

## Metabolic and Bariatric Surgery

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Obesity has been identified as the world's fastest growing epidemic, involving developed as well as developing countries. Based on the latest National Health Survey (2004) in Singapore, 53% of Singaporeans are at an overweight BMI (Body Mass Index) risk category, with 16% in the obese risk category — alarming figures approximating those in the western countries. This highlights obesity as a crucial public health issue in Singapore, which will eventually translate into greater healthcare burden from obesity-related chronic diseases, like Type 2 Diabetes Mellitus (T2DM) and hypertension.

It is becoming increasingly recognised that surgery for weight loss such as Roux-En-Y Gastric Bypass (RYGB) can substantially reduce T2DM rates. Hence, the term "Metabolic and Bariatric Surgery" (MBS).

As the prevalence of obesity rises, obesity-related co-morbidities are expected to rise, in particular T2DM. Surgical intervention for obesity, also referred to as bariatric (from the Greek 'baros', meaning 'weight') surgery, effects weight loss by modifying gastro-intestinal anatomy. It is becoming increasingly recognised that surgery for weight loss such as Roux-En-Y Gastric Bypass (RYGB) can substantially reduce T2DM rates. Hence, the term "Metabolic and Bariatric Surgery" (MBS). The Swedish Obesity Study showed a significant reduction in mortality, coronary events, T2DM and even cancer rates after bariatric surgery over a 15-year follow-up.

The Obesity Clinical Practice Guidelines published by the Ministry of Health, Singapore in 2004, endorses the role of surgery once patients fulfill specific criteria related to weight and co-morbid conditions. Surgery is medically indicated if a patient's body mass index (BMI) is higher than 37.5 kg/m<sup>2</sup> without any comorbidities (Class III obesity) or above 32.5 kg/m<sup>2</sup> (Class II obesity) with co-morbidities such as diabetes, hypertension, hyperlipidaemia,

obstructive sleep apnoea (OSA), etc. The American Diabetes Association in its most recent 2009 guidelines, recommended the use of MBS as one of the modalities to treat T2DM in obese patients ("diabesity").

In Singapore, we are seeing increasing numbers of relatively young patients in their 20s – 40s with hyperlipidaemia, hypertension and T2DM, who are obese. Weight loss, when achieved earlier in the course of these metabolic disorders, is more likely to ameliorate or even reverse these diseases. A number of cost analyses performed in the USA, Canada, Great Britain and Australia have shown that surgery is not only cost-effective, it may even represent a cost-saving to the health care provider in the long term.

Management of the obese patient requires a multi-disciplinary team consisting of specialists in endocrinology/obesity, exercise, nutrition and surgery. The decision to proceed to surgery must not be taken lightly and the intervention is merely one step in the overall continuum of care. Surgical options

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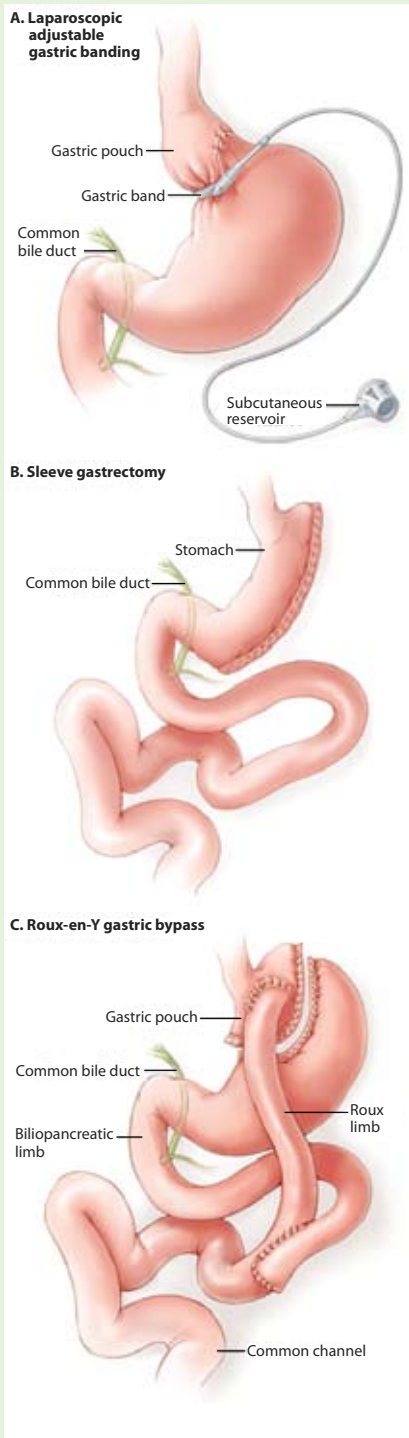


Figure 1. Adapted from DeMaria EJ. Bariatric surgery for morbid obesity. *N Engl J Med.* 2007;356:2176-2183.

range from the temporary, endoscopic placement of a gastric balloon, to restrictive and malabsorptive procedures.

## Endoscopic Treatment

### Gastric Balloon

In this procedure, a silicone balloon is placed in the stomach by endoscopy and filled with a saline solution to give patients a sense of fullness, thereby reducing their food intake. Although it is an effective method of weight loss, the balloon must be removed after 6 months because of degradation by gastric acid.

## Restrictive surgical procedures

### Laparoscopic adjustable gastric banding (LAGB) (Figure 1a)

LAGB is a restrictive procedure used as a solution for morbid obesity. An adjustable silicone band is placed around the upper part of the stomach to reduce the size of the stomach so that a person feels full faster, thus eating less and ultimately losing weight. The pouch and the outlet should be small enough to restrict intake adequately yet not too small to cause obstruction. The band is deemed adjustable because a subcutaneous port implanted under the skin allows for fine adjustment of the outlet diameter.

### Laparoscopic sleeve gastrectomy (LSG) (Figure 1b)

This is a restrictive procedure where the stomach is tubularised and the excess part is removed. About 80% of the stomach can be removed in this way. Although this is a relatively new procedure, early results show that weight loss after LSG is comparable to LAGB. Unlike the LAGB, this procedure is performed once only and no adjustments are required thereafter.

## Restrictive and Malabsorptive Procedures

### Laparoscopic Roux-en-Y gastric bypass (LRYGB) (Figure 1c)

This is the most complex bariatric surgery available at Singapore General Hospital. Utilising 5 trocars ranging from 5 to 12mm, a small gastric pouch is first created and then a bypass to the small intestine (jejunum) is performed. LRYGB effects weight loss in 2 ways. It reduces caloric intake and shunts food into the mid-jejunum, thus altering the mechanism of digestion. Evidence from large cohort studies and meta-analyses show that bypass procedures have a profound effect on gastro-intestinal physiology and are remarkably effective in correcting metabolic disorders such as T2DM and hyperlipidaemia.

## Preoperative preparation

As there are risks involved, patients will be thoroughly assessed first to determine their suitability for bariatric surgery. Pre-operative endoscopic, psychological, respiratory and cardiac evaluation may be necessary. A special low calorie diet and vitamins are commenced 2 weeks before surgery to improve patients' surgical fitness. Breathing and physical exercises are also better started pre-operatively.

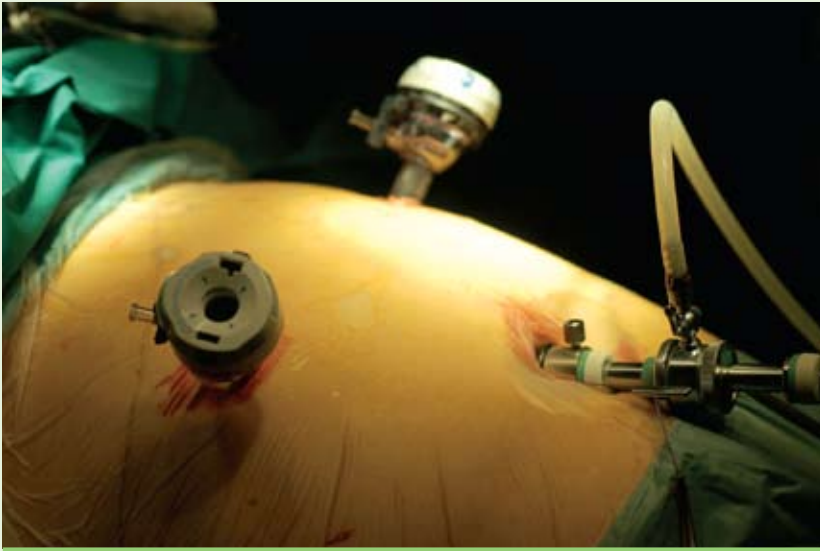


Figure 2a. Keyhole technique used to perform bariatric surgery



Figure 2b. Upper GI contrast study performed on second post-operative day after sleeve gastrectomy demonstrating tubularised stomach and smooth flow of contrast into duodenum

### Surgical technique

All procedures are performed using minimally invasive (MIS) techniques. (Figure 2a) Endoscopic gastric balloon placement can be done as a day case procedure, while after laparoscopic surgery patients can expect to stay in hospital for about 3 days. Less than 1% mortality and about 10% morbidity rates are quoted for these procedures. The major complications are venous thrombo-embolism and intestinal leaks leading to sepsis. Before discharge from hospital, an upper gastro-intestinal contrast study may be performed to confirm that it is safe to resume oral intake. (Figure 2b)

### Post-surgery – starting a new life!

Surgery helps patients learn a completely new lifestyle. Food intake may be limited to fluids for the first 2 weeks. After this period, soft food and then solids can be gradually re-introduced under guidance. In addition to superior weight loss compared

to medical and lifestyle intervention alone, bariatric surgery can also improve co-morbidities such as type II diabetes mellitus, hyperlipidaemia, hypertension and obstructive sleep apnoea (OSA).

After restrictive procedures, patients can expect to lose about 10-30% of their body weight, whereas after LRYGB, weight loss is about 20-40%. The rate of reversal of T2DM after RYGB is dependent on the duration of the disease; patients suffering from T2DM for less than 5 years can expect an 80% chance of remission, whereas only 50% of those having T2DM for more than 5 years manage to come off their medication.

In order to achieve the best results, patients will continue to be monitored for life by a multidisciplinary team comprising of a surgeon, physician, physiotherapist and dietitian. Studies have shown that a better relationship between patients and their managing team can lead to better outcomes in terms of weight loss and resolution of co-morbidities.

#### Author information:

Shanker Pasupathy completed a one year fellowship in advanced laparoscopic and robotic surgery at the Institute de Recherche Contre le Cancer d'Appareil Digestif (IRCAD) in Strasbourg, France, where he was part of the bariatric surgery team. He presently runs the Bariatric Surgery Clinic at the LIFE Centre, SGH.

Tham Kwang Wei completed her medical residency and fellowship in endocrinology, diabetes and metabolism at the Cleveland Clinic, Cleveland, Ohio. She is the current Director of the Obesity and Metabolic Unit at the LIFE Centre, SGH.

## Keyhole Surgery for Choledochal Cysts: A First in Singapore

By Dr Low Yee, Head & Senior Consultant, Department of Paediatric Surgery, KK Women's and Children's Hospital

Choledochal cysts are commonly associated with pancreatico-biliary malunion, which is widely accepted as the underlying anatomical reason for bile / pancreatic reflux leading to cyst formation, recurrent cholangitis and pancreatitis. The textbook description of presentation of a choledochal cyst is the classical triad of pain, right hypochondrial mass and jaundice. But there is now an increasing group of asymptomatic patients diagnosed on antenatal scanning. In addition, some children are diagnosed on screening ultrasound in the investigation of non-specific recurrent abdominal pain.



In 2007, KK Women's and Children's Hospital performed its first case of laparoscopic choledochal cyst excision when Visiting Professor Klas Bax, an eminent paediatric surgeon from the Netherlands, came on an HMDP visit. Since then, the team at KKH has gone on to perform 5 more cases, with 1 conversion.



Complete excision of the cyst with bilio-enteric reconstruction is the treatment of choice. Early experience with hepaticoduodenal reconstruction was associated with significant bile gastritis and most surgeons prefer the Roux-en-Y hepaticojejunostomy for bilio-enteric reconstruction of choledochal cyst. Important issues in surgery for choledochal cyst are:

- 1) Completeness of cyst excision,
- 2) Leakproof anastomosis.

In cases where there had been recurrent inflammation causing such dense adhesions that complete resection is impossible, posterior mucosectomy had been described which aims to remove all epithelial tissue to minimise the risk of cholangiocarcinoma, yet sparing the treacherous separation between the posterior cyst wall from the portal vein. A 40cm Roux limb has traditionally been used as the optimal length to prevent post-operative cholangitis. Conventional treatment for choledochal cyst is by open surgery that requires a sizeable subcostal or transverse incision. With minimally invasive surgery finding ever increasing applications in Paediatric Surgery, it has now been shown that choledochal cysts can also be treated laparoscopically.

Laparoscopic excision of choledochal cyst was first described more than a decade ago. However, its popularity was slow to take off, as it was a technically demanding procedure involving intracorporeal suturing of an important anastomosis. Significant dexterity is required. In cases with much inflammation, dissection of the cyst from the surrounding hepatic artery and portal vein can be arduous with significant oozing. Laparoscopy yields a much better visualisation of structures, but the limits imposed by a few working ports rather than a large open incision means the dissection proceeds more slowly, and patience, a necessary ingredient for success.

In 2007, KK Women's and Children's Hospital performed its first case of laparoscopic choledochal cyst excision when Visiting Professor Klas Bax, an eminent paediatric surgeon from the Netherlands, came on an HMDP visit. Since then, the team at KKH

has gone on to perform 5 more cases, with 1 conversion. All of these were the typical Todani Type 1 choledochal cysts, without intrahepatic cystic involvement. The youngest of these was a 6 month old. These cases form the first series in Singapore.

Figure 1 shows a typical operative picture of a Choledochal Cyst while Figure 2 shows the laparoscopic approach.

While cosmesis is an important consideration for parents and the child about to grow into his/her image-conscious teenage years, there are other benefits increasingly recognised in laparoscopic surgery. These include decreased physiological stress responses with minimal access, decreased analgesic requirements, faster recovery and shorter hospitalisation. In particular, open incisions in the upper abdomen can lead to respiratory complications with inadequate pain management, and minimal access surgery minimises that. For abdominal operations, minimal access is associated with decreased adhesions.

The most feared early complication is that of anastomotic dehiscence. This may lead to bile peritonitis, sepsis, prolonged drainage, re-do surgery and in the longer term, anastomotic stricturing which may cause recurrent cholangitis, stones and even the late occurrence of cholangiocarcinoma. All of our 6 patients who successfully underwent laparoscopic choledochal cyst excision recovered uneventfully, with early feeding and minimal analgesic requirements. There were no early anastomotic complications.

The key weakness currently is the prolonged time required for the operation to be done laparoscopically, taking 1.5 to 2 times what would have been required of an open operation. However, this is in part due to the necessary "learning curve" with any new procedure. Operating time will decrease with improved technical modifications and increased experience. In laparoscopic surgery, teamwork is key, and a competent team comprising the operator, assistant and nurses familiar with laparoscopic surgery is absolutely essential to the success of the operation.

As with open surgery for choledochal cysts, all of these children need continued long-term surveillance.



Figure 1



Figure 2

 With minimally invasive surgery finding ever increasing applications in Paediatric Surgery, it has now been shown that choledochal cysts can also be treated laparoscopically.



## The Early Pregnancy Unit (EPU) : A New Service

### What is the EPU?

It is a dedicated outpatient early pregnancy assessment service aimed at the management of women with actual or threatened pregnancy loss.

### What are the benefits of the EPU?

Traditionally, asymptomatic stable patients confirmed to be pregnant can be referred for routine care and Down Syndrome screening at the outpatient Antenatal Clinic (O&G Center) while patients with acute problems in early pregnancy requiring immediate attention such as abdominal pain and bleeding can be referred to the Emergency Department which is open 24 hours. At the Emergency Department, they will be reviewed by a gynaecologist who will arrange for further investigations such as an ultrasound scan or blood tests, or hospital admission, if required.

The EPU is ideal for patients who are stable but with first trimester pregnancy complications as it facilitates prompt access to a dedicated early pregnancy unit for patients on a non-urgent basis. It is a one-stop clinic to centralise and streamline assessment, diagnosis, management and counselling of these patients during the first 13 weeks of pregnancy.

Admission to hospital can be avoided in 40% of women, with a further 20% requiring shorter hospital stay. This is in line with the Royal College of O&G recommendation of providing patient centered care through a holistic approach.

### What are the requirements for running an efficient EPU service?

To run an efficient service, we ensure that patients are seen in an appropriate setting with same day ultrasound service (Fig. 1) and immediate access to laboratory facilities to measure serial beta hCG levels.



Figure 1: Dating & Viability scan for a Twin pregnancy



Figure 2: Ultrasound diagnosis of an ectopic pregnancy

Transvaginal scanning is required in majority of women referred to the EPU and is performed by accredited sonographers who will document findings on standardised reports.

The EPU has also developed algorithms of care for the management of miscarriages and suspected ectopic pregnancies (Fig. 2) enabling hospital admission and treatment, including emergency surgery, to be instituted if indicated.

### When to refer patients to the EPU

The EPU was set up in 1 July 2006 by the Department of Obstetrics & Gynaecology at SGH to facilitate referral of stable pregnant patients with first trimester complications such as bleeding or pain.

The EPU team comprises a gynaecologist, a sonographer and a nurse counsellor. Besides providing medical treatment, the team also provides counselling and support for those who experience a pregnancy loss and continuity of care for patients with ectopic pregnancies who are managed medically as twice weekly blood tests to monitor the beta-hCG levels are performed in the EPU.

The availability of the EPU allows direct access to hospital resources for the management of first trimester complications. Unstable patients or those in whom the suspicion of an ectopic pregnancy is high and require immediate medical care should be referred to the Emergency Department.

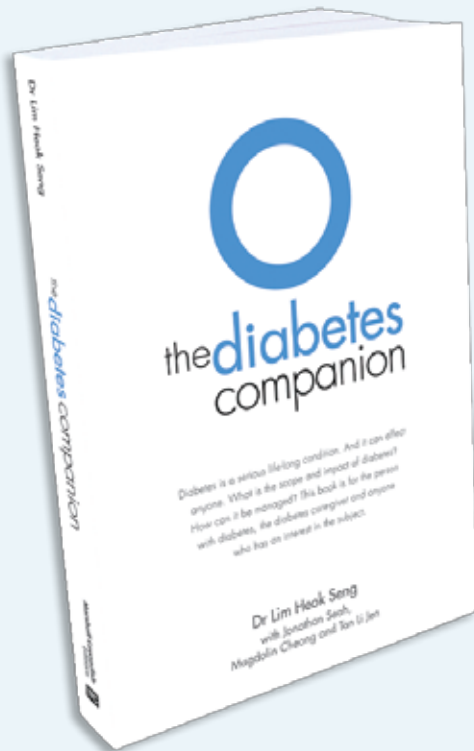
### What happens when patients are discharged from the EPU?

Once the first trimester complications, eg. ectopic pregnancy or miscarriage, are treated or the pregnancy is ongoing, the patients will be referred back to the General Practitioner, Obstetrician or polyclinic of their choice for subsequent antenatal follow-up.

#### How to refer to EPU

Referrals can be made by calling the EPU directly at DID. 6321 4516 during office hours, Monday to Friday. The next available appointment, usually within the next 24 hours, will be given.

## Changi General Hospital publishes guides to diabetes and male ageing



### The Diabetes Companion – A guide for diabetes

*The Diabetes Companion*: a complete self-management guide for diabetics and their family and friends.

Written by a multi-disciplinary team at Changi General Hospital (CGH), the book is comprehensive yet readable and is packed with practical information for diabetics to take control of their condition.

*The Diabetes Companion* provides information on complications of diabetes, tackling obesity, eating right, oral diabetes medicines, self-blood glucose monitoring, travelling with diabetes and alternative medicines.

With a detailed chapter on insulin that highlights the action profile of the different types of insulin, insulin regimens and injection techniques to another on coping with emotions and a comprehensive 'Frequently Asked Questions' section, this book serves as an all-important resource for diabetics.

The book is particularly relevant in the local context as it provides tips on better local food choices, alternative medication used by diabetics and presentations of 31 local diabetics cases.

### Diabetes and Complementary & Alternative Medicines

This book could not have been more timely – an article in the *Journal of Advanced Nursing*, published in 2007, reported that across cultures, 17–72% of patients with diabetes use complementary and alternative medicine, such as herbal and nutritional supplements, spiritual healing and relaxation techniques.

However, in a survey conducted in 2000 by Dr Lim Heok Seng, one of the authors of *The Diabetes Companion*, of 600 diabetic patients at the Diabetes Centre of Singapore General Hospital, only about 20% of patients informed their doctors about their usage of complementary and alternative medicines.

### A Comprehensive & Holistic Approach

The book also emphasises to diabetics not only the generally unproven effectiveness of many of the complementary and alternative products in the control of diabetes but also the potential dangers and harmful effects of combining these supplements with prescription medications. Diabetics are advised to consult and inform their doctors, pharmacists and dietitians before combining supplements and alternative medicines with their prescription medicines.

Concise and, at the same time, detailed and current with the latest information on diabetes! Gives the relevant and complete medical information on diabetes for a person's self-care and knowledge, but not in a sterile, uninteresting manner. Peppared with real-life persons-with-diabetes illustrations to bring home the relevant messages! Its completeness is evident in sections on Pregnancy, Children with Diabetes, Alternative Medicines & Supplements and Fasting. I'd want to keep this book by my side as a handy companion!"

Dr Kelvin Tan, Vice President,  
Diabetic Society of Singapore  
Consultant in Diabetes, Endocrinology and Internal Medicine

Emotional support for diabetic patients is also addressed as it recognises diabetic-related emotions such as fear, anxiety, frustration, burnout, denial and depression and guides readers through this whole range of emotions.

*The Diabetic Companion* rounds off with advice on the nutritional requirements of diabetics, with useful reference to local food choices.

### About the Authors:

Dr Lim Heok Seng is an endocrinologist and senior consultant at the Diabetes Centre at CGH. He has more than 20 years experience treating patients with diabetes, lipid disorders, and general endocrine conditions.

Jonathan Seah is a senior pharmacist at CGH and co-wrote the chapter on 'Alternative Medicines and Supplements' with Dr Lim.

Tan Li Jen is a senior clinical psychologist at CGH and has been a practising psychologist for over 10 years in Singapore.

Magdalin Cheong has many years of experience providing dietetic management to diabetic patients both in a hospital as well as community setting in the United Kingdom and Singapore. She set up the dietetic service for the Diabetes Centre and the Dietetic and Food Services Department in CGH. She has also co-authored another book with executive chef, Daniel Yeo, entitled *A Cookbook for Diabetics*.

### About the CGH Diabetes Centre:

All the services related to diabetes are housed under one roof, offering greater convenience. We provide the following services: Tests for blood glucose, glycosylated haemoglobin (HbA1c), lipid profile serum creatinine and urine protein, nutritional counselling, diabetes self-care counselling, psychological counselling, retinal photography, body fats analysis, and podiatry. The Diabetes Centre is open from 8 am to 5.30 pm (Monday to Friday) and 8 am to 12.30pm (Saturday). For more information, call the Diabetes Centre at 6850 2310 / 6850 2318 or e-mail: [diabetes\\_centre@cgh.com.sg](mailto:diabetes_centre@cgh.com.sg).

The Diabetes Centre at CGH published an earlier book, *Diabetes: Totally Uncovered*, which was distributed to its patients. The *Diabetic Companion* is the updated and expanded version of this book, and is now available at most major bookshops (\$20.33 incl. GST), CGH pharmacies and the CGH Diabetes Centre. CGH patients who are on the Diabetes Full Assessment programme will be able to purchase the book at a special price at the CGH Diabetes Centre.



Want to find out more about Male Ageing?

Check out Dr Ng Kok Kit's new book - "Managing Male Ageing".

Published by Marshall Cavendish, the book is about healthy ageing in men.

### Read about :

- What Makes a Man Tick
- When the Hormones are Down
- When the Penis is Limp
- When the Pasture Thins
- When the Bones Crack
- When the Pants are Tight
- When Words Must be Repeated
- When Things Slip Out of the Mind
- When Now You See it, Now you Don't

The book is available in CGH Pharmacy and major bookstores.

Usual retail price : \$19.80 (including GST)

# 3rd Allergy Partners in Care

Organised by Allergy Clinic, Singapore General Hospital

**Date :** 26 September 2009 (Saturday)  
**Time :** 12.30pm - 5pm  
**Venue :** SGH Postgraduate Medical Institute  
 Singapore General Hospital  
 Block 6 Level 1

**Registration contact :**  
**Email :** pgmi.gpcme@sgh.com.sg  
**Fax :** 6223 9789  
 Pre-registration required.

Application for core and non-CME points in progress.

**Closing date for registration :** 21 Sept 2009

This update will focus on the recognition, clinical diagnosis, management and prevention of common allergic diseases.

Time	Programme
1230	Lunch & Registration
1400	Overview: Atopy, Sensitisation and Allergic Disease <b>by Dr Tan Keng Leong</b>
1410	Aeroallergens in Asthma and Allergic Rhinitis & Principles of Allergy Testing <b>by Dr Phua Ghee Chee</b>
1425	Approach to Childhood Food Allergies <b>by Prof Wesley Burks</b>
1445	Penicillin and Aspirin/NSAID Allergies: Case Studies <b>by Dr Chong Yong Yeow</b>
1505	Question and Answer Session
1520	Tea Break and Trade Exhibition
1550	Eczema, Urticaria-angioedema & Contact Dermatitis <b>by Dr Pang Shiu Ming</b>
1610	Anaphylaxis: Diagnosis and Management <b>by Dr Chong Yong Yeow &amp; Mr Kong Ming Chai</b>
1625	Management of Allergic Rhinitis <b>by Dr Leong Jern Lin</b>
1645	Question and Answer Session
1700	End



# Pathology Today 2009

## Metabolics and Health Hazards

Organised by: Department of Pathology, Singapore General Hospital

**Date:** 24 October 2009 (Saturday)  
**Time:** 1pm - 5pm  
**Venue:** Pathology Lecture Theatre,  
Singapore General Hospital

This seminar has been accredited 2 CME Core Points for Pathology and Family Medicine.

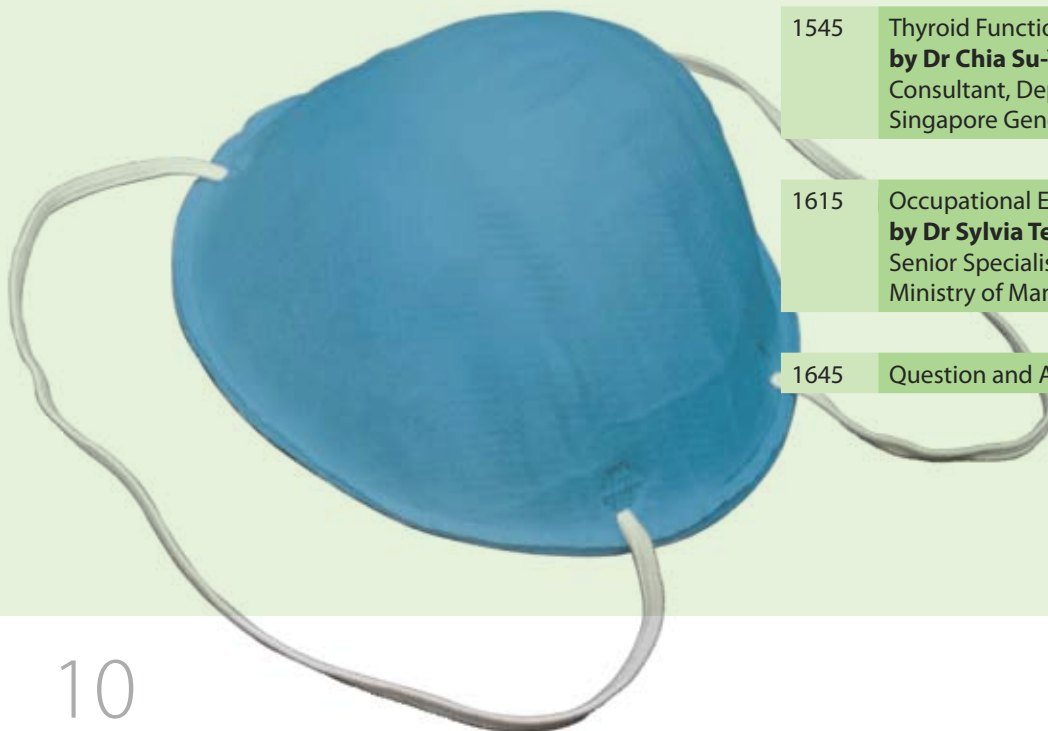
For registration, please send your name, address, telephone, email and vehicle registration no.\* to:

**Ms Cai Hui Ling**  
Department of Pathology,  
Singapore General Hospital,  
Outram Road,  
Singapore 169608

**DID:** 6321 4903  
**Fax:** 6222 6826  
**Email:** cai.hui.ling@sgh.com.sg

\*The Department of Pathology is a secured area and vehicular access to the Pathology Building carpark can only be granted with prior arrangement.

Time	Programme
1330	Registration
1345	Opening Remarks <b>by A/Prof Tan Puay Hoon</b> Head and Senior Consultant Department of Pathology, Singapore General Hospital
1400	H1N1 Old and New <b>by Dr Chan Kwai Peng</b> Senior Consultant Department of Pathology, Singapore General Hospital
1430	Biochemical Tests in the Management of Osteoporosis and Other Bone Metabolic Diseases <b>by Dr Manju Chandran</b> Consultant, Director of Osteoporosis and Bone Metabolism Unit Department of Endocrinology, Singapore General Hospital
1500	Question and Answer Session
1515	Tea Break
1545	Thyroid Function Tests in Primary Healthcare <b>by Dr Chia Su-Ynn</b> Consultant, Department of Endocrinology, Singapore General Hospital
1615	Occupational Exposure to Heavy Metals in Singapore <b>by Dr Sylvia Teo</b> Senior Specialist, OSH Specialist Department Ministry of Manpower, Singapore
1645	Question and Answer Session



## Glaucoma Update For General Practitioners

<b>Audience/Level</b>	Family Physicians
<b>Date</b>	Saturday, 7 November 2009
<b>Venue</b>	SNEC Auditorium, Level 4, Tower Block
<b>Registration</b>	Ms Cassandra Ang / Ivy Law <b>Mail to:</b> The Organising Secretariat, GLAUCOMA UPDATE FOR GENERAL PRACTITIONERS Singapore National Eye Centre, 11 Third Hospital Avenue, Singapore 168751 <b>Tel:</b> (65) 6322 8315, Fax: (65) 6220 7807 <b>Email:</b> registration@snecc.com.sg
<b>Closing Date</b>	24 October 2009
<b>Course Director</b>	<b>Dr Ho Ching Lin</b> Head (Clinical) & Consultant, Glaucoma Service, SNEC
<b>Course Coordinator</b>	<b>Dr Shamira Perera</b> Consultant, Glaucoma Service, SNEC
<b>Course Outline</b>	<p>This course will concentrate on cementing established clinical examination and investigatory techniques for the detection of acute and chronic glaucoma by the General Practitioner (GP).</p> <p>In many cases GP's may be the first to encounter this disease. Hence, it is vital that the attendee can detect early, those that warrant further investigation and referral whilst being able to confidently reassure patients who have no evidence of risk. This will undoubtedly be beneficial to some patients who will be treated earlier, whilst giving others that are worried peace of mind.</p> <p>The aim of this course is to enable the GP to optimise their examination of patients with respect to glaucoma, understand the role of further investigations and help them decide which cases warrant referral to the ophthalmologist. A concluding overview of current glaucoma management therapies will enable delegates to understand what happens "after the referral" when they are seen at SNEC.</p> <p>The course will include hands on examination of patients and expert tuition in the use of the direct ophthalmoscope.</p>
<b>Course Faculty</b>	<p><b>Assoc Prof Aung Tin</b>          Head (Research) &amp; Senior Consultant, Glaucoma Service, SNEC          Acting Institute Director, SERI          Assoc Professor, Department of Ophthalmology, Yong Loo Lin School of Medicine, NUS</p> <p><b>Dr Ho Ching Lin</b>          Head (Clinical) &amp; Consultant, Glaucoma Service, SNEC</p> <p><b>Dr Shamira Perera</b>          Consultant, Glaucoma Service, SNEC</p> <p><b>Dr Tina Wong</b>          Consultant, Glaucoma Service, SNEC</p> <p><b>Dr Alicia How</b>          Associate Consultant, Glaucoma Service, SNEC</p> <p><b>Dr Kelvin Lee</b>          Associate Consultant, Glaucoma Service, SNEC</p> <p><b>Dr Daniel Su</b>          Associate Consultant, Glaucoma Service, SNEC</p>

## Urology in Health Screening

by Department of Urology, Singapore General Hospital



Time	Programme
1330	Lunch & Registration
1400	Welcome Address
1405	Blood test: Elevated PSA – What's new?
1425	Case discussion
1435	Ultrasound kidneys: Renal cyst and small tumor

Time	Programme
1455	Question and Answer Session
1500	Tea Break
1520	Urine test: Pyuria – How do I work it up?
1545	Case discussion
1600	End

**Date :** 3 October 2009 (Saturday)  
**Time :** 1pm - 4pm  
**Venue :** Postgraduate Medical Institute,  
 Singapore General Hospital

**Email :** pgmi.gpcme@sgh.com.sg  
**Fax :** 6223 9789

**Closing date for registration :** 30 Sept 2009

**Contact :** SGH Postgraduate Medical Institute  
 Singapore General Hospital  
 Block 6 Level 1, Outram Road  
 Singapore 169608

Application for CME points in progress.



### HOTLINE NUMBERS

GPEP HOTLINE : 6557 2233

### SOC FAST TRACK APPOINTMENT CONTACT NUMBERS

<b>SGH</b> Singapore General Hospital	6321 4402	<b>NHC</b> National Heart Centre Singapore	6436 7848
<b>KKH</b> KK Women's and Children's Hospital	6294 4050	<b>NNI</b> National Neuroscience Institute @ SGH	6321 4402
<b>CGH</b> Changi General Hospital	6788 3003	<b>NNI</b> National Neuroscience Institute @ TTSH	9637 9718
<b>NCCS</b> National Cancer Centre Singapore	6436 8288	<b>SNEC</b> Singapore National Eye Centre	6322 9399
<b>NDCS</b> National Dental Centre Singapore	6324 8798		

### DIRECT WARD REFERRAL CONTACT NUMBERS

<b>SGH</b> Singapore General Hospital	6321 4822	<b>CGH</b> Changi General Hospital	6850 1648
<b>KKH</b> KK Women's and Children's Hospital	6394 1183		

Members of the SingHealth Group

