision. Nipple-sparing mastectomy is the ultimate form of skin sparing mastectomy where the nipple is preserved provided that the intraoperative nipple base biopsy is negative for cancer. This requires careful selection of appropriate patients (small tumour less than 2 to 5cm, non central lesion with distance from nipple more than 2 to 4cm, no gross nipple/skin involvement or Paget’s disease). Large or very ptotic breast is a relative contraindication from the reconstructive standpoint.
The use of this technique has resulted in a larger, good-quality anterior chest wall skin. Reconstructive needs for skin replacement has been largely reduced. Extensive breast scars can be avoided and native breast skin colour and texture can be maintained. This leads to a better reconstructive outcome.

Partial mastectomy with oncoplastic reconstruction is popular in the western community. It has been shown to have no impact on recurrence and survival. However there is a 15% re-operative rate for inadequate margins and the remnant breast will require post-operative radiation. In our local population, the relatively smaller Asian breast is less amenable to oncoplastic rearrangements of tissue and hence such techniques often result in a poor aesthetic outcome with the loss of significant breast volume and from radiation.

**Implant based reconstruction**

Implants are better accepted now after a long history of controversy, especially after November 2006, when the Food and Drug Administration reversed its ban on silicone-filled breast implants. They are suitable for reconstruction of small breasts with minimal ptosis, partial breast reconstruction or augmentation of the contralateral breast to achieve better symmetry. Silicone implants have a superior feel and appearance and are usually preferred over saline implants in breast reconstruction.

In patients with larger breast or in cases where the tissues and skin need to be expanded, a two-stage tissue expander-implant procedure is offered. This also allows for revision procedures like adjustment of implant position, pocket adjustment, change of implant size or fat grafting to be done at the second stage. At NUH, we offer the Becker adjustable expander implant in addition to the standard tissue expanders. It can function as a tissue expander, and then converts to a breast implant once the tissues have been expanded sufficiently. The removal of the inflation port requires a second but smaller surgery.

**Use of acellular dermal matrices (ADM)**

ADM are biological off-the-shelf products which can provide sufficient implant soft tissue coverage and support, defining a natural breast shape and avoiding problems like capsular contracture or uncomfortable tightening of the breast implant. It can be used in direct-to-implant or expander implant reconstruction, especially for patients with larger breasts.

An example of ADM is AlloDerm®, which is a tissue matrix created from donated human skin with all cellular components removed while retaining the biochemical and structural component. As all cells are removed, there is no rejection. Tissue donors are also screened and tested for transmissible diseases. As it is avascular, good soft tissue coverage is required when used. There is a 2-3% infection rate and seroma is a common problem requiring longer duration for drainage. When placed in the human body, AlloDerm® repairs damaged tissue by providing a foundation for new tissue regeneration. It is used in primary and secondary reconstruction, and serves as an extension of the surrounding soft tissue on the chest.

**Muscle sparing perforator techniques**

Though implants remain a good option for breast reconstruction, many women will opt for use of their own tissue. Use of the lower abdominal skin and fat in the form of the transverse rectus abdominis myocutaneous flap (TRAM flap) is a common technique and is associated with excellent, natural-appearing results. One of the downsides to this technique has always been the sacrifice of the rectus abdominis muscle.

The Deep Inferior Epigastric Perforator (DIEP flap) harvests only a small amount of muscle, or no muscle at all. Another option will be the superficial inferior epigastric perforator flap (SIEP flap). This operation seeks to preserve abdominal wall strength and function. The disadvantage to these techniques is the increased time required for the operation for microsurgical anastomoses, the technical difficulty involved, and the chance for complete failure of the flap if the blood flow is compromised. At NUH, we have been doing DIEP flaps for breast reconstruction since 1999, in addition to offering the full range of autologous reconstructions, including the more traditional pedicled flap options such as TRAM and latissimus dorsi flaps.

**Neurotisation of flap**

Autologous reconstruction usually results in an insensate flap. Without neurotisation, TRAM flaps may start to have sensation after eight years. At NUH, we perform neurotised TRAM or DIEP flap by coapting the intercostal nerves with the segmental nerves of the flap. This results in a faster and improved recovery of sensation, which can be evident as early as three months post procedure.

**THE FINISHING TOUCH**

**Nipple areolar complex reconstruction**

This can usually be considered three months from the creation of the breast mound or if adjuvant therapy is required, nipple reconstruction is delayed till three months after chemotherapy, or one year after irradiation therapy. This is usually achieved by use of local flap to create the nipple and skin grafting or tattooing to create the darker skin of the nipple areola. Recent advancement include the use of new 3D tattooing technique which uses shadows and highlights to give the impression of texture and dimension, creating the illusion of a protruding nipple.
Fat grafting
Autologous fat grafting plays an increasing role in breast reconstruction, and the technique is still evolving. It can be used to correct contour deformity post implant or flap surgery. It can also be used to augment volume, improve skin or scar quality post irradiation. It is sometimes done for correction of lumpectomy defect in partial mastectomy.

Fat grafting is considered natural, flexible and replaces like with like, which are its main selling points. From unpredictable results to concerns over increased recurrence of breast cancer, fat grafting to the breast is not without controversy. Fat grafting requires multiple sessions as the fat is partially resorbed by the body. Fat necrosis or oil cyst may occur, causing pain, hardening, skin changes, numbness, odorous discharge or infection. It may be delayed for a variable period of time (one to two years) after mastectomy. The definitive impact of autologous fat grafting remains to be determined, and continued research in prospective studies is needed to establish fat grafting as a safe and routine technique for revisional breast surgery.

Contralateral procedures
Restoration of symmetry of the breasts and improvement of appearance of the contralateral breast usually follows after that, or, it can be done concurrently with the main reconstruction procedure. These include insertion of implant to the contralateral breast, reduction or mastopexy of contralateral breast.

Treatment of complications
Breast cancer treatment occasionally results in upper limb lymphedema or breast cancer related lymphedema (BCRL). This can be inconvenient to the patient and can result in infection. Besides conservative measures like compression and lymphatic massage, we now offer shunting procedures such as lymphaticovenular anastomoses (LVA), vascularised lymph node/lymphatic flap as well as debulking procedures including liposuction-assisted aspiration.

Breast Reconstruction Awareness
In 1998, the US passed the Federal Breast Reconstruction Law or Women's Health and Cancer Rights Act which states that every breast cancer patient must be aware and allowed a chance to have breast reconstruction. In Singapore, breast reconstruction including contralateral procedures is considered medical in nature and can be covered with Medisave and insurance.

Conclusion
Breast reconstructive techniques have evolved greatly over the years. A woman with breast cancer can have a reconstructed breast that looks and feels very natural. Each reconstructive plan is tailored to the individual’s needs. The idea that a woman must live without a breast is a notion of the past.
Can a Dead Penis be Resurrected?
- The Next Line of Therapies for Refractory Erectile Dysfunction
ERECTILE DYSFUNCTION (ED)

At 15 to 20% prevalence, ED is such a common condition, that most doctors will invariably find themselves managing it in general practice. With FDA’s approval of sildenafil (Viagra) as an ED drug in 1997, the age of PDE5-Is (phosphodiesterase-5 inhibitors) began. Effective treatment of ED can now be achieved with on-demand oral therapy using sildenafil (Viagra™), tadalafil (Cialis™) or vardenafil (Levitra™). In fact, PDE5-Is are such a success, they have now become the first-line therapy for ED. The costs for treatment have also decreased after generic sildenafil became available two years ago.

Between 70 to 80% of patients with ED respond adequately to PDE5-Is monotherapy. The remaining 20 to 30% however, are going to be partial responders or non-responders. For ED patients with testosterone deficiency syndrome and other associated symptoms, testosterone replacement therapy can be considered to augment their response to PDE5-Is. For patients who face difficulty timing their sexual encounters due to partner factors, better results are achievable with daily low dose tadalafil.

Despite our best efforts, a subset of patients with complex ED can never be adequately treated with oral medications. These include patients with more advanced disease or those where PDE-Is are contraindicated.

Our Andrology clinic set within the NUH Urology Centre sees patients with complex ED where second-line and third-line therapies are required. These therapies include low-intensity shockwave therapy of the penis, intracavernosal injections of vasodilators, use of vacuum erection devices and insertion of penile implants / prosthesis.

<table>
<thead>
<tr>
<th>ED Treatment</th>
<th>Therapies</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-line</td>
<td>Oral medications</td>
<td>Sildenafil (Viagra™), tadalafil (Cialis™) or vardenafil (Levitra™)</td>
</tr>
<tr>
<td>Second-line</td>
<td>Low-intensity shockwave therapy of the penis</td>
<td>Two sessions per week for six to 12 sessions</td>
</tr>
<tr>
<td></td>
<td>Intracavernosal injections of vasodilators to penis</td>
<td>Patient taught to do self-administration</td>
</tr>
<tr>
<td></td>
<td>Vacuum erection devices</td>
<td>Re-usable mechanical device</td>
</tr>
<tr>
<td>Third-line</td>
<td>Insertion of penile implants / prosthesis</td>
<td>Surgically implanted Hospitalisation one to two days</td>
</tr>
</tbody>
</table>

Figure 1: Therapies at the NUH Urology Centre.

LOW-INTENSITY SHOCKWAVE THERAPY (LI-SWT) OF THE PENIS

The concept of using shockwave therapy to treat erectile dysfunction is novel. Most of us are familiar with the destructive nature of shockwaves which are used to fragment urinary stones in the kidney and ureter. The regenerative function is less well-understood. Shockwaves at low intensity is not painful but it causes micro-trauma to tissues. This stimulates an almost anti-inflammatory-like reaction which results in a change of internal milieu and an increase in angiogenetic factors at the tissue level. Repeated tissue exposure to shockwave energy leads to angiogenesis, as evidenced by pre-clinical studies. In patients with vasculogenic erectile dysfunction, this can improve penile perfusion during sexual arousal.

In April 2015, we started treating ED patients using low-intensity shockwave therapy of the penis. This treatment is considered when patients respond poorly or only partially to PDE5-Is. For patients responding very well to PDE5-I, this is usually not offered unless they suffer from significant side effects from pharmacotherapy. In these patients, where ED is mild, becoming non-drug dependent is a possible outcome.

Li-SWT treatment ranges between six to 12 sessions. The first six sessions of Li-SWT are performed over a three-week period, with patient receiving treatment twice a
week, and each session lasting 20 minutes. At the end of six sessions, patient is allowed a three-week rest period before re-evaluation. Based on treatment response, some patients will undergo another six sessions. Our experience so far has been similar to published data from other centres. 70% of patients had better erections after treatment. Mean IIEF score increased from 12.3 to 15.1. Some patients were able to wean off PDE5-Is during intercourse. No complication was encountered during treatment and no analgesia or topical anesthetic was required for the patients. However, being a relatively new treatment, the exact durability of the treatment response is still being studied. Published data so far shows that improvement can still be observed at 18 months.

**INTRACavernosal INJECTIONS (ICI) OF VASODilATORS TO THE PENIS**

This option is available to patients who fail PDE5-Is. In ICI therapy, patients are taught to self-inject vasodilators into the corporal body of the penis usually 15 to 30 min before intercourse. The vasodilators used include PGE-1 (prostaglandin E1) alone or a mixture of PGE-1 with Phentolamine and Papaverine (Tri-Mix). Success rate with ICI is between 60 to 80%. This therapy is contraindicated in patients with bleeding disorders and occasionally patients may drop out due to penile pain.

**VACUum ERECTIoN DEVICES (VED)**

This mechanical solution for ED is non-invasive and fairly reliable. VED works by creating a negative pressure around the penis. As blood is drawn into the corpora bodies, the penis becomes engorged and erect. While the penis is erected, a tight constriction band is placed over the base of the penis circumferentially to prevent venous blood from leaving the organ. The constriction band can be kept for up to 30 minutes, giving patient adequate time for sexual intercourse. Success rate of more than 90% can be achieved mechanically. Patients with problems of dexterity may face difficulty using the VED. Partner support is important in such cases. Users should also understand that some discomfort may arise due to the tight constriction band, especially during ejaculation.
INSERTION OF PENILE IMPLANT / PROSTHESIS
The gold standard of treatment for refractory ED is penile implant. This involves surgical insertion of implants into the corporal bodies of the penis, where the spongy erectile tissues lie. At St Joseph's Hospital, Canada where I did my fellowship in Andrology, penile implants are inserted through a single skin incision between the penis and the scrotum. The three-piece inflatable penile implants (consisting of a reservoir, control pump and inflatable pieces) are usually preferred by patients because this type of implant remains flaccid when not in use and can be pumped up readily to achieve greater penile length, girth and rigidity during sexual intercourse. The reservoir is inserted into the retropubic space and the pump is placed in the scrotum, between the two testes. The malleable rod-type of implants are used when there are anatomical or cost constraints. Penile sensation, ejaculation and orgasm are unaffected with this ventral surgical approach since cavernosal nerves run dorsally on the penis. Patients can be discharged one to two days after a penile implant and are taught how to use the implants for sexual intercourse at six weeks post-op.

Figure 5: Intra-operative picture of a partially inserted penile implant with a control pump. Figure 6: Penile implant fully inflated after skin incision has been closed.

CONCLUSION
ED is a progressive disease with a wide spectrum of functional impairment. Different treatment modalities are available to treat ED based on its severity. While oral pharmacotherapy is effective as a first-line therapy for most patients, 20 to 30% of patients will be either poor or partial responders. The options of second-line and third-line therapy can be discussed with these patients to achieve better treatment outcomes.
1. Your clinical specialties are in breast surgery and trauma. How did you get interested in these two areas?
I wish that I could say that it was all pre-planned, but it wasn’t. Very few surgeons have any clear idea what sub-specialty they want to do at the start of their training. In my own case, as my basic training was coming to an end, I had the inclination of wanting to do trauma surgery. Part of this was due to how common major trauma is. Few people realise that under the age of 45 years, which are some of most productive years, we are more likely to be killed from trauma than infectious disease and cancers combined. Another reason was I saw how badly trauma patients were being treated by the general surgeons who were supervising me then. In the mid 1990s, trauma surgery was just being developed as a subspecialty elsewhere, but not in Singapore as yet. None of the general surgeons wanted to take it up, mainly because of the unpredictable hours and the absence of any exit plan to take the subspecialty into private practice.

I took up breast surgery because of our high volume, our then breast surgeon, A/Prof Susan Lim, was about to leave for private practice. My chief then, Professor Walter Tan, said the job was mine if I wanted it and I latched on. I suppose I might be considered an example of making use of opportunities and getting to like something rather than liking it from the start. Breast cancer work has been one of the most fulfilling things I have ever started on since.

2. You are currently leading the efforts for Singapore’s first tiered trauma system – Western Region Trauma System. Can you share more on this initiative and what your role entail?
A tiered trauma system is one in which facilities are not duplicated. This not only leads to wastage and redundancy, but in the case of trauma surgery where outcomes are reliant on a minimal workload, may lead to compromised results as well. The western trauma system therefore aims to site the right patient in the right hospital. Polytrauma patients and those with injury patterns that need specialised care, such as spine surgery, threatened limbs and multi cavity torso trauma, will continue to come to NUH. The bulk of trauma patients who do not fall under this group will be shunted to Ng Teng Fong General Hospital (NTFGH). As might be anticipated, this takes a certain amount of consensus and cooperation, both between the various departments in the two hospitals, their administrators and the pre-hospital staffing. My role is to oversee this effort and especially to ensure that clinical standards are consistent and uncompromised.

3. How would this system benefit the community?
It would benefit the community in that both hospitals will in the long run play to their strengths. NUH with its tertiary level facilities will continue to take more severely injured patients, and NTFGH, the less severely injured but no less difficult to treat, in terms of rehabilitation and return to function.

4. Breast cancer is the number one cancer killer of Singaporean women*. What might be the barriers that hinder diagnosis and treatment of breast cancer? How could primary healthcare/GPs get involved to minimise the barriers?
I think that a lot of the barriers to access have been largely resolved. There is a national breast cancer screening programme and breast cancer treatment, especially in disease detected at an early stage, is largely affordable. Yet the uptake of available services is distressingly low. Less than one quarter of patients who are invited for screening mammograms have actually had more than two screening mammograms done in the last 10 years, when it should really be done once every two years. The uptake of potentially life-saving chemotherapy and hormone therapy for later stage disease is also significantly lower in modern Singapore than in most developed western countries. There is definitely a race differential when it comes to cancer survival. I think we underestimate the role of local cultures in breast cancer behaviour. A lot of times when I counsel my breast cancer patients, they are convinced that they have cancer because of something they’ve done wrong, like somehow it’s their fault, when it’s not. We need to learn a lot more about how culture can be addressed to bring women forward to take care of themselves.

Primary healthcare involvement is really important. One of the consistent reasons for low uptake of screening for example is that patients do not feel that their family physicians are
pushing it hard enough. There is also the problem of ineffective screening. We still see screening ultrasounds being done indiscriminately, and this has led to needless biopsies and operations and in some cases, insurance discrimination.


5. What is a typical day like for you?
When I have one I’ll be sure to let you know. It’s all pretty up in the air. I think the only consistent item is coffee.

6. Both A/Prof Mikael Hartman and yourself had embarked on a 100 days motorbike trip, called The Long ride 2014, through Asia and Europe to raise awareness of breast cancer. What was your most memorable moment during the trip?
My most memorable moment was being very tired at a congress that we were speaking in Luzhou, China. Mike was supposed to give a talk on breast cancer epidemiology, emphasising how breast cancer rates in Singapore had almost tripled in the space of two generations. Before he came on to speak, a Chinese epidemiologist gave the Chinese data. At first, I thought that it was fatigue that gave me my first, unlikely interpretation of the Chinese slides, but I sat up and paid attention and rechecked the charts he was showing. The incidence curves were almost identical to Mike’s. The increase in breast cancer in Chinese women in Nanjing, Chengdu, Beijing and Shanghai were just like Singapore. We have five million people in Singapore - Chinese cities are called medium sized if there are less than 10 million people. And all of them have this breast cancer epidemic, and we have no idea how to deal with it. It was very sobering. How do you screen 450 million women at risk? There is some real carnage on the way unless we find Asian solutions to this very Asian problem.

7. Do you have any plans to continue The Long ride? Which countries would it be and why?
We definitely have plans. A lot of our Indonesian patients have been very grateful for our care and are keen to have us over. They are very keen to help in fund raising for the Asian Breast Cancer Research fund. Mike wants to see Indonesia as well, and there is the added advantage of being a shorter route and no border crossings. I want to do Africa, from Jeddah to Cape Town. The problem is that breast cancer is not a major healthcare problem in many places in Africa. But then again, trauma certainly is.

8. You have been known to be a motorbike and bicycle enthusiast. What are your current set(s) of wheels?
I have the Suzuki Vstrom 1000 that I took to Sweden, and have managed to restore a 1997 Honda Valkyrie. The Honda is mad. Six cylinder bike. Six carburettors. Drinks twice as much as a normal car. I have women leaving me their business cards on the tank.

9. What are your personal goals and dreams that you hope to achieve?
I plan to live vicariously through my children. I’ve always wanted to write so my daughter is hopefully studying for a degree in English languages and journalism in the UK. In response to the need for academic medical units to form industrial applications and patents, my son is getting a bioengineering degree.

A/Prof Philip Iau was born in Johore in 1965 and schooled in Singapore. He is married with three children and a dog. After obtaining his medical degree in Singapore in 1989, he completed his national service and started his surgical training with an interest in breast cancer. He worked as a clinical fellow in the Nottingham Breast Unit under Prof Roger Blamey, where he carried out his PhD thesis work in breast cancer genetics before returning to NUH and starting the breast cancer workgroup. A/Prof Philip Iau is also a fully trained trauma surgeon and heads the trauma workgroup at NUH as well. He completed a second clinical fellowship at the Johannesburg trauma Unit and has carried out various responsibilities as chief surgeon of a Combat Surgical Hospital in the Singapore Armed Forces, with a five month tour of Afghanistan with NATO forces in 2010. He is presently leading the effort to create the Singapore’s first tiered trauma system, with a single centre, two - site collaboration with Ng Teng Fong General Hospital.
At the NUH, we recognise the pivotal role general practitioners (GPs) and family physicians play in providing and ensuring that the general public healthcare is of the highest quality and standard. As such, we believe that through closer partnerships, we can deliver more personalised, comprehensive, and efficient medical care for our mutual patients.

The GPLC aims to build rapport and facilitate collaboration among GPs, family physicians and our specialists. As a central coordinating point, we provide assistance in areas such as patient referrals, continuing medical education (CME) training, and general enquiries about our hospital’s services.

Through building these important platforms of shared care and communication, we hope that our patients will be the greatest beneficiaries.

If we could be of any assistance to you, please feel free to contact our office from Mon - Fri: 0900-1200hrs, 1400-1800hrs

**GP Appointment Hotline**
Tel: +65 6772 2000
Fax: +65 6777 8065

**GP Liaison Centre**
Tel: +65 6772 2535 / 5079

**NUH CME Events**

At the NUH, we strive to advance health by integrating excellent clinical care, research and education. As part of our mission, we are committed to provide regular CME events for GPs and family physicians. These events aim to provide the latest and relevant clinical updates practical for your patient care.

Organised jointly by the GPLC and the various clinical departments within NUH, our specialists will present different topics in their own areas of specialties in these monthly symposiums.

For more information on our CME events, you can go to [www.nuhcme.com.sg](http://www.nuhcme.com.sg) or scan the following QR code.