



# DEFININGMED

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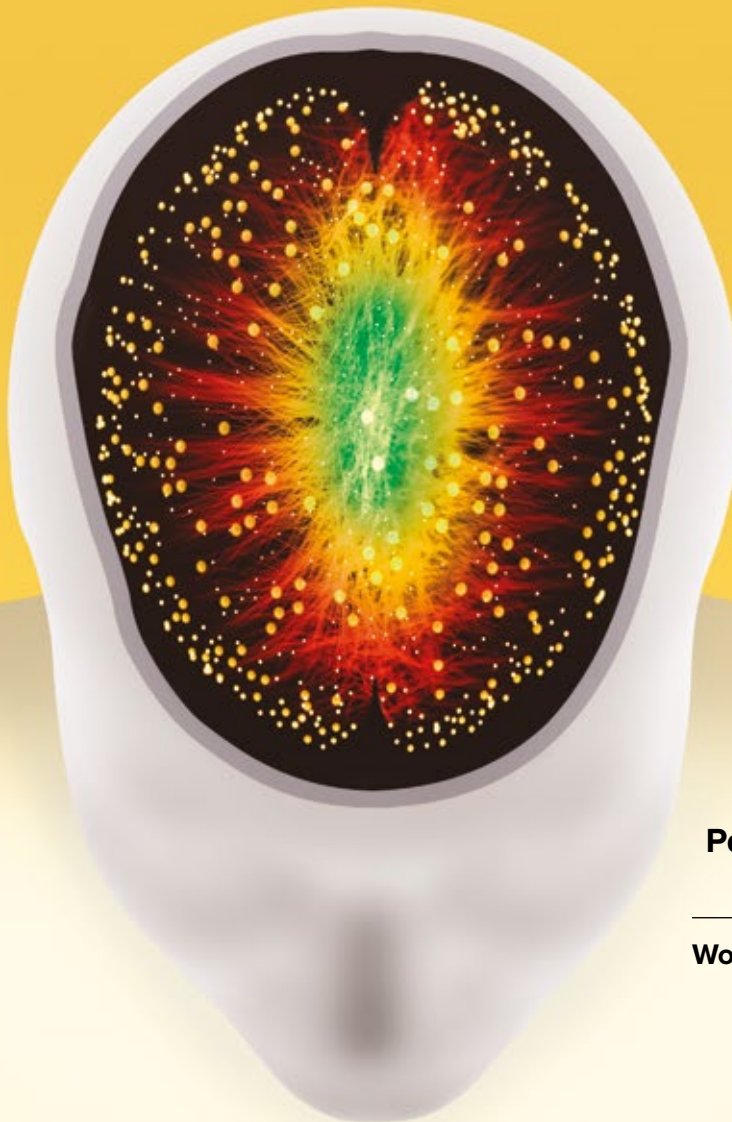
## Memory & Cognitive Disorders

How to Recognise Young-Onset Dementia in the GP Setting

Managing Behavioural and Psychological Symptoms of Dementia

Supporting Family Caregivers of Dementia Patients

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# Young-Onset Dementia: Improving Outcomes With Early Recognition at Primary Care

Dr Chiew Hui Jin

Consultant, SingHealth Duke-NUS Memory & Cognitive Disorder Centre;  
Department of Neurology, National Neuroscience Institute

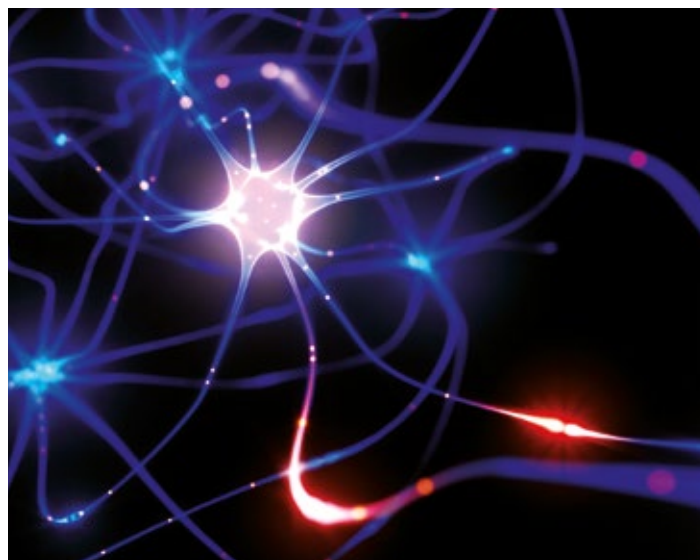
**Diagnosis of young-onset dementia is often delayed due to the atypical and heterogeneous nature of its presentation. A systematic clinical approach to assessment at primary care can identify such patients early for better outcomes.**

## INTRODUCTION

Globally, the number of persons with dementia is expected to increase from 40.1 million in 2015 to 55.4 million in 2025.<sup>1</sup> In approximately 5% of persons with dementia, symptom onset occurs **below the age of 65**. This is defined as **young-onset dementia (YOD)**.

More than 100 cases of YOD or young-onset mild cognitive impairment are diagnosed each year at the National Neuroscience Institute (NNI). Compared with late-onset dementia (LOD), persons with YOD incur greater economic and societal burden.<sup>2</sup>

**Early diagnosis and treatment is therefore crucial, as it results in less cognitive decline, better clinical and functional status, as well as lower mortality.**



## UNDERSTANDING THE DIAGNOSTIC DELAY

However, the **diagnosis of YOD is often delayed**. As an illustration, in our local cohort of persons with biomarker-proven early-onset Alzheimer's disease (AD), the mean duration of symptoms prior to diagnosis was 2.6 years.

**Key differences between YOD and LOD in terms of aetiologies, clinical presentation and disease course may explain this observation.**

In *LOD*, 61% of cases are due to AD and most patients present with classical symptoms of dementia such as short-term memory loss.

Conversely in *YOD*, our local data shows that only 35% of cases are due to AD – and amongst these, more than one third may have atypical or non-amnestic presentations (*Table 1*).

The remaining 65% of cases are due to vascular dementia, frontotemporal dementia, Parkinson disease dementia and others (e.g., autoimmune, metabolic and infective causes) (*Figure 1*).

**There is considerable clinical overlap between these aetiologies, yet there are distinguishing features that guide diagnosis.**

In this article, we will discuss two case studies that highlight the protean clinical presentations of YOD, and provide a clinical approach that may facilitate early recognition and specialist referral by the general practitioner (GP).

### CHARACTERISTICS OF EARLY-ONSET ALZHEIMER'S DISEASE COMPARED TO LATE-ONSET ALZHEIMER'S DISEASE

<p><b>1. Larger percentage of non-amnesic phenotypic variants</b> (logopenic variant primary progressive aphasia, posterior cortical atrophy, behavioural/dysexecutive syndrome, acalculia, corticobasal syndrome)</p>	<p><b>4. More likely to have genetic predisposition:</b> 1 in 10 may harbour autosomal dominant familial AD genetic mutation</p>
<p><b>2. More aggressive course with high rate of mortality</b></p>	<p><b>5. Neuroimaging findings:</b></p> <ul style="list-style-type: none"> <li>• Less hippocampal and mesial temporal lobe atrophy</li> <li>• Greater posterior (parietal, temporoparietal junction) cortical atrophy</li> </ul>
<p><b>3. Greater delay in diagnosis</b></p>	<p><b>6. Greater psychosocial problems</b> (unexpected midlife 'out-of-step' loss; continued work, financial, family responsibilities; retained insight with depression, anxiety and suicide risk)</p>

Table 1 Adapted from Mendez, 2019

### CAUSES OF DEMENTIA BY AGE OF ONSET (CASES SEEN AT NATIONAL NEUROSCIENCE INSTITUTE)

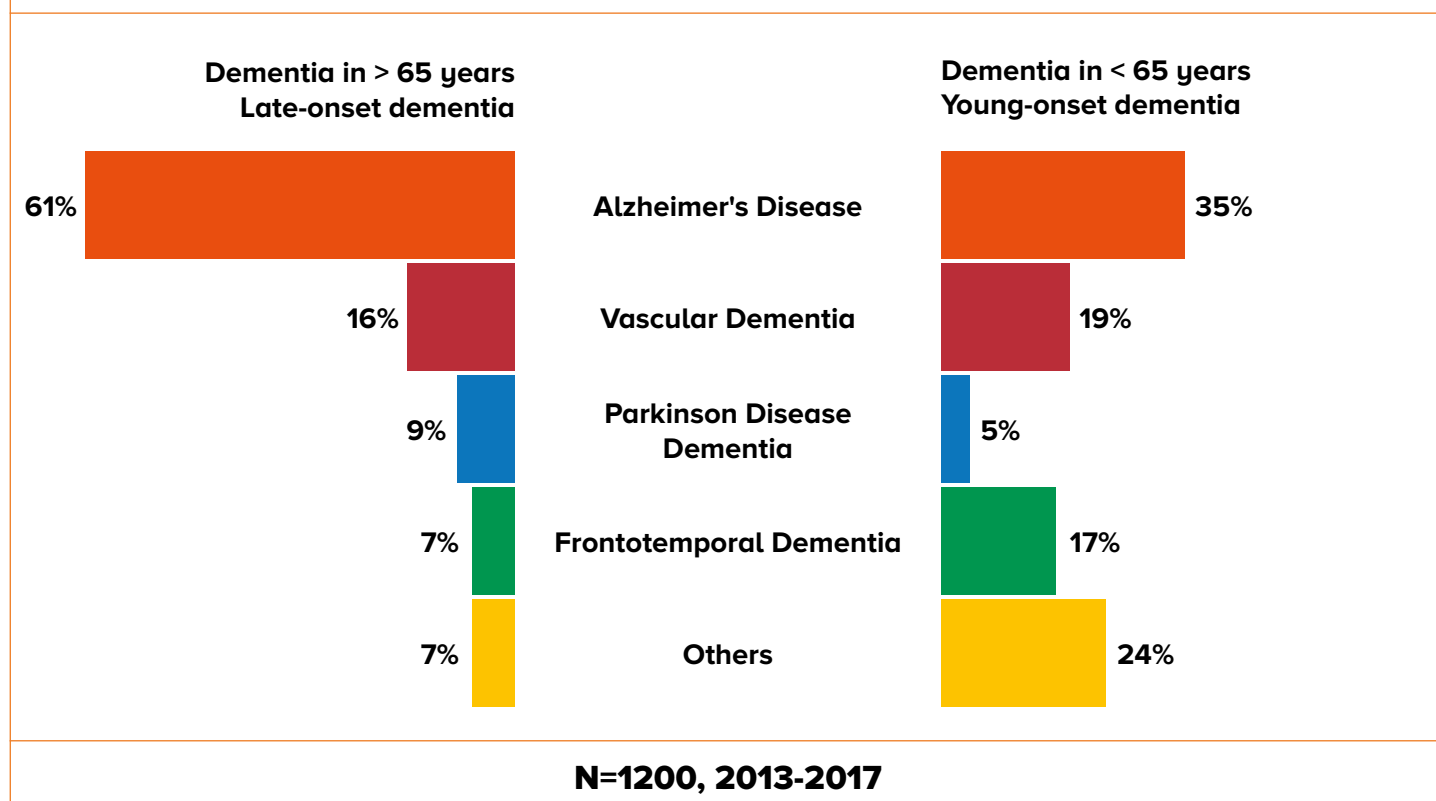


Figure 1 Causes of dementia by age of onset (NNI data)

## CASE STUDIES

### CASE A

#### DELAYED DIAGNOSIS DUE TO NON-SPECIFIC VISUAL SYMPTOMS

##### Background

A 62-year-old engineer presents with a **two-year history of progressively visual symptoms**. He first noticed difficulty with making PowerPoint presentations, and subsequently complained of increasing difficulties with vision that were non-specific in nature.

##### Diagnosis

Multiple visits to the ophthalmologist and optometrist did not show any ocular pathology. He later developed short-term memory loss that affected his daily function and work, which triggered a consult to a neurologist.

##### Assessment

On examination, the main neurological finding was that of simultagnosia, whereby his ability to perceive multiple elements of an object or scene simultaneously was severely impaired. The Mini-Mental State Examination (MMSE) score was 22/30, with deficits in visuospatial and executive function.

##### Brain scans

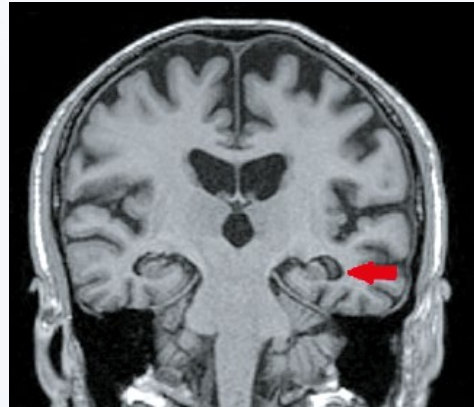
An MRI scan of the brain showed left hippocampal and bilateral parieto-occipital lobe atrophy suggestive of AD. To improve diagnostic certainty, an amyloid positron emission tomography (amyloid PET) scan was done. It showed amyloid deposition in the cerebral cortex, thus confirming the diagnosis of dementia secondary to early-onset AD.

**This case is typical of the posterior cortical atrophy (PCA) or 'visual' variant of AD.**

The insidious and non-specific nature of visual symptoms often leads to a futile – and often protracted – hunt for an ophthalmologic cause, causing significant diagnostic delay.

**A neurodegenerative disease like AD may only be suspected later in the disease course** when additional symptoms such as amnesia, executive dysfunction or language difficulties develop.

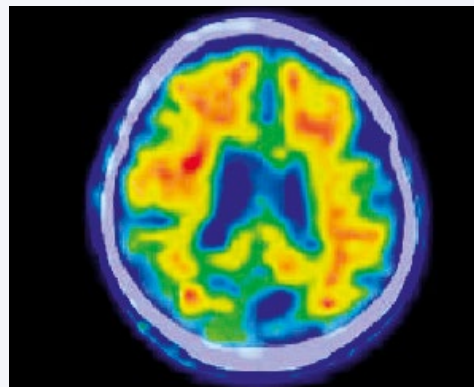
*Indeed, in NNI's PCA cohort, patients presented at a mean of 3.9 years after their onset of symptoms.*



**A:** Coronal section of the MRI brain showing left hippocampal atrophy (denoted by the arrow)



**B:** Axial section of the MRI brain showing bilateral (left more than right) parieto-occipital atrophy (denoted by the arrow)



**C:** Amyloid positron emission tomography (amyloid PET) scan showing increased amyloid tracer uptake in the cortex (denoted by the orange-red regions)

## CASE B

### DELAYED DIAGNOSIS AS BEHAVIOURAL SYMPTOMS SUGGESTED A PSYCHIATRIC DISORDER

#### Background

A 58-year-old man presented with **cognitive and behavioural symptoms for three years**. He had difficulties with executive function such as managing his finances, driving and keeping track of goods deliveries.

He became progressively apathetic, with reduced participation in family conversations and a lack of interest in his hobbies, and spent his free time staring at the TV without turning it on.

He was also disinhibited, having urinated on the ground while his family was praying at the Qingming festival, and again while in a public elevator. He demonstrated no insight into the inappropriateness of his actions.

He developed ritualistic habits such as going to work at exactly 7.20 am, as well as rigid dietary preferences, consuming the same food and drink for every meal for months on end.

#### Diagnosis

In the neurology clinic, he demonstrated poor awareness of his condition and smiled emotionlessly throughout the consultation.

#### Assessment

Neurological examination was unremarkable for any neurological deficits. On assessment of speech and language, he demonstrated echolalia, a speech disorder where he meaninglessly repeated words spoken to him. MMSE score was 19/30.

He underwent an MRI scan of the brain, which showed bilateral frontal lobe atrophy. Routine blood investigations were normal. Based on his clinical presentation and neuroimaging, a diagnosis of behavioural variant frontotemporal dementia (bvFTD) was made.

**While the prominent behavioural symptoms may suggest a psychiatric disorder, his constellation of symptoms (executive dysfunction, apathy, disinhibition, ritualistic/compulsive behaviour, dietary changes) are typical of bvFTD.**

In addition, the *presence of prominent executive dysfunction* would also suggest dementia rather than psychiatric illness as the cause. The diagnosis of bvFTD is corroborated by concordant frontal lobe atrophy on the MRI.



## Early Recognition At Primary Care

The two case studies illustrate how important it is to recognise atypical, non-amnestic symptoms of YOD. When assessing a patient with cognitive or behavioural symptoms (i.e., a neuropsychiatric syndrome), having a structured clinical approach helps.

### 1 COGNITIVE DOMAIN(S) AFFECTED

A systematic history-taking of the main cognitive domains may elucidate neuropsychiatric symptoms that suggest YOD. These domains are memory, executive function, visuospatial, language, apraxia and behavioural/psychiatric (Table 2).

**If unexplained symptoms in one or more of these cognitive domains are detected, the GP should be alerted to suspect YOD even in the absence of memory symptoms that we typically associate with dementia.**

Cognitive Domain	Common Symptoms of Cognitive Impairment
<b>Memory</b>	<ul style="list-style-type: none"> <li>• Repetitive questioning</li> <li>• Forgetting recent events or conversations</li> <li>• Forgetting things like their shopping list or location of parked car</li> <li>• Consistently misplacing items</li> </ul>
<b>Executive function</b>	<ul style="list-style-type: none"> <li>• Reduced attention span (e.g., absent-mindedness, difficulty following or holding conversation, distractibility)</li> <li>• Errors in judgement and making decisions</li> <li>• Difficulty with numbers or money</li> <li>• Rigidity in thought and habits</li> </ul>
<b>Visuospatial</b>	<ul style="list-style-type: none"> <li>• Difficulty judging movement (e.g., parking, driving, crossing the road)</li> <li>• Difficulty recognising objects, faces and landmarks by sight</li> <li>• Difficulty reading words</li> </ul>
<b>Language</b>	<ul style="list-style-type: none"> <li>• Expressive difficulties (e.g., word-finding difficulty [dysnomia], mispronunciation of words, agrammatism, distortion of speech)</li> <li>• Receptive difficulties (e.g., difficulty comprehending instructions, speech or words)</li> <li>• Repetition difficulties (e.g., difficulty repeating sentences)</li> </ul>
<b>Apraxia</b>	<ul style="list-style-type: none"> <li>• Difficulty performing learned tasks (e.g., using tools [telephone, computer, washing machine], cooking, dressing)</li> </ul>
<b>Behavioural or psychiatric</b>	<ul style="list-style-type: none"> <li>• Hyperactive symptoms: disinhibition, compulsive behaviour</li> <li>• Affective symptoms: anxiety, depression</li> <li>• Psychotic symptoms: delusions, hallucinations</li> <li>• Apathy</li> <li>• Change in eating habits</li> </ul>

**Table 2** Common symptoms of cognitive impairment categorised by cognitive domain

## 2 TIME COURSE OF THE SYMPTOMS

In general, most neurodegenerative disorders follow an insidious time course.

However, unusual features such as **rapid progression, fluctuations** or a **stepwise decline** would warrant specialist referral particularly to look for reversible causes.

### Rapidly progressive

For example, while rapidly progressive dementia is the hallmark of Creutzfeldt-Jakob disease – an incurable and uniformly fatal neurodegenerative disorder – it can also occur in autoimmune encephalitis, a relatively common cause of YOD that may respond to immunotherapy.

### Stepwise decline

A stepwise decline, likewise, would suggest vascular dementia and trigger a hunt for cerebrovascular disease, the treatment of which may prevent further strokes and arrest cognitive decline.

## 3 OTHER CLINICAL FEATURES

The presence of focal neurological deficits, seizures, Parkinsonism or movement disorders such as tremors or dystonia would warrant specialist referral.

In view of the higher likelihood of genetic predisposition in YOD compared to LOD, a family history of dementia or neuropsychiatric disorders in a young person with cognitive or behavioural symptoms would also raise the spectre of YOD.

Finally, a history of immunocompromised state, autoimmune diseases or uncontrolled cardiovascular risk factors may increase the likelihood of a treatable cause of YOD.

## THE NNI DEMENTIA CLINIC

**At the NNI Dementia Clinic, patients with YOD undergo a comprehensive evaluation including a detailed history, neurological examination and neuropsychological assessment.**

### Diagnosis

Apart from **blood investigations**, we routinely perform **neuroimaging** with an MRI of the brain looking for regional atrophy and cerebrovascular disease, and to exclude reversible causes.

**Ancillary tests** such as serology for autoimmune or infectious diseases, electroencephalography (EEG) or polysomnography (sleep study) may be performed for selected cases.

**Biomarker studies** may be required for confirmation in atypical presentations of AD. These tests include cerebrospinal fluid examination for amyloid and tau protein, as well as amyloid PET imaging looking for cerebral amyloid deposition.

### Management

Once a diagnosis of YOD is reached, patients are managed by a **multidisciplinary care team** involving a neurologist, psychologist, advanced practice nurse and, often, a medical social worker.

**A multifaceted approach is required, emphasising not only medical treatment with cognitive enhancers and cardiovascular risk factor management, but also psychological interventions for superimposed mood disorders, cognitive stimulation therapy and caregiver support.**

Equally important is the management of the social aspect of the disease, including its impact on employment, legal matters and financial planning.

Last but not least, selected patients may also be eligible to participate in clinical trials, including that of disease-modifying therapy that may slow down progression of the disease.

### CONCLUSION

The heterogeneous nature of YOD often leads to delayed recognition and diagnosis. With an understanding of its unique features and a systematic clinical approach, GPs would be equipped to recognise and refer suspected patients at an early stage of the condition. Early diagnosis and treatment would be invaluable in improving the outcome of YOD.

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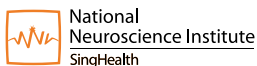
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#### Dr Chiew Hui Jin

Consultant, SingHealth Duke-NUS Memory & Cognitive Disorder Centre;  
Department of Neurology, National Neuroscience Institute

Dr Chiew Hui Jin is a Consultant at the Department of Neurology, National Neuroscience Institute (NNI). His interests are in neurocognition and medical education. He has been a member of the NNI Dementia Programme since 2017. He was the course director for the NNI Comprehensive Course in Dementia and Cognitive Impairment for primary care physicians in 2019.



GPs can call the **SingHealth Duke-NUS Memory & Cognitive Disorder Centre** for appointments at the following hotlines, or scan the QR code for more information:

**Singapore General Hospital**  
6326 6060

**Changi General Hospital**  
6788 3003

**Sengkang General Hospital**  
6930 6000

**National Neuroscience Institute**  
6330 6363





# How to Manage Behavioural and Psychological Symptoms of Dementia

Dr Iris Rawtaer

Consultant, SingHealth Duke-NUS Memory & Cognitive Disorder Centre;  
Department of Psychiatry, Sengkang General Hospital

**Behavioural and psychological symptoms of dementia, if untreated, can cause much distress to both the patient and caregiver. Through a collaborative, person-centred approach working with caregivers and community agencies, GPs can help to recognise and manage these symptoms with appropriate psychosocial interventions and medications if needed.**

## INTRODUCTION

With rapid population ageing, we will see a significant increase in the number of older adults living with Alzheimer's dementia and other dementias. Locally, the Well-being of the Singapore Elderly (WiSE) Study (2015) found that one in ten seniors aged 60 and above has dementia.<sup>1</sup> From 80,000 Singaporeans with dementia in 2017, the numbers are expected to more than double to 150,000 in 2030.

## WHAT IS BPSD?

Behavioural and psychological symptoms of dementia (BPSD) is an umbrella term that encompasses a wide range of non-cognitive symptoms that can cause significant distress and disability if untreated.

As the number of persons with dementia (PWD) grows, it is imperative for us to recognise these symptoms and provide appropriate management approaches to improve quality of life for PWD and their caregivers.

## PREVALENCE AND IMPACT

**80% of PWD experience at least one symptom of BPSD from the time of onset of their cognitive symptoms.**<sup>2</sup>

In addition to the emotional distress and disability patients experience due to BPSD, it is also associated with increased caregiver stress, increased hospitalisations, and substantial increases in financial costs and premature institutionalisation.<sup>3</sup>

## SYMPTOMS

BPSD can occur at any stage of dementia. Some symptoms are more commonly seen in certain types of dementia, although there are contradictory findings in the literature.

Examples include:

- Depression has a strong relationship with vascular dementia
- Visual hallucinations are more common in Lewy body dementia
- Impulsivity and sexual disinhibition are more frequently observed in patients with frontotemporal dementia

An overview of the different behavioural and psychological symptoms is described in **Table 1**.

A commonly described phenomena is **sundowning**, where BPSD such as agitation worsens in the afternoon or evening. Sundowning increases the levels of caregiver stress and burden, as evenings are typically the time when loved ones return from work or when there are fewer staff on duty in nursing homes.

**Beyond daily variations in severity of BPSD, the nature and severity of BPSD also changes with time as the dementia progresses.**

## BEHAVIOURAL AND PSYCHOLOGICAL SYMPTOMS OF DEMENTIA

<b>Anxiety</b>	<ul style="list-style-type: none"> <li>Repeatedly asking questions about an upcoming event</li> <li>Fear of being left alone</li> <li>Worries about their finances, health, future</li> </ul>	
<b>Depressive mood</b>	<ul style="list-style-type: none"> <li>Pervasive depressed mood or loss of pleasure</li> </ul>	<ul style="list-style-type: none"> <li>Self-deprecatory statements</li> <li>Expressing wish to die</li> </ul>
<b>Hallucinations</b>	<ul style="list-style-type: none"> <li>Seeing people in the home who are not really there</li> <li>Hearing deceased people call their names</li> </ul>	
<b>Misidentification</b>	<ul style="list-style-type: none"> <li>Misidentification of themselves (e.g., their own reflection in the mirror)</li> <li>Misidentification of other persons such as carers</li> <li>Misidentification of events on the TV or radio as if they were real</li> </ul>	
<b>Delusions</b>	<ul style="list-style-type: none"> <li>People are stealing things</li> <li>House is not one's home</li> <li>Spouse or caregiver is an impostor</li> </ul>	<ul style="list-style-type: none"> <li>Abandonment</li> <li>Spouse is unfaithful</li> </ul>
<b>Apathy</b>	<ul style="list-style-type: none"> <li>Lack of interest in daily activities</li> <li>Decrease in social interaction</li> </ul>	<ul style="list-style-type: none"> <li>Decrease in emotional responsiveness</li> <li>Decrease in initiative</li> </ul>
<b>Negativism</b>	<ul style="list-style-type: none"> <li>Refusal to cooperate</li> </ul>	<ul style="list-style-type: none"> <li>Resistance to care, medication, eating</li> </ul>
<b>Disinhibition</b>	<ul style="list-style-type: none"> <li>Impulsiveness</li> </ul>	<ul style="list-style-type: none"> <li>Sexual disinhibition</li> </ul>
<b>Sleeplessness</b>	<ul style="list-style-type: none"> <li>Sleep-wake reversal: sleeping in the day, being awake at night</li> <li>Night-time wandering</li> </ul>	
<b>Wandering</b>	<ul style="list-style-type: none"> <li>Aimless walking</li> <li>Exit seeking / repeatedly trying to leave the house</li> </ul>	
<b>Agitation</b>	Complex phenomenon defined as socially inappropriate verbal, vocal or motor activity. It may include the following:	
	<b>Physically aggressive behaviours</b>	<ul style="list-style-type: none"> <li>Grabbing</li> <li>Hitting</li> <li>Pinching</li> <li>Kicking</li> <li>Biting</li> <li>Slapping</li> </ul>
	<b>Verbally aggressive behaviours</b>	<ul style="list-style-type: none"> <li>Screaming</li> <li>Cursing</li> <li>Temper outbursts</li> </ul>
	<b>Non-aggressive behaviours</b>	<ul style="list-style-type: none"> <li><i>Physical:</i> Restlessness, pacing, rummaging, repetitive behaviours</li> <li><i>Verbal:</i> Bossiness, complaining/whining, constant requests for attention</li> </ul>

Table 1

# Management Approach for BPSD

## 1 IDENTIFY UNDERLYING MEDICAL CAUSES

**An important differential to consider when addressing behavioural change in PWD is delirium.**

PWD usually have multiple medical comorbidities and are particularly susceptible to biological and environmental stressors that can easily tip them into delirium.

As such, it is important to rule out common causes such as infections (e.g., pneumonia, urinary tract infections), constipation (faecal impaction), pain, prescription (e.g., opioids, antihistamines) and non-prescription medication side effects.

## 2 BEHAVIOURAL OR PSYCHOSOCIAL APPROACHES

**Behavioural or psychosocial approaches are the mainstay of treatment for BPSD and should always be considered first over pharmacological options.**

### MANAGE SOCIAL AND PHYSICAL TRIGGERS

According to the unmet needs theory, BPSD stems from our need for meaningful activity, emotional validation and social interaction.<sup>4</sup>

**Many behavioural symptoms result from unmet needs based on social and environmental factors** such as social isolation, the need for touch or intimacy, the need for privacy during personal care, environmental noise and temperature.

**Other common triggers include physical or verbal limitations leading to an inability to express needs** (e.g., hunger, pain, toileting needs), physical or emotional distress, the inability to move, sensory impairments (vision, hearing) and skin problems (dryness, itching, pressure sores). These factors should be routinely checked for and addressed.

Once we understand the circumstances that trigger behaviours and what makes them better or worse, we can intervene through a variety of strategies that include **communication, distraction** and **environmental changes**.

Some techniques are described below:

### Communication

- Speak slowly and use appropriate eye contact, body language and tone of voice.
- Use simple and direct statements.
- Allow choice wherever possible and avoid patronising talk.
- Do not shout/argue – there is no need to focus on who is right or wrong. Arguing usually makes the situation worse.
- Encourage them to talk about how they are feeling.

### Distraction

- Talk about pleasant memories.
- Defuse the situation by shifting their focus to a different activity, or moving to a different space.

### Environment

- Reduce clutter in the home.
- Ensure a large clock and calendar are easily visible; ensure there is a night light; label cabinets and drawers.
- Remove dangerous objects from the home or restrict access to them.
- Install grab bars and anti-slip mats.
- Avoid reflective surfaces.
- Avoid relocation but if really necessary, bring familiar items along.
- Apply for the Alzheimer's Disease Association's (ADA) Safe Return Card; download the Agency for Integrated Care (AIC) Dementia Friends mobile application.

## Management Approach for BPSD (Cont'd)

### INITIATE PSYCHOSOCIAL INTERVENTIONS

There are a variety of psychosocial interventions including music therapy, reminiscence therapy, aromatherapy, pet therapy and multisensory stimulation.<sup>6</sup>

Effective activities are meaningful, tap on PWD's past skills and interests and are able to provide them with a sense of normalcy. It is important to encourage caregivers to focus on the process and not the result.

### LEVERAGE ON DEMENTIA DAY CARE AND ELDERSITTERS

A referral to a **dementia day care centre** (via AIC) to meaningfully engage PWD can also be considered. Some PWD may be reluctant to attend initially, but once the routine has been established, many derive significant enjoyment from the activities and often look forward to day care.

**Eldersitters** are an alternative if dementia day care is not a feasible arrangement for some families.

### EDUCATE AND SUPPORT CAREGIVERS

#### Educate caregivers

It is important to educate caregivers on how behaviours are caused by the disease and not an intentional act.

**The adjustments in communication style, routines and environment have to be borne by caregivers.** It can be helpful to show caregivers pictures of brain shrinkage caused by dementia compared to that of a healthy brain, to help them frame the behavioural symptoms in the right context.

**We should encourage caregivers to see beyond the illness,** to recognise PWD as individuals, remembering the person they were before the illness, and take into account individual likes, dislikes, hobbies and sources of fulfilment to structure their day-to-day care and routine. This person-centred approach<sup>5</sup> makes all the difference in the experience of both the patient and caregivers.

### Caregiver self-care

Caregivers of PWD spend a disproportionate amount of time on their caregiving roles and are at risk of caregiver stress and burnout.

**Reminding caregivers to practice self-care,** setting aside time for their own activities, medical appointments and relaxation, is important.

### Support groups

The ADA and Caregivers Alliance run caregiver training and support groups. Community programmes such as Family of Wisdom (ADA) and Club Memorable (Apex Harmony Lodge) are unique care concepts available. Respite services are also available through various providers in situations where carers need help unexpectedly. The AIC's Go Respite programme allows carers to plan ahead for such situations.

## 3 PHARMACOLOGICAL INTERVENTIONS

**Medications should be considered only when non-pharmacological interventions have failed, or when the symptoms are moderate to severe and have an adverse impact on the PWD or caregiver.**

Antidepressants and antipsychotics can be used sparingly (**Table 2**) and in accordance with the Ministry of Health (MOH) Clinical Practice Guidelines on Dementia.

Both atypical and typical antipsychotics confer an increased risk of mortality and stroke in patients with dementia. Melatonin and low doses of trazodone (25-50 mg at night) can be considered for sleep problems.

General principles include using lower doses (half to a quarter of the adult dose), targeting specific behaviours, using one drug at a time, regularly reviewing medication effects and ensuring use is time-limited.

Drug	Suggested Dosage	Side Effects	Additional Notes/ Caution
<b>Antidepressants</b>			
<b>Fluvoxamine (Faverin)</b>	Start at: 25 mg ON Usual dose: 50-100 mg ON	Nausea, vomiting, gastritis, insomnia, tremors, nervousness, sexual side effects, hyponatremia	More sedating
<b>Escitalopram (Lexapro)</b>	Start at: 5-10 mg OM Usual dose: 10-15 mg OM		Least propensity for interactions with other medication
<b>Sertraline (Zoloft)</b>	Start at: 25 mg OM Usual dose: 50-100 mg OM		
<b>Mirtazapine (Remeron)</b>	Start at: 7.5 mg ON Usual dose: 15 mg ON	Sedation, increased appetite and weight gain; can affect liver function	Good for patients with insomnia and poor appetite
<b>Duloxetine (Cymbalta)</b>	Start at: 30 mg OD Usual dose: 60 mg OD	Nausea, dry mouth, dizziness, somnolence, fatigue, insomnia, headache	May be especially useful in patients with pain symptoms
<b>Venlafaxine XR (Effexor XR)</b>	Start at: 37.5 mg OM ↑ to 75 mg OM after 4-5 days	Headache, nausea, vomiting, insomnia, decreased appetite; watch out for dose-dependent increase in blood pressure	Usually try doses at 75 mg increments for at least 1-2 weeks prior to increasing by another 75 mg
<b>Atypical Antipsychotics</b>			
<b>Quetiapine</b>	Start at: 12.5 mg BD Usual dose: 25-100 mg ON (single/divided dose)	Sedation, dizziness, dry mouth, constipation, orthostatic hypotension, prolonged QTc	Increased risk of cerebrovascular accidents
<b>Risperidone</b>	Start at: 0.25 mg ON Usual dose: 1-2 mg ON (single/divided dose)	Dizziness, insomnia, headache, anxiety, sedation	Extrapyramidal side effects
<b>Olanzapine</b>	Start at: 2.5 mg ON Usual dose: 5-10 mg ON (single/divided dose)	Sedation, dizziness, dry mouth, constipation, weight gain	Increased risk of diabetes mellitus and hyperlipidaemia – check lipid profile and fasting glucose 3-6 monthly

**Table 2** Commonly used medications

OD: daily, BD: twice a day, OM: in the morning, ON: at night

### WHEN TO REFER TO A SPECIALIST

If there is a failure to respond to appropriate psychosocial interventions or a first trial of medication, or there are concerns about risks, we recommend referring to a psychogeriatrician.

### CONCLUSION

Ultimately, every PWD is different and there is no 'one-size-fits-all' strategy. However, taking the approach outlined and working collaboratively with caregivers and community agencies to adopt a person-centred approach can go a long way toward maintaining independence and quality of life for PWD.

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#### Dr Iris Rawtaer

*Consultant, SingHealth Duke-NUS Memory & Cognitive Disorder Centre;  
Department of Psychiatry, Sengkang General Hospital*

Dr Iris Rawtaer is a Psychogeriatrician at Sengkang General Hospital, a clinical site of the SingHealth Duke NUS Memory & Cognitive Disorder Centre. She has a keen interest in neurocognitive disorders and mental health of older adults. She is involved in epidemiological and interventional studies of ageing and has been working on remote sensing technology for early detection of dementia.



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**Sengkang General Hospital**  
6930 6000

**National Neuroscience Institute**  
6330 6363



# Dementia Caregiving: From the Lens of Family Members

**Dr Liew Tau Ming**

*Consultant, SingHealth Duke-NUS Memory & Cognitive Disorder Centre;  
Department of Psychiatry, Singapore General Hospital*

Discussion on dementia caregiving has mostly centred around the stress experienced by caregivers and the interventions to cope with it. Feelings of loss and grief which also impact the caregiver's well-being are often unaddressed. Find out how GPs, due to their long-standing relationship with their patients, are best placed to help family caregivers address this facet.



## **INTRODUCTION**

Dementia is a debilitating condition that causes chronic and progressive decline in cognitive function, to the extent that the cognitive decline interferes with independence in daily activities.

The natural trajectory of dementia often involves a gradual decline of cognitive functions over time so that the persons with dementia (PWD) are increasingly dependent on their caregivers to perform their activities of daily living, with some exhibiting behavioural problems such as agitation, restlessness and depression.

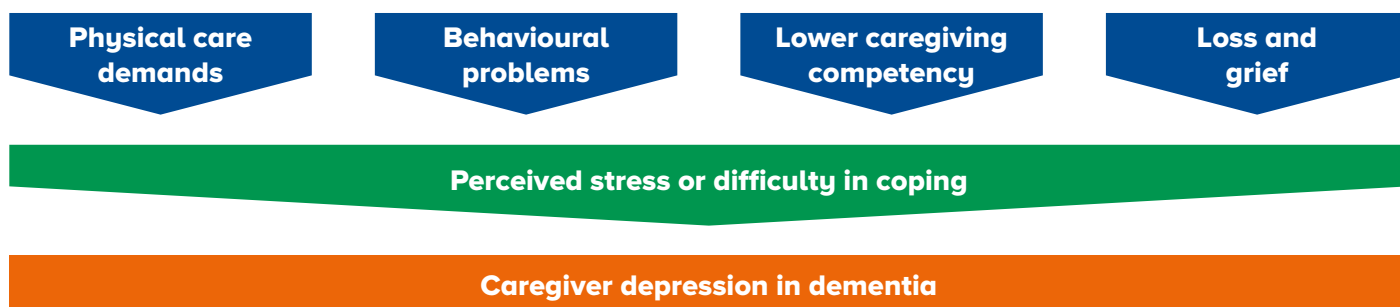
## Determinants of Caregiver Depression

Family members of PWD often find themselves in the caregiving role following the diagnosis and progression of the disease, which for many is an abrupt and unexpected experience.

Frequently, this caregiving experience involves juggling between providing daily supervision of the PWD and the family caregivers' other commitments, such as work and family, which can take an emotional and physical toll on the caregivers.

Globally, 1 in 3 family caregivers were shown to have depression, and this figure is consistently seen even in the local setting. **One study in Singapore found that close to 1 in 2 family caregivers may have depression.**<sup>1</sup>

### DETERMINANTS OF CAREGIVER DEPRESSION



**Figure 1** A previously proposed framework on the determinants of caregiver depression in dementia caregiving  
Adapted with permission from Ying et al<sup>2</sup>

### 1 PHYSICAL CARE DEMANDS

Many of the challenges in dementia caregiving involve supporting the physical dependence of the PWD as they lose the ability to care for themselves with progressive cognitive decline.

Some of the care challenges include managing their meals, medications and personal hygiene, as well as the taking over of more complex routines such as handling the finances, grocery shopping, doctors' appointments and major healthcare decisions.

### 2 BEHAVIOURAL PROBLEMS

Not uncommonly, caregivers also contend with behaviour difficulties of the PWD, as there can be increasing mood or agitation symptoms often related to disease changes in the brain, accentuation of underlying personalities as well as suboptimal social environments.<sup>2</sup>

### 3 CAREGIVER COMPETENCY

Faced with increasing difficulties in care, family members may begin to notice the progressive cognitive decline and seek further help from healthcare services, which is when the diagnosis of dementia is made.

Following the formal diagnosis of dementia of the PWD, family members can then tap onto additional resources to support their caregiving experience, which may include access to:

- **Social services** (such as dementia day care and caregiver training programmes)
- **Financial assistance** (such as the Home Caregiving Grant and Pioneer Generation Disability Assistance Scheme)



- **Medication prescriptions** (such as cognitive enhancers to maintain PWD's cognitive function, and infrequently, the use of psychiatric medications to manage very challenging behaviours in the PWD)<sup>3,4</sup>

Family caregivers of PWD can benefit from **training workshops and support groups** which are routinely organised by the **Alzheimer's Disease Association of Singapore (ADA)**. Further details are available on the ADA website at [www.alz.org.sg/csg](http://www.alz.org.sg/csg) or through ADA's Dementia Helpline at **6377 0700**.

## 4 LOSS AND GRIEF

Given the overwhelming difficulties in dementia caregiving, it is understandable how the traditional discussion on dementia caregiving has centred around the stressful experience of caregivers as well as the various interventions that aim to improve the coping of caregivers.

Inasmuch as this is true, there are also other critical experiences of family caregivers which are often less talked about.

In particular, the loss and grief experience of family caregivers is one that is increasingly recognised in recent literature, given that family members experience multiple losses within the context of caregiving.<sup>3-6</sup>

These losses include the:

1. Anticipation of *future losses* related to the physical death of the PWD
2. *Ambiguous loss* of the PWD who, despite being physically present, becomes emotionally disconnected from the caregiver

**Such experience of loss and grief is especially prominent:**

- **Among spousal caregivers** (related to the loss of prior emotional closeness with the PWD)
- **Among caregivers who have many difficulties in daily care** (with the care difficulties serving as ongoing reminders of the present reality of ambiguous loss)
- **When the PWD are at a younger age and more severe stage of disease** (possibly representing the loss of hopes and dreams that had been envisioned in the relationship with the PWD)<sup>7</sup>

### HOW HEALTHCARE PROFESSIONALS CAN OFFER SUPPORT

The experience of loss and grief, comprising a constellation of conflicting emotions such as sadness, anger, guilt, fear, worry and helplessness, can often be rather unpleasant.

It is pertinent to note that these are **normal reactions to real losses** experienced by family caregivers and are no different from the average person's reactions to the loss of loved ones through the typical context of death.

As such, it would often be sufficient for healthcare professionals to:

- Assure family caregivers that these are not abnormal experiences
- Encourage them to involve other family members in the grieving process
- Facilitate the family caregivers' search of new ways to remain connected to the PWD (as a practical way to live with the losses), such as through therapeutic touch, humour, life review, spiritual practices and celebrations<sup>5,6</sup>

## CONCLUSION

All in all, dementia caregiving, from the lens of family members, can be fraught with challenges and conflicting emotions.

Notwithstanding these, if the caregivers can navigate through these difficulties with the support of family, society and available care services, this could possibly turn out to be a unique experience that provides a different perspective on life. It is also a

window of opportunity for family caregivers to cherish their remaining moments with the PWD.

In other words, while the whole caregiving experience may appear daunting, it is not unimaginable that we can defy the typical negative connotation associated with dementia caregiving, and turn this experience into a positive journey of personal growth and gains in relationships and spirituality.<sup>8</sup>

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### Dr Liew Tau Ming

Consultant, SingHealth Duke-NUS Memory & Cognitive Disorder Centre;  
Department of Psychiatry, Singapore General Hospital

Dr Liew Tau Ming is a Consultant Geriatric Psychiatrist at Singapore General Hospital. He also holds a PhD in Public Health, and is an Adjunct Assistant Professor at the Saw Swee Hock School of Public Health, National University of Singapore. Dr Liew has a keen interest in the areas of dementia, geriatric mental health and health services research, and has published widely in reputable journals in these areas.



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6330 6363



# Lasting Power of Attorney: Empowering Dementia Patients

**Dr Peter Chow Chiu Leung**

*Consultant, SingHealth Duke-NUS Memory & Cognitive Disorder Centre;  
Department of Geriatric Medicine, Changi General Hospital*

**A Lasting Power of Attorney is particularly important for patients with mild dementia, in order to respect their autonomy in the event of a loss of mental capacity. GPs, who have often formed bonds of trust with their patients, can play a crucial role in facilitating this process for their patients.**

## INTRODUCTION

The Well-being of the Singapore Elderly (WiSE) 2015 study estimated that one in ten people aged 60 and above may have dementia.

As persons with dementia (PWD) in moderate and severe stages may not be able to make decisions independently, it is advisable to suggest to elderly patients with mild dementia, or even those who are well, to voluntarily appoint one or more persons to act on their behalf if they were to lose their mental capacity one day.

This advance decision can be made by a **Lasting Power of Attorney (LPA)**. However, doctors need to be sensitive to the process when the patient has borderline mental capacity and complex family relationships.

## THE MENTAL CAPACITY ACT

The Mental Capacity Act (MCA) was passed by the Parliament of Singapore in 2008. It then came into effect in 2010 after the establishment of the Office of the Public Guardian (OPG) and the completion of the Code of Practice.

**The MCA is a comprehensive legal statute governing the care of persons who lack capacity.**

**Part II** of the Act provides five statutory principles serving as general guidance in protection of persons who lack capacity (**Table 1**).

**Part IV** of the Act states the legal status and details of the Lasting Power of Attorney.

**Part VII** of the Act requires the appointment of the Public Guardian by the Minister.

## The Five Statutory Principles of the MCA

1. A person must be assumed to have capacity unless it is established that he lacks capacity.
2. A person is not to be treated as unable to make a decision unless all practicable steps to help him to do so have been taken without success.
3. A person is not to be treated as unable to make a decision merely because he makes an unwise decision.
4. An act done, or decision made, under this Act for or on behalf of a person who lacks capacity must be done, or made, in his best interests.
5. Before the act is done, or the decision is made, regard must be had to whether the purpose for which it is needed can be as effectively achieved in a way that is less restrictive of the person's rights and freedom of action.

**Table 1** The five statutory principles in Section 3 of the MCA

## LASTING POWER OF ATTORNEY

### What it is

The LPA is a legal document under which a donor confers on a donee (or donees) the authority to make decisions for the donor. The decisions concern the donor's personal welfare or the donor's property and affairs when the donor no longer has capacity to make such decisions.

### What are the requirements?

The donor must have attained the **age of 21 years** and must have had **capacity to execute the instrument** (LPA) at the time of execution.

As such, the donor should have:

- The mental capacity to make this appointment of donee(s) voluntarily
- In their mind who is/are the suitable and trustworthy donee(s)
- Read the LPA form carefully about the scope of decision

The donor can choose to delegate the power of decision making to the donee(s) in either personal welfare or property and affairs, or both.

These donors could be without dementia or with mild dementia.

## THE ROLE OF DOCTORS

**The role of a doctor is primarily to assess the patient's mental capacity for the appointment of donee(s) and the scope of decisions (Table 2).**

The doctor can also **be a witness** to whether:

- The donor is making the appointment voluntarily (i.e., without coercion)
- The donee(s) agrees to be the donee(s)
- There is a consensus among the donor and donee(s) in such arrangement

A Mini-Mental State Examination (MMSE) on the day of making the LPA would serve as a good support of the patient's severity of dementia.

However, it cannot replace the functional test of the patient's **ability to 'understand, retain, weigh and communicate'**. The donor must be able to demonstrate all four requirements in the whole process of making an LPA.

**A person is *unable* to make a decision for him/herself if he/she is *unable* to do all or any of the following:**

- understand** the information relevant to the decision
- retain** that information
- use or weigh** that information as part of the process of making the decision
- communicate** his decision (whether by talking, using sign language or any other means)

**Table 2** Criteria for the inability to make one's own decisions, in Section 5 of the MCA

## APPLICATION WITH THE OFFICE OF THE PUBLIC GUARDIAN

After the mental capacity assessment and the completion of the LPA form by the donor, donee(s) and witness and doctor's certification, the form should be filed with the Office of the Public Guardian (OPG) by the patient or his/her family members.

OPG will grant the donor and donee(s) access to the soft copy of the LPA. The donee(s) can only share this soft copy with a third party after the donor loses his/her mental capacity. They can also apply for a certified true hard copy.

The donor can revoke the LPA at any time when he/she has mental capacity, by applying to OPG.

When the donor loses his/her mental capacity, the donee(s) will need a doctor's medical report to certify and confirm it. This will then allow the donee(s) to act on behalf of the donor within the scope of decisions indicated in the signed LPA form. A sample of a doctor's medical report is available on the OPG website.

## PATIENT'S WISHES AND INSTRUCTIONS

As indicated earlier, the patient can choose the scope of decisions to be made by the donee(s) after the patient loses mental capacity.

**Personal welfare** is in relation to the patient's health and social care (e.g., decisions on medical treatment and placement).

**Property and affairs** is in relation to the patient's finances and property (e.g., handling bank and CPF accounts, and selling the patient's property).

When more than one donee is appointed, the form will indicate whether they can handle these two areas either **jointly** or **severally**. This is a choice made by the donor, and should be communicated thoroughly among the donor and the donees.

## NAVIGATING FAMILY DYNAMICS

It is not surprising that there may be disagreements in the choice of donee(s), whether they are to act jointly or severally for the donor in decision making, and the scope of decisions (personal welfare, and property and affairs).

Of course, the donor's own decisions in these two areas are the ultimate guide. Nevertheless, in the doctor's role, one should not underestimate the effect of family dynamics in making an LPA.

**It is advisable to observe and ask the donor regarding any worry of coercion, undue influence or disharmony among family members.**

It is more obvious when the donor's mental capacity is borderline due to the progression of dementia or when the idea of making an LPA is initiated by the family. **Having a conversation with the donor alone would be very helpful.**

## WHEN TO REFER

A second opinion by specialists may be advised:

- When the diagnosis of the **underlying condition** leading to lack of mental capacity is **unclear or unsure**
- When the **mental capacity of the donor is considered to be borderline**, after the doctor's assessment by the test of 'understand, retain, weigh and communicate'
- When there is **potential disagreement among the donor, donee(s) and other family members** about the appointment of donee(s), scope of decisions and the 'jointly/severally' manner of decision making

## CONCLUSION

An LPA can be very useful in respecting patients' autonomy after losing mental capacity, by delegating the power of decision making to someone they love and trust.

**Doctors are encouraged to be a Certificate Issuer of LPA to facilitate their patients in securing their autonomy for future decisions.** However, doctors need to be sensitive to the process when the patient has borderline mental capacity and complex family relationships.

## CASE STUDY

An 80-year-old man has been visiting your clinic for hypertension and diabetes. His daughter has noticed his poor memory state for a year. He was subsequently seen by a geriatrician who diagnosed that he has mild Alzheimer's disease. His MMSE score is 24/30.

The daughter suggests to make an LPA for the patient. You have known this patient for more than 10 years. He has four children and, in the past, you have heard from the patient about the disharmonies among his children about money.

***How should you proceed?***

Supplement: Various advance decisions in Singapore (AMD, LPA, ACP)

	Advance Medical Directive (AMD)	Lasting Power of Attorney (LPA)	Advance Care Planning (ACP)
<b>Made by</b>	Any person aged 21 and above and with mental capacity	Any person aged 21 and above and with mental capacity	Anyone
<b>What it is</b>	A legal document for the person to indicate that he/she does not wish to receive extraordinary life-sustaining treatment in the event of terminal illness, where death is inevitable and impending	A legal document for the person (the donor) to appoint and confer authority to one or more persons (the donee[s]) to make decisions and act on his/her behalf when the donor loses mental capacity	A process for the patient, family and healthcare staff to discuss care preferences for the future when the patient can no longer express his/her wishes
<b>Legality</b>	Legal document filed with the Ministry of Health (MOH)  Given effect by the Advance Medical Directive Act	Legal document filed with the OPG  Given effect by the Mental Capacity Act	Medical document kept in a case note and healthcare computer system
<b>Who is involved</b>	The person applies to the MOH. After the family informs the medical team, the medical team retrieves the document from MOH. Doctors will have to declare that the patient has a terminal illness.	The donor applies to the OPG. To be activated after the donor loses mental capacity and with a doctor's medical report. The donee(s) thereafter can make decisions and act on behalf of the donor.	The healthcare staff, patient and/or their family discuss the care preferences. This is documented in hard copy and in the computer system.
<b>When it is activated</b>	When the patient with terminal illness requires life-sustaining treatment (not including artificial nutrition) and is unable to exercise rational judgement.	When the donor loses mental capacity, which is indicated by the doctor's medical report.	When the patient loses mental capacity.

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**Dr Peter Chow Chiu Leung**

Consultant, SingHealth Duke-NUS Memory & Cognitive Disorder Centre;  
Department of Geriatric Medicine, Changi General Hospital

Dr Peter Chow Chiu Leung is a Consultant with the Department of Geriatric Medicine at Changi General Hospital (CGH). He runs the Memory Clinic with other geriatricians, psychiatrists and neurologists. He is a Certificate Issuer of Lasting Power of Attorney.

Dr Chow has a deep interest in medical law and ethics. He spent a year in Scotland in 2018/2019 and obtained a Master of Law (Medical Law and Ethics) from the University of Edinburgh, and has also been appointed as the Chairman of the Clinical Ethics Committee in CGH. He is currently doing research about the function of clinical ethics committees in Singapore and writing academic legal journal articles. Dr Chow is also a member of the teaching team at the Centre of Medical Ethics and Professionalism, Singapore Medical Association.



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# At the Fore of Innovation: Improving Clinical Outcomes for Borderline Resectable and Locally Advanced Pancreatic Cancer

## Assoc Prof Chan Chung Yip

Head & Senior Consultant,  
Dept of Hepato-pancreato-biliary  
and Transplant Surgery,  
Singapore General Hospital

## Dr Koh Ye Xin

Consultant,  
Dept of Hepato-pancreato-biliary  
and Transplant Surgery,  
Singapore General Hospital

## Dr Chua Weiquan Darren

Associate Consultant,  
Dept of Hepato-pancreato-biliary  
and Transplant Surgery,  
Singapore General Hospital

**With recent advancements in chemotherapeutics and surgical techniques, more patients with borderline resectable and locally advanced pancreatic cancers can now be considered for curative surgery. Find out the latest state-of-the-art clinical developments for borderline resectable and locally advanced pancreatic cancer.**

## EPIDEMIOLOGY OF PANCREATIC CANCER

Pancreatic cancer is currently the fourth leading cause of cancer-related death in the United States and among the top ten most common causes of cancer-related death among Singaporeans.

It is estimated that only 20% of patients are eligible for upfront curative resection at the time of presentation. The larger group of borderline resectable and locally

advanced pancreatic cancers had a much poorer outlook in the past.

**Over the years, improvements have been made to the chemotherapy regimens and surgical approach for the treatment of pancreatic cancer such that more of these patients now have a chance of cure of the disease.**



	Vascular Structure	Localised and Resectable	Borderline Resectable	Locally Advanced
<b>Pancreatic Head</b>	Arteries	No arterial abutment, clear fat plane with CA, CHA and SMA	CHA abutment or encasement; no extension to the celiac axis < 180 degree SMA, no CA encasement	> 180 degree abutment of SMA or any CA abutment Aortic invasion
	Veins	No venous abutment, clear fat plane with MPV and SMV	MPV or SMV encasement with reconstructible MPV or SMV	Unreconstructible MPV or SMV
<b>Pancreatic Body or Tail</b>	Arteries	No arterial abutment, clear fat plane with CA, CHA and SMA	< 180 degree SMA, or CA encasement	> 180 degree abutment of SMA or CA abutment
	Veins	No venous abutment, clear fat plane with MPV and SMV	Reconstructible MPV or SMV	Unreconstructible MPV or SMV

**Table 1** National Comprehensive Cancer Network guidelines on resectability criteria

**Legend:** CA: celiac axis, CHA: common hepatic artery, SMA: superior mesenteric artery, MPV: main portal vein, SMV: superior mesenteric vein

### DEFINITION OF BORDERLINE RESECTABLE AND LOCALLY ADVANCED PANCREATIC CANCER

Traditionally, borderline resectable and locally advanced pancreatic cancers, as defined by the International Study Group of Pancreatic Surgery and National Comprehensive Cancer Network (NCCN) to have varying degrees of vascular involvement, were deemed unresectable.

**However, patients with borderline resectable and locally advanced lesions can now be considered for curative surgery.**

### WHO WILL BENEFIT FROM THE SURGERY?

The evolution of multimodality treatment, including chemotherapeutic agents coupled with advanced surgical techniques, have rendered a select group of patients amenable to curative surgery for borderline resectable and locally advanced cancer.

These patients would have undergone **> 6 months of neoadjuvant chemotherapy with radiological evidence of stable disease**. In addition, patients with **favourable improvement of CA 19-9** and **preserved functional status** will stand to benefit from surgery.

### WHAT DOES THE SURGERY ENTAIL?

This surgery is possible with **advanced extended lymphadenectomy** (i.e., periadventitial lymphadenectomy and the TRIANGLE operation [clearance of the celiac artery, superior mesenteric artery and portal vein triangle]), **en bloc resection of involved vascular structures** and **advanced vascular reconstruction techniques**.

With continual refinements in surgical techniques and chemotherapeutics, patients with borderline resectable or locally advanced disease can look forward to treatment with potentially curative intent.

**“Patients with borderline resectable and locally advanced lesions can now be considered for curative surgery.”**



## CASE EXAMPLES

The following case examples depict how advancements in surgical techniques have made curative surgery possible for borderline resectable and locally advanced pancreatic cancer for more patients.

### Case A

Accessory right hepatic artery arising from the superior mesenteric artery (SMA). Tumour involvement of accessory anatomy was previously deemed unresectable.

In this setting, periadventitial dissection was necessary to achieve negative margins. Portal vein pictured is slung with a blue vessel loop.

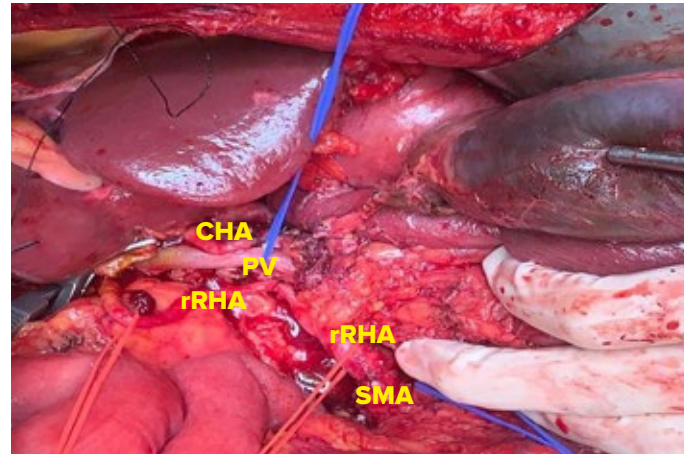


Figure 1

### Case B

Total pancreatectomy procedure with control of the superior mesenteric vein (SMV), portal vein (PV) and a major venous branch. The pancreatic adenocarcinoma was noted to have a segmental involvement of the SMV which was subsequently resected en bloc.

Segmental reconstruction was performed using a synthetic graft with reimplantation of the splenic vein. An alternative conduit for reconstruction involves harvesting an autologous deep femoral vein (see Figure 3).

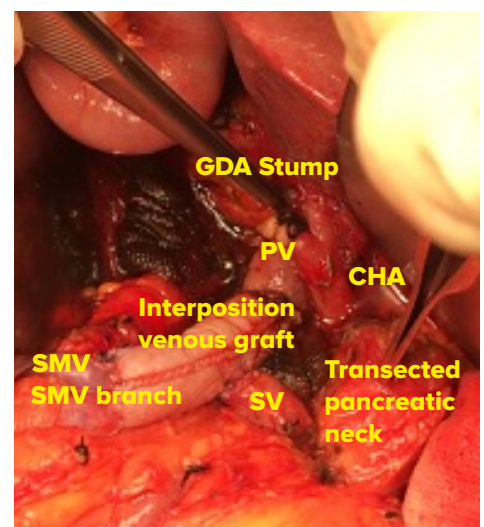
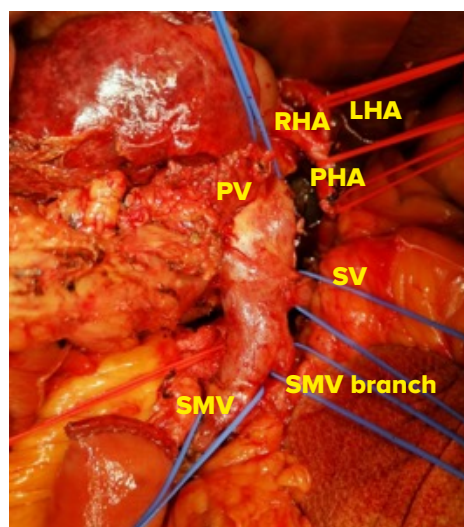
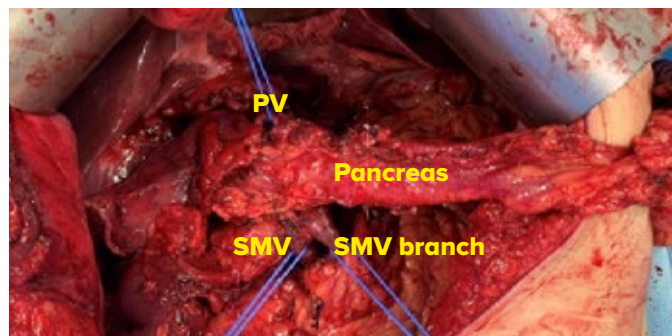


Figure 2

**LEGEND** CA: celiac axis, CHA: common hepatic artery, GDA: gastroduodenal artery, LHA: left hepatic artery, PHA: proper hepatic artery, PV: portal vein, RHA: right hepatic artery, rRHA: replaced right hepatic artery, SA: splenic artery, SMA: superior mesenteric artery, SMV: superior mesenteric vein

## CASE EXAMPLES

### Case C

**Operative view after extended lymphadenectomy (TRIANGLE operation).** Reconstruction performed with autologous deep femoral vein panel graft (top) prepared for an interposition venous graft (bottom). TRIANGLE depicts the borders: portal vein (PV), celiac axis (CA), superior mesenteric artery (SMA).

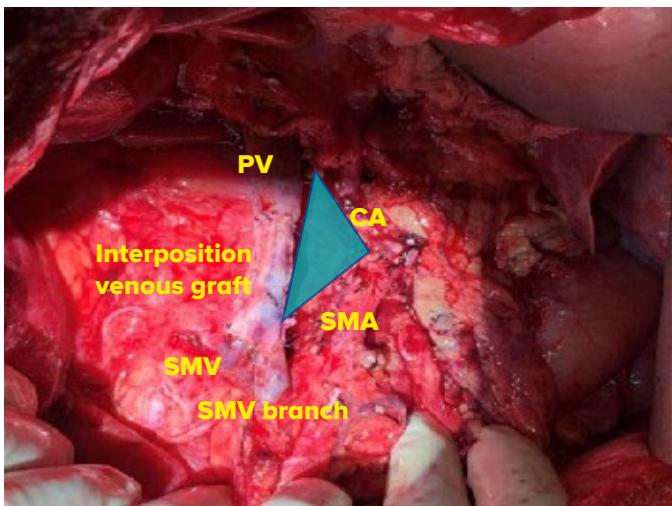
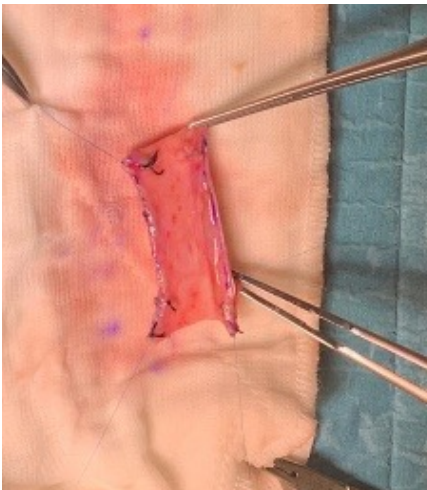


Figure 3

### Case D

Multifocal pancreatic adenocarcinoma of the head and the tail with common hepatic artery encasement (*Figure 4, top*).

**This patient underwent neoadjuvant chemotherapy, curative total pancreatectomy, and extended lymphadenectomy (TRIANGLE operation) segmental portal vein resection.**

These tumours often elicit a desmoplastic (fibrotic) response that renders dissection challenging. Periadventitial vascular dissection and radical lymphadenectomy is necessary to achieve negative margins (*Figure 4, bottom*).

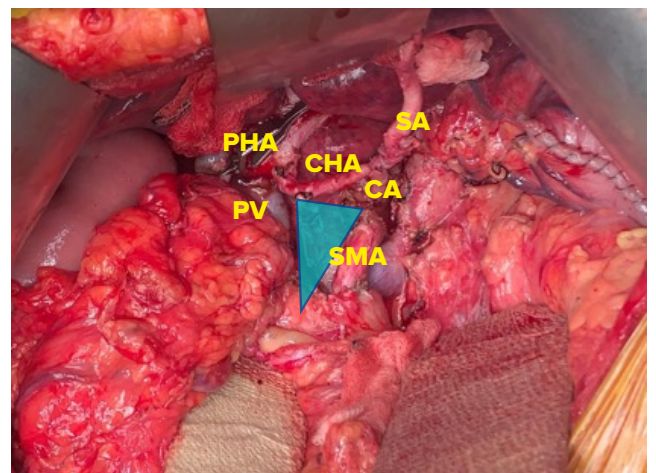
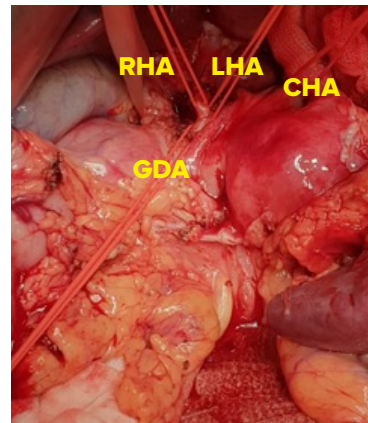


Figure 4

**LEGEND** CA: celiac axis, CHA: common hepatic artery, GDA: gastroduodenal artery, LHA: left hepatic artery, PHA: proper hepatic artery, PV: portal vein, RHA: right hepatic artery, rRHA: replaced right hepatic artery, SA: splenic artery, SMA: superior mesenteric artery, SMV: superior mesenteric vein



**Assoc Prof Chan Chung Yip**

*Head & Senior Consultant, Department of Hepato-pancreato-biliary and Transplant Surgery, Singapore General Hospital*

Associate Professor Chan Chung Yip is a Senior Consultant Surgeon and is the current Head of Department. He graduated from the Faculty of Medicine at the National University of Singapore in 1997. He completed his training in General Surgery in 2006 and received further training in liver surgery and transplantation in Kaohsiung, Taiwan as well as in laparoscopic hepatobiliary and pancreatic surgery in Seoul, Korea.

He is a pioneer in laparoscopic surgery of the liver, pancreas and bile duct in Singapore, and is a leader in its adoption amongst other surgeons in the country and region. He is a Ministry of Health-gazetted liver transplant surgeon, and is a lead surgeon of the living donor liver transplant programme in the hospital.



**Dr Koh Ye Xin**

*Consultant, Department of Hepato-pancreato-biliary and Transplant Surgery, Singapore General Hospital*

Dr Koh Ye Xin is a Consultant at the Department of Hepato-pancreato-biliary and Transplant Surgery in Singapore General Hospital and a member of the Singapore Hepato-Pancreato-Biliary Association (HPBA-S). Dr Koh serves as the Co-Chairman of the Quality Improvement Committee of the Surgery Academic Clinical Programme.

Dr Koh graduated from the SingHealth General Surgery Residency Programme and the Singapore Chief Residency Programme from the Healthcare Leadership College. Dr Koh is a Fellow of the Royal College of Surgeons, Edinburgh and holds a Master of Medicine (Surgery). He was the Asia-Pacific awardee of the Japan Hepato-Pancreato-Biliary Society observership to Hokkaido University for training in advanced hepato-pancreato-biliary malignancy. He was a senior clinical fellow in Abdominal Transplantation at Cambridge University, Addenbrookes hospital, focusing on multivisceral and intestinal transplantation.



**Dr Chua Weiquan Darren**

*Associate Consultant, Department of Hepato-pancreato-biliary and Transplant Surgery, Singapore General Hospital*

Dr Darren Chua is an Associate Consultant at the Department of Hepato-pancreato-biliary and Transplant Surgery at Singapore General Hospital. He obtained his MBBS (Hons) from the Yong Loo Lin School of Medicine, National University Singapore (NUS) in 2015 and completed his training with the SingHealth General Surgery Residency Programme in 2020. During his training, he also obtained his Masters of Medicine (Surgery) from NUS and was admitted as a fellow to the Royal College of Surgeons, Edinburgh. Dr Chua is an aspiring researcher and will embark on his Master of Clinical Investigation at NUS. He hopes to be able to pursue a PhD someday.



GP Appointment Hotline: **6326 6060**

GPs can scan the QR code for more information about the department.



# Rezum: A Minimally Invasive Option for Benign Prostatic Hyperplasia

**Dr Teo Jin Kiat**

Senior Consultant, Department of Urology,  
Changi General Hospital

**Benign prostatic hyperplasia can often be managed effectively by GPs through medication review and lifestyle advice, though surgery may be considered in some cases. Find out more about the treatments available – including Rezum, a safe and effective minimally invasive surgical option.**

## INTRODUCTION

Benign prostatic hyperplasia (BPH) is a common condition affecting men above the age of 50. In BPH, the enlargement of the prostate gland results in lower urinary tract symptoms (LUTS), which are categorised into voiding and storage symptoms. Voiding symptoms include hesitancy, slow flow, intermittency and the sensation of incomplete voiding while storage symptoms include frequency, urgency and nocturia.

### Areas of concern

The main concern for many men complaining of LUTS is prostate cancer. However, other concerns include the effect that BPH has on their quality of life and the possibility that it could be the cause of complications involving acute urinary retention.

While BPH has traditionally been managed in secondary care, the current availability of medical treatments means that **the condition can now be managed effectively and safely in primary care.**

**For patients facing LUTS, GPs need to provide reassurance, appropriate lifestyle advice and a review of their medication and existing treatments.**

## TREATMENT TYPES

The various treatments commonly used to treat BPH include watchful waiting, medications and surgical options. *Table 1* shows the different suggested treatments for the various clinical BPH stages.

Stage	Significant Obstruction*	Bothersome Symptoms <sup>†</sup>	Suggested Treatment
I	Absent	Absent	Watch and counsel
II	Absent	Present	Medical treatment
III	Present	Irrespective	Surgical options
IV	Complications of clinical BPH	Complications of clinical BPH	Surgery

\* Defined as persistent post-void residual urine volume > 100 ml or maximum voided volume < 100 ml.

<sup>†</sup> Quality of life score ≥ 3.

**Table 1** Classification of severity of clinical BPH and suggested treatment by stage

Source: Singapore Urological Association clinical guidelines for male lower urinary tract symptoms/BPH

## A Watchful waiting

Watchful waiting is suitable for patients with low-stage BPH. Those with no uncomfortable symptoms and no high post-void residual urine (PVRU) are ideal for watchful waiting.

**Lifestyle adjustments will be recommended**, such as the restriction of caffeine, alcohol and evening fluid intake, as these may improve storage symptoms such as urgency and nocturia.

## B Medications

### • **Alpha-1 antagonists**

These block the alpha-1 receptors in the prostatic urethra and around the bladder neck, resulting in a decrease in smooth muscle tone, thus reducing the dynamic component of prostatic obstruction.

#### **Benefits**

Alpha-1 antagonists improve the International Prostate Symptom Score (IPSS) by 30-40% and the flow rate by 20-25%. However, they do not prevent the progression of BPH. Patients usually experience the full therapeutic effect of alpha-1 antagonists within one week.

#### **Side effects**

However, there may be side effects such as postural dizziness and hypotension, which may lead to falls among elderly patients. Patients may also experience symptoms such as nasal congestion and abnormal ejaculation.

### • **5-alpha reductase inhibitors**

These block the conversion of testosterone to dihydrotestosterone, resulting in prostatic epithelial atrophy. This results in a decrease in prostatic volume, thus reducing the static component of prostatic obstruction.

Patients often experience full therapeutic effects only after six months of treatment and the efficacy is more pronounced in those with larger prostatic volumes. For prostatic volumes of less than 30 g, the efficacy is minimal.

#### **Benefits**

They have been shown to prevent BPH progression and decrease the incidence of acute urinary retention and BPH-related surgery for up to four years.

#### **Side effects**

The side effects include decreased libido, erectile dysfunction and gynaecomastia.

### • **Combination therapy with alpha-1 antagonist and 5-alpha reductase inhibitor**

Combination therapy can be considered among patients with prostate volumes of more than 30 g and who do not respond well to alpha-1 antagonist monotherapy.

#### **Benefits**

Combination therapy has the benefits of rapid onset of symptomatic relief by an alpha-1 antagonist and prevention of BPH progression by a 5-alpha reductase inhibitor.

#### **Side effects**

Side effects may also be more significant than monotherapy with either medication.

### • **Phosphodiesterase-5 inhibitors**

Tadalafil 5 mg daily may be considered for men with concomitant erectile dysfunction and uncomfortable LUTS.

## C Surgical options

The main considerations for surgery would include patients who have stage IV BPH and failed medical therapy (persistent uncomfortable symptoms despite medications or side effects from medications).

For surgical options, transurethral resection of prostate (TURP) has been considered as the gold standard. Although TURP is extremely effective in alleviating patients' bladder outlet obstruction, it has common side effects and complications such as bleeding and sexual dysfunction (retrograde ejaculation).

## MINIMALLY INVASIVE SURGICAL TREATMENT – REZUM

Minimally invasive surgical treatments (MISTs) have been developed to reduce the morbidity of TURP and yet achieve good clinical outcomes in terms of improving patients' LUTS. One of the newest MISTs is Rezum.

Rezum employs a technology to convectively deliver to prostate tissue stored thermal energy in the form of water vapour (steam) created with radiofrequency current to produce instantaneous cell death in the targeted prostatic tissue.



Delivery of targeted convective water vapour energy to the region of the prostate gland causing the obstruction  
*Reproduced with permission from Boston Scientific website bostonscientific.com*

### BENEFITS OF REZUM

In a randomised-controlled study by McVary et al., Rezum showed a **significant improvement in LUTS** (IPSS Score 47%, quality of life (QoL) 43%, Qmax 50%, Benign Prostatic Hyperplasia Impact Index 52%) through four years.

The **re-treatment rate was also found to be low** at 4.4% in four years.

#### Preservation of ejaculatory function

One major benefit of Rezum treatment is the ability to preserve ejaculatory function, which can be lost after TURP surgery.

This is especially important for younger men who require surgical therapy but would want to preserve their sexual functions. There is also less haematuria compared to post-TURP.

#### Convenience

- Rezum is also beneficial for patients who are not keen on long-term medications with their resultant side effects.
- It may also be more cost-effective than taking long-term medications.

- As this transurethral procedure takes only about 15 minutes and can be performed as a day surgery procedure, it obviates the need for overnight hospitalisation stays, which would otherwise be necessary for TURP surgeries.
- It can be done under general/regional anaesthesia and even with sedation or prostate block. Thus, this procedure may be suitable for patients who are not surgically fit for TURP.

#### Faster recovery

After the Rezum procedure, patients need to be on a urinary catheter for 7-10 days.

Most patients will be able to **return to their normal activities after one to two weeks** and will experience **relief of symptoms one to three months after** the procedure.

*In the initial experience at Changi General Hospital (CGH), Rezum has shown to be a safe and effective procedure, improving patients' LUTS. Patients who have undergone Rezum treatment have significant improvements in flow rate and symptom score, with no major side effects.*

### WHO CAN BE RECOMMENDED FOR REZUM

Rezum, being a minimally invasive surgical treatment, is a possible option for patients who:

- Have failed medical therapy
- Are not keen on long-term medications
- Are not comfortable with the invasiveness or side effect of sexual dysfunction that comes with TURP surgery

At the primary care level, patients who fit this profile can be recommended to choose Rezum as an option.

## CASE STUDY

### Background and medications

Mr S is a 74-year-old with BPH who has been on medications since 2016. He has tried an alpha blocker medication (Terazosin) which caused him to have abnormal ejaculation. He has also taken finasteride which resulted in him having lethargy, low mood, decreased libido and erectile dysfunction. After stopping finasteride, the above-mentioned symptoms disappeared. He has also tried another alpha blocker medication (Tamsulosin) which improved his urinary symptoms.

He had missed his follow-up appointments for a few years and had consulted another urologist as he was experiencing giddiness after taking Tamsulosin. After stopping the medication, he had LUTS.

He was offered surgical treatment (TURP), however he was not keen to undergo TURP due to the risks of haematuria and effects on his sexual health. He was interested in the Rezum procedure but it was not available in Singapore at the time.

### Referral to CGH Urology specialists

He was then referred to the Urology specialist outpatient clinic at CGH in November 2020. He had

experienced inconvenient LUTS of poor stream, incomplete emptying, terminal dribbling, urinary frequency, urgency and nocturia of five times per night. His prostate size was noted to be 48 ml with mild intravesical prostatic protrusion. His IPSS was 31/35 and QoL score was 6/6. His uroflowmetry showed a slow peak flow rate of 10.3 ml/s with a high PVRU volume of 155 ml.

### Positive outcomes

He underwent the Rezum procedure in January 2021 after the procedure was introduced in Singapore.

There was no postoperative haematuria and his urinary catheter was removed six days after surgery. After removal of the urinary catheter, he reported that his urinary stream was good.

At about seven weeks post-Rezum, his urinary symptoms had improved significantly. His IPSS was 8/35, and QoL was 1/6. He reported that his urinary stream was very fast and his nocturia had decreased to one to two times per night. His peak flow rate was 13.7 ml/s (about 30% improvement) and had minimal PVRU volume of 27 ml.



### Dr Teo Jin Kiat

Senior Consultant, Department of Urology,  
Changi General Hospital

Dr Teo Jin Kiat is a Senior Consultant Urologist with the Department of Urology at Changi General Hospital. Aside from general urological diseases, his specialty interests include endourology and minimally invasive surgical techniques in the management of urinary stone disease and urologic cancers. Dr Teo is also actively involved in undergraduate and postgraduate medical education.

GPs who would like more information about this procedure, please contact Dr Teo at [teo.jin.kiat@singhealth.com.sg](mailto:teo.jin.kiat@singhealth.com.sg).



GP Appointment Hotline: **6788 3003**

GPs can scan the QR code for more information about the department.



# Managing Obesity in Primary Care

## Dr Sonali Ganguly

*Director, Obesity Centre;  
Senior Consultant, Department of Endocrinology,  
Singapore General Hospital*

## Dr Lee Phong Ching

*Consultant, Department of Endocrinology,  
Singapore General Hospital*

**GPs are well placed to manage obesity together with all its attendant chronic medical conditions. Find out how the Singapore General Hospital Obesity Centre can work with you on complex cases to provide the best care possible for your patients.**

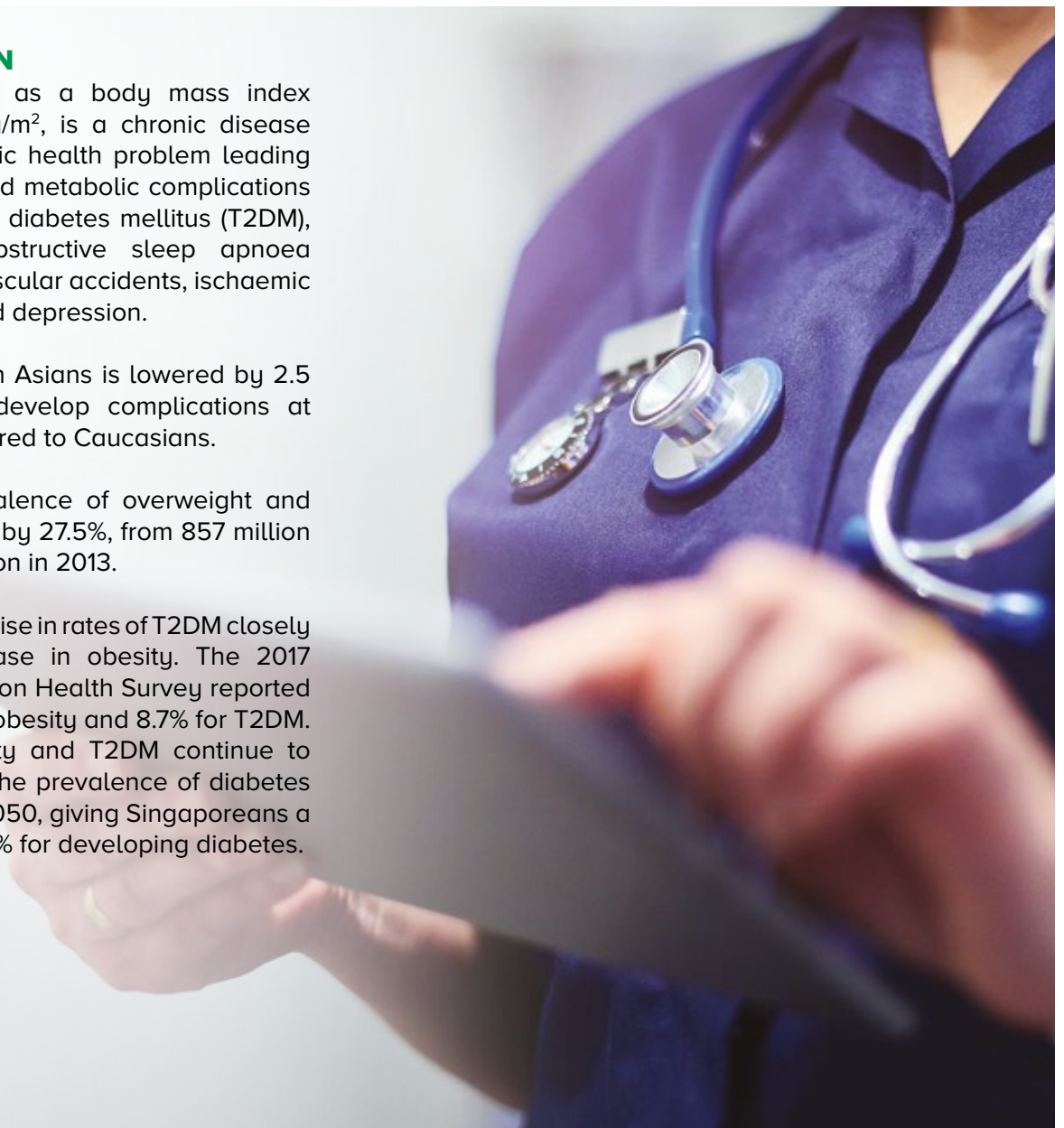
## INTRODUCTION

Obesity, defined as a body mass index (BMI) of  $\geq 30$  kg/m<sup>2</sup>, is a chronic disease and serious public health problem leading to mechanical and metabolic complications – such as type 2 diabetes mellitus (T2DM), hypertension, obstructive sleep apnoea (OSA), cerebrovascular accidents, ischaemic heart disease and depression.

The BMI cut-off in Asians is lowered by 2.5 kg/m<sup>2</sup> as they develop complications at lower BMI compared to Caucasians.

The global prevalence of overweight and obesity has risen by 27.5%, from 857 million in 1980 to 2.1 billion in 2013.

In Singapore, the rise in rates of T2DM closely tracks the increase in obesity. The 2017 National Population Health Survey reported rates of 8.9% for obesity and 8.7% for T2DM. If rates of obesity and T2DM continue to rise unchecked, the prevalence of diabetes may hit 15% by 2050, giving Singaporeans a lifetime risk of 44% for developing diabetes.





## CASE STUDIES

### Background

A 61-year-old Malay woman was seeing her general practitioner (GP) for the management of hypertension, migraines, osteopenia and osteoarthritis (OA) of the knee.

Her GP referred her to orthopaedics for OA knees and she was counselled that weight loss would help with her knee pain. Her GP then referred her to the **Singapore General Hospital (SGH) Obesity Centre** where she initially saw the Endocrinologist and Dietitian.

At the **Endocrinologist** visit, it was noted that her blood pressure (BP) was well controlled and that she was on regular follow-up with her own GP. She was deemed fit for exercise and therefore referred to the Physiotherapist.

The **Dietitian** noted that the patient was following a low-calorie diet, however had been unsuccessful in losing weight. She was advised to try meal replacements and was started on one meal replacement a day for breakfast.

The **Physiotherapist** did a fitness assessment, prescribed the patient an exercise programme and advised her to come once a week for a supervised exercise session at the Lifestyle Improvement and

Fitness Enhancement (LIFE) Centre gym on the 4<sup>th</sup> level at Outram Community Hospital.

### Patient Outcomes

The patient was compliant with all recommendations and came back for follow-up three months later. It was noted that she had reduced her weight by 3 kg. She was happy with her progress, however wanted to lose more weight.

She was motivated and keen to embark on a very low-calorie diet (VLCD), which consists of three meal replacements a day to achieve a total daily energy intake of < 800 kcal per day. She was warned about the potential side effects of hunger, dizziness, headaches, cold intolerance and constipation.

She felt better after five days on the diet and managed to lose another 5 kg after four weeks of VLCD.

Her GP noted that her **BP had improved** and she was able to stop her BP medication. She also managed to **transition from VLCD to a healthy lower-calorie diet** and **maintain her weight loss**. She also **continued her exercise** on her own and attended the supervised exercise sessions at the LIFE gym once or twice weekly.

## TREATMENT OPTIONS BY GPs

**Pharmacotherapy** is one of the treatment modalities used by GPs and endocrinologists for managing obesity. **Medications can be initiated as adjuvant therapy together with lifestyle modification** to kick-start patients' weight loss, when lifestyle changes have not been effective or sustainable in losing weight.

Pharmacotherapy can be considered for patients who are averse to invasive procedures or surgeries.

## WHEN TO REFER FOR SPECIALIST CARE

Patients suffering from **obesity (BMI  $\geq$  27.5 kg/m<sup>2</sup>) and other associated metabolic conditions can be referred** to the SGH Obesity Centre for comprehensive management.

The multidisciplinary team at the SGH Obesity Centre consists of endocrinologists, surgeons, gastroenterologists, dietitians, physiotherapists, psychologists, pharmacists, specialty nurses and clinical coordinators. We use evidence-based integrated approaches to help people with obesity lead a healthier lifestyle and in the process, achieve sustained weight loss, weight maintenance and improved health for themselves.

## TREATMENT OPTIONS BY SPECIALISTS

### Medical weight loss (Endocrinologists)

As mentioned, **pharmacotherapy** is one of the treatment modalities used by endocrinologists for managing obesity. There are a few different medication options available in Singapore which can result in a weight loss of between 3-10%.

After obtaining a thorough medical history from the patients, the Endocrinologist will discuss the different pharmacotherapy options with them. Based on their medical history and personal preferences, a mutual decision will be made about the best treatment option for each particular patient.

Medications can also be used postoperatively if patients are struggling with inadequate weight loss and/or weight regain.

### Metabolic bariatric surgery\* (Bariatric Surgeons)

Surgical intervention should be recommended for a subset of patients who **are unable to lose weight through medical and lifestyle interventions**.

Surgery is medically indicated if a patient's BMI is:

- $\geq 37.5$  without comorbidities (Class III obesity), or
- $\geq 32.5$  (Class II obesity) with comorbidities such as diabetes, hypertension, hyperlipidaemia and OSA.

Weight loss through metabolic bariatric surgery can lead to significant improvement in these metabolic disorders.

### Endoscopic bariatric procedures\* (Gastroenterologists)

Endoscopic procedures such as insertion of gastric balloons and endoscopic gastroplasty can be considered **for patients whose BMI is  $\geq 27.5$  to  $\leq 32.5$** .

*\*Patients will be assessed for their suitability for a surgery/procedure by the multidisciplinary team.*

## ALLIED HEALTH / LIFESTYLE MODIFICATIONS

### Dietitians

Dietary management includes individual consultation with a dietitian to better understand the individual's current dietary habits. Patients are taught to **lose weight by quantifying food and energy intake whilst**

**having an individually-tailored balanced diet plan.** Realistic goals for weight loss/management are set, together with the identification of barriers to healthy eating and strategies to overcome them.

### Physiotherapists

Physiotherapists support the individual's weight management goals with safe and effective exercise sessions for a healthier lifestyle. A detailed fitness assessment will be conducted by a physiotherapist for an **individually-tailored exercise prescription**. Physiotherapists can also provide professional supervision during the exercise sessions to ensure correct technique and safety.

### Psychologists

Psychologists help in maximising the success of weight loss by guiding individuals to **develop healthier eating behaviours, and manage lifestyle changes and stress** that might hinder their weight loss efforts.

They also help patients identify their motivation to change, leading to sustained improvements and improving their quality of life. Psychologists are crucial in supporting patients who find it extremely difficult to adjust and cope with lifestyle changes that are needed for their weight loss.

### Pharmacists

Pharmacists review postoperative patients who are well with stable chronic medical conditions and nutritional status together with the endocrinologist and advanced practice nurse (APN). They can **prescribe supplements and long-term medications** for patients based on blood test results and parameters. They **educate patients** on the usage and need for medications and supplements.

### Specialty Nurses

Nurses **provide counselling perioperatively** for patients in clinics and wards. They build rapport with patients and manage their care with the multidisciplinary team to improve long-term health outcomes.

### Clinical Coordinators

Coordinators vet and manage new referrals to the Obesity Centre. They also manage stable patients in coordinator clinics for weight management.

## THE SGH OBESITY CENTRE

### A track record of excellence

Weight management services have been offered at SGH since the 1990s. However, in the early days, these patients were seen by physicians in endocrinology clinics and then referred to ad-hoc sessions with dietitians and/or physiotherapists on different days and at alternate sites.

In 2006, obesity services were consolidated in the Diabetes Centre where patients could have concurrent sessions with an endocrinologist, dietitian and coordinator. Subsequently, the LIFE Centre was officially opened by the then Minister of Health, Mr Khaw Boon Wan, on 18 February 2008 as a centre where both the obesity and eating disorder services were offered in SGH.

Coordinated multidisciplinary care is paramount to the care of a patient suffering from obesity. LIFE Centre set the standard with a one-stop service for the management of patients with obesity, with a dedicated team of physicians, dietitians, physiotherapists and psychologists.

### Setting standards in obesity care

Inducted in February 2020, the **SGH Obesity Centre** enables the hospital to fulfil our national role as the nation battles with the increasing prevalence of obesity and its related diseases. The established Centre extends the good work done by the previous Obesity and Metabolic Unit (OMU) housed in LIFE Centre.

**The SGH Obesity Centre strives to be at the forefront of innovative obesity care and provides holistic treatment for patients suffering from obesity.**

Committed to providing a one-stop service for patients, the Centre houses a dedicated team of clinicians (endocrinologists, bariatric surgeons and gastroenterologists), nurses and allied health professionals (AHPs) to provide coordinated multidisciplinary care for obese patients.

This allows the team to extend holistic clinical services to patients (from lifestyle modification, to weight loss pharmacotherapy and bariatric surgery) and further treat complex cases as a united multidisciplinary team.



## GPs Role in Treatment

### Pre-care

GPs in Singapore are well placed to manage metabolic diseases associated with obesity. A subset of more complex patients may require the multidisciplinary care that the SGH Obesity Centre offers.

**If GPs feel that their patients require a more focused and comprehensive approach to managing obesity, they may refer them to the SGH Obesity Centre for further management.**

### Ongoing care

The specialists in the Centre welcome collaboration with the patients' GPs to provide the best care possible.

Patients may choose to continue follow-up with their GP for the management of chronic medical conditions such as diabetes, hypertension and hyperlipidaemia. These patients often continue to do their usual lab tests and receive medications at their GP, and thus only see the Centre's specialists once annually. The patients then undergo scheduled follow-up with the

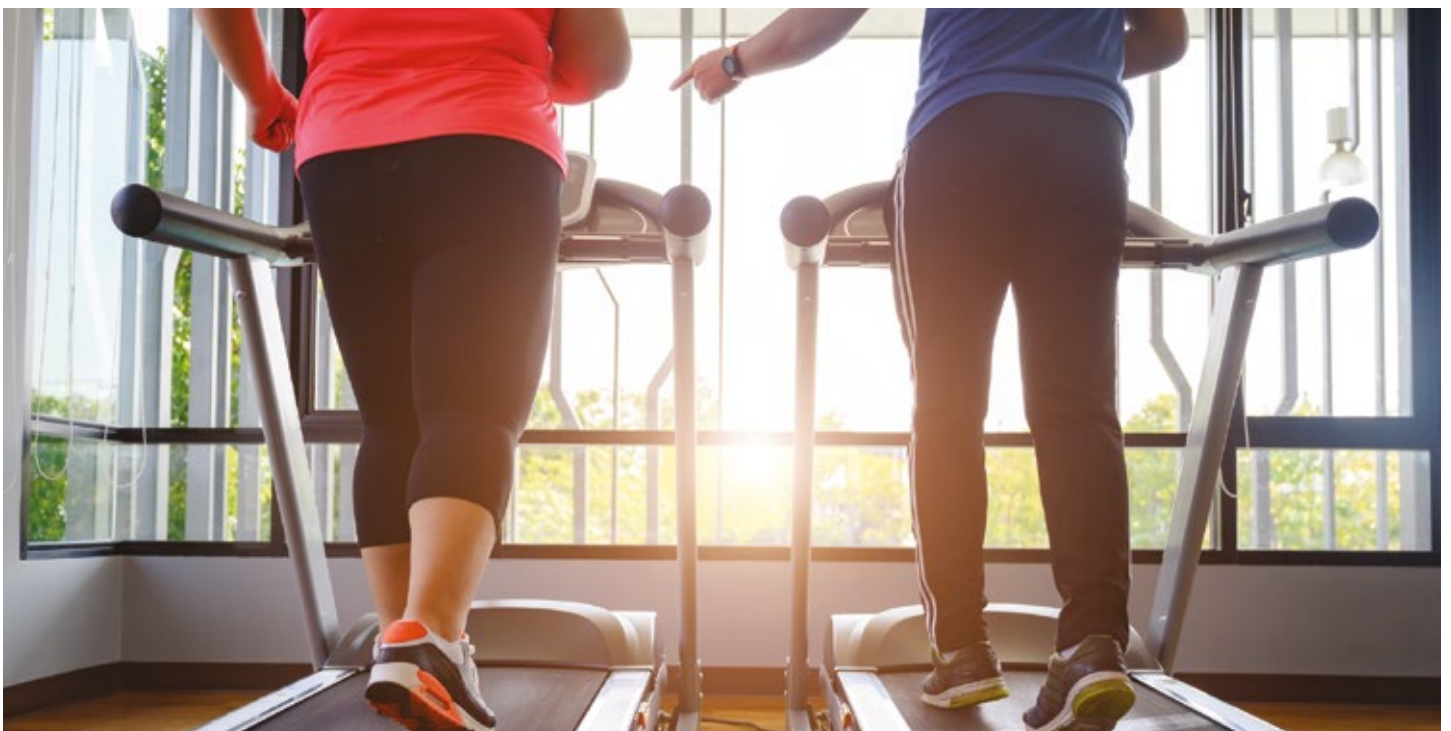
AHPs at the Centre, while they continue to see their own GP at regular intervals.

### Post-care and shared care

Once a patient has achieved his or her weight loss goal, he or she can be discharged from the Centre. They can then follow up with their own GP for weight maintenance and other medical issues. However, they can choose to see the specialist on an annual basis to 'check in'. They may also choose to continue seeing the AHPs as needed.

Most bariatric surgery patients follow up with the SGH Obesity Centre's specialists at regular intervals for the first two years after surgery. After this, they often may only come in for an annual visit and see their own GP for weight maintenance and other medical issues.

However, if patients need more specialised care, they may continue to see one or more specialists at the Centre and the patients' GPs are updated regularly through correspondence letters.





**Dr Sonali Ganguly**

*Director, Obesity Centre;  
Senior Consultant, Department of Endocrinology,  
Singapore General Hospital*

Dr Sonali Ganguly obtained her Bachelor of Science from Duke University in 1997 and her Doctor of Medicine from West Virginia University School of Medicine in 2001. In 2004, she completed her training in Internal Medicine at Thomas Jefferson University Hospital in Philadelphia, USA. She then did a clinical fellowship in Endocrinology, Diabetes, and Metabolism at the University of Pittsburgh Medical Center in Pittsburgh, USA.

Dr Ganguly is double-board certified in Internal Medicine and Endocrinology, Diabetes, and Metabolism by the American Board of Internal Medicine. She is a Senior Consultant with the Department of Endocrinology and the Director of the Obesity Centre at Singapore General Hospital. She also serves as an Assistant Professor at Duke-NUS Medical School in Singapore. Her main interests are in obesity and diabetes.

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**Dr Lee Phong Ching**

*Consultant, Department of Endocrinology,  
Singapore General Hospital*

Dr Lee Phong Ching is a Consultant Endocrinologist at Singapore General Hospital. In 2016, he spent a year-long clinical fellowship at the Baker Heart and Diabetes Institute in Melbourne, with a focus on clinical obesity research and management.

His area of clinical interest is in obesity and its clinical, psychological and social impact on health and is well published in this field.



GP Appointment Hotline: **6326 6060**

GPs can scan the QR code for more information about the Centre.





# Defining Integrated Care for Obesity: SGH Obesity Centre

Overweight and obesity have become serious public health issues worldwide. Research has shown that being overweight or obese increases one's risk of developing many chronic illnesses such as diabetes and cardiac diseases. Adopting a healthy lifestyle to achieve meaningful weight loss can significantly reduce the risk of developing these diseases.

The Singapore General Hospital (SGH) Obesity Centre was formed to bring together healthcare professionals across disciplines to cater to these needs.

## ABOUT THE SGH OBESITY CENTRE

The SGH Obesity Centre uses evidence-based integrated approaches to help people with obesity lead a healthier lifestyle and, in the process, achieve sustained weight loss, weight maintenance and improved health for themselves.

The Centre's multidisciplinary team consists of endocrinologists, surgeons, gastroenterologists, dietitians, physiotherapists, psychologists, pharmacists, specialty nurses and clinical coordinators – all of whom play an important role in holistic patient care.

## Our Services

- Medical Weight Loss
- Metabolic Bariatric Surgery
- Endoscopic Bariatric Procedures
- Allied Health / Lifestyle Interventions
- Bariatric Support Group

## SHARED CARE WITH GPs

We welcome the opportunity to co-manage patients with general practitioners (GPs), who remain central to their care.

It is common for patients to see the dietitians, physiotherapists and psychologists at the Centre, while continuing to follow up with their GPs for chronic medical conditions. Patients who have their own GP may also only see the Centre's endocrinologists once or twice yearly, to check on their weight loss progress.

## How GPs Can Refer

### GP REFERRAL CRITERIA

#### OBESITY MANAGEMENT

Patients **MUST** have/be:

- Willing to commit to at least 12 weeks of obesity treatment
- Motivated to make lifestyle changes and willing to participate in moderately intensive physical activity
- BMI  $\geq 27.5$  kg/m<sup>2</sup>

**OR**

- BMI  $\geq 23.5$  kg/m<sup>2</sup> with ANY of the comorbid conditions below:
  - ▶ Type 2 diabetes mellitus or impaired fasting glucose, impaired glucose tolerance, history of gestational diabetes mellitus
  - ▶ Coronary heart disease, hypertension
  - ▶ Dyslipidaemia (low HDL / high LDL / high triglyceride)
  - ▶ Obstructive sleep apnoea (diagnosed)
  - ▶ Fatty liver with abnormal liver function tests
  - ▶ Osteoarthritis (knees, back)
  - ▶ Polycystic ovarian syndrome

## THE REFERRAL PROCESS

### Referrals are faxed in from:

- Intra-department at SGH
- GPs
- Polyclinics
- Health Promotion Board
- Restructured hospitals
- Private specialists
- Specialist centres

Vetting is conducted by clinical coordinators before an appointment is made

Patients will be notified of their appointments via SMS and appointment letter (by post only)

Patients can expect to have at least two appointments with the multidisciplinary team at the Obesity Centre

### LIPID DISORDER MANAGEMENT

- Patient intolerant of lipid medication
- Patient not achieving targets with usual lipid medication

### BARIATRIC SURGERY

- BMI  $\geq 37.5$  kg/m<sup>2</sup>

**OR**

- BMI  $\geq 32.5$  kg/m<sup>2</sup> with ANY of the comorbid conditions listed

### BARIATRIC – ENDOSCOPIC MANAGEMENT

- BMI  $\geq 27.5$  kg/m<sup>2</sup> to  $\leq 32.5$  kg/m<sup>2</sup> with or without the comorbid conditions listed

**OR**

- Patient with obesity not fulfilling criteria/ unwilling for bariatric surgery

To refer a patient, please contact the SGH Obesity Centre at:

Tel: 6326 6060 | Fax: 6513 8996

Email: [obesitycentre@sgh.com.sg](mailto:obesitycentre@sgh.com.sg)

For more information, scan the QR code.



## Our Doctors

### Director & Senior Consultant

**Dr Sonali Ganguly**

Dept of Endocrinology, SGH

### Senior Consultants

**Dr Tan Hong Chang**

Dept of Endocrinology, SGH

**Dr Emily Ho**

Dept of Endocrinology, SGH

**Dr Chan Weng Hoong**

Dept of Upper Gastrointestinal & Bariatric Surgery, SGH

**Dr Jeremy Tan**

Dept of Upper Gastrointestinal & Bariatric Surgery, SGH

**Dr Alvin Eng**

Dept of Upper Gastrointestinal & Bariatric Surgery, SGH

**Dr Eugene Lim**

Dept of Upper Gastrointestinal & Bariatric Surgery, SGH

### Consultants

**Dr Lee Phong Ching**

Dept of Endocrinology, SGH

**Dr Lim Chin Hong**

Dept of Upper Gastrointestinal & Bariatric Surgery, SGH

### Associate Consultants

**Dr Kovalik Jean-Paul**

Dept of Endocrinology, SGH

# Multidisciplinary Dementia Care and Support for the Patient Journey: The SingHealth Duke-NUS Memory & Cognitive Disorder Centre

## ABOUT THE MEMORY & COGNITIVE DISORDER CENTRE

Dementia is a complex condition that requires holistic, multidisciplinary treatment and support from a range of specialties at different stages of the condition.

To facilitate this, the SingHealth Duke-NUS Memory & Cognitive Disorder Centre (Memory & Cognitive Disorder SDDC) is a network that brings together the strengths and expertise of healthcare professionals from different specialties across SingHealth, including:

- Community Care
- Geriatric Medicine
- Internal Medicine
- Neurology
- Primary Care
- Psychiatry

## RESEARCH AND INNOVATION

The SDDC's research spans from basic and clinical sciences to the study of the dementia landscape in Singapore.

To monitor the effectiveness of care and outcomes, the SDDC will be establishing a joint registry of dementia patients under the care of SingHealth institutions. It will capture anonymised data including demographics, dementia diagnoses, medication and other factors such as pre-existing conditions. These will be analysed to study trends, risk factors and patient outcomes to improve the delivery of dementia care.

## EDUCATION

With the myriad of specialties involved in dementia care, it can be difficult for healthcare professionals and caregivers to keep up-to-date. To facilitate greater sharing and collaboration, the Memory & Cognitive Disorder SDDC held its first scientific meeting in 2020. It brought together researchers and specialists from SingHealth institutions to share the latest in dementia diagnosis and management.

The meeting focused not only on the latest clinical updates, but also provided caregivers and healthcare professionals with practical information on caring for someone with dementia.

The second Memory & Cognitive Disorder SDDC Scientific Meeting is scheduled for September 2021, with more details available soon at [www.singhealth.com.sg/memory-and-cognitive-disorder-centre](http://www.singhealth.com.sg/memory-and-cognitive-disorder-centre).





## Our Services

### Conditions treated include:

- Alzheimer's disease
- Frontotemporal dementia
- Lewy body and Parkinson disease dementia
- Mild cognitive impairment
- Rare forms of dementia (e.g., posterior cortical atrophy)
- Vascular dementia

### Services include:

- Cognitive evaluation
- Dementia counselling
- Neuroimaging (MRI and CT scans)
- Pharmacological treatments

For GP referrals, please contact the SingHealth Duke-NUS Memory & Cognitive Disorder Centre:

**Singapore  
General Hospital**  
6326 6060

**Changi  
General Hospital**  
6788 3003

**Sengkang  
General Hospital**  
6930 6000

**National Neuroscience  
Institute**  
6330 6363

Website: [www.singhealth.com.sg/memory-and-cognitive-disorder-centre](http://www.singhealth.com.sg/memory-and-cognitive-disorder-centre)

## Our Executive Committee

### Head

**Dr Simon Ting Kang Seng**

Senior Consultant,  
Dept of Neurology, NNI

### Deputy Head

**Dr Laura Tay**

Senior Consultant,  
Dept of Geriatric Medicine, SKH

### Director, Clinical Services

**Dr Ng Li Ling**

Senior Consultant,  
Dept of Psychiatry, CGH

### Director, Education

**Assoc Prof Lim Si Ching**

Senior Consultant,  
Dept of Geriatric Medicine, CGH

### Director, Research

**Dr Adeline Ng Su Lyn**

Senior Consultant,  
Dept of Neurology, NNI

### Service Chief@SGH

**Dr Dennis Seow Chuen Chai**

Senior Consultant,  
Dept of Geriatric Medicine, SGH

### Service Chief@CGH

**Asst Prof Vanessa Mok Wai Ling**

Senior Consultant,  
Dept of Psychiatry, CGH

### Service Chief@SKH

**Dr Adeline Chuo Mee Leh**

Senior Consultant,  
Dept of Geriatric Medicine, SKH

### Service Chief@NNI

**Dr Ng Kok Pin**

Consultant,  
Dept of Neurology, NNI

### Service Chief@SCH

**Assoc Prof Wong Kok Seng**

Senior Consultant,  
Deputy CEO (Clinical Services), SCH

### Service Chief@SHP

**Asst Prof Sinead Wang Zhen**

Consultant,  
Clinic Director, Outram Polyclinic, SHP



# Partnering GPs to Support Elderly Patients with Complex Care Needs

## The Integrated Primary Care for At-Risk Elderly Programme

**The Integrated Primary Care for At-Risk Elderly (iPCARE) programme aims to keep patients discharged from community hospitals well by connecting them with the GPs in their neighbourhood, for post-discharge care. The community hospitals will continue to support these patients and their GPs with case management and essential backend support.**

### INTRODUCTION

Many of the patients admitted to SingHealth Community Hospitals (SCH) are elderly and have multiple comorbidities, spanning biopsychosocial domains. Though clinically stable upon discharge, they have ongoing complex care needs and are at a high risk of deterioration, especially during the initial weeks after discharge.

Some of the challenges these patients face include functional decline, worsening disease trajectory, falls and lack of caregiver support. This puts them at risk of trips to the emergency department and even hospital readmissions.

### OUR SUCCESS STORY

Through our iPCARE pilot at Bright Vision Hospital (BVH) in 2017, the SCH team realised that many of these events could be averted if these patients are supported by a good primary care network, including general practitioners (GPs), post-discharge. The programme has successfully transitioned 110 patients to primary care physicians, complemented by support from community hospitals in the form of case management, allied health, nursing and peer support from family physicians working in community hospitals.

Following the successful pilot at BVH, iPCARE will be expanded to the other hospitals under the SCH umbrella, Sengkang Community Hospital (Northeast Singapore) and Outram Community Hospital (Southern Singapore).



## Join as a GP Partner

**We invite like-minded GPs to join iPCARE as partners to keep these patients well in the community. If you are a GP in the north-eastern or southern part of Singapore and are keen to co-manage patients with complex needs with SCH, we warmly welcome you to join us.**

As an iPCARE GP Partner, you will be supported by case managers from SCH, who are registered nurses, to co-manage elderly patients with complex medical and social care needs.

Case management services will be provided by iPCARE case managers, to ensure a personalised care plan for patients.

Patients will be reviewed every three to six months, through a multidisciplinary team discussion with you, to co-manage care.

An online CME event, 'Complex Care with Family Physicians', was conducted on 8 May 2021 with GP partners, where we shared iPCARE case studies of co-managing elderly patients with multiple comorbidities.

**Please scan the QR code to view the recording of the session.**



**To sign up as a GP Partner or for enquiries, please contact iPCARE at:**

**Email:** [iPCARESengkang@singhealthch.com.sg](mailto:iPCARESengkang@singhealthch.com.sg)  
[iPCAREOutram@singhealthch.com.sg](mailto:iPCAREOutram@singhealthch.com.sg)

**Tel:** 6930 7196 (*Weekdays, 8.30am - 1pm and 2pm - 5pm*)

### Services Provided to Patients Enrolled in iPCARE

- Case management
- Medicine reconciliation and delivery
- Allied health support (Physiotherapists / Occupational Therapists / Speech Therapists / Dietitians / Social Workers)
- Home safety assessment
- Caregiver training
- Wound management
- Referral to other community-based services
- After-hours hotline

### Enrolment Criteria

- Aged 60 years and above
- Singapore Citizens and Permanent Residents (PRs)
- Staying within 8 km of either Sengkang Community Hospital or Outram Community Hospital
- Keen to follow up with a GP for primary care
- Have at least 3 complex conditions that can be:
  - ▶ Medical in nature (e.g., uncontrolled or complicated medical conditions, wounds, physical disability), or
  - ▶ Psychosocial in nature (e.g., psychological, caregiver or financial issues)

## Helping Both GPs and Patients

“ Having just to see one doctor for my father has been a seamless experience for me, as he has multiple chronic conditions. Before we knew about this programme, we had to go to various doctors for follow-up appointments, and it was tough for me to balance work at the same time, and also tiring for my father.

Seeing the same doctor who is familiar with my father's condition has also been very useful as he truly understands what my father is going through from a holistic point of view. ”

*Mr Jeffrey, son of a patient who benefited from iPCARE*



*Caregivers such as adult children have expressed appreciation to the team for being a 'one-stop service' right after hospital discharge, which has helped them to efficiently cope with work and caregiving duties during this transition period.*

“ I took care of a couple of patients who live near my clinic, after they were discharged from Bright Vision Hospital. The detailed and frequent communication from BVH facilitated the effective co-management of the patients' complex chronic medical conditions.

I am grateful whenever different parts of the health system collaborate and communicate because when that happens, patients and their families can enjoy holistic care. Working with SCH allows for enhanced motivation of patients to comply with treatment, a support system to relieve caregivers, and early detection of deterioration. ”

*Dr Tan PK, PJ Clinic*



*Under iPCARE, the doctors in SCH work together with GPs as part of the overall support for the programme. This is in addition to case managers and allied health professionals from the community hospital.*

## ABOUT SINGHEALTH COMMUNITY HOSPITALS

SCH comprises Bright Vision Hospital, Sengkang Community Hospital and Outram Community Hospital. Being Singapore's only cluster of community hospitals allows us to shape the way we deliver person-centred care to patients.

Our community hospitals are poised to set standards in care, exchange best practices and strengthen collaborations with our healthcare and community partners.

# Specialist Promotions & Appointments

## NEW APPOINTMENTS



**Assoc Prof Chong Tze Tec**  
Senior Consultant, Vascular Surgery;  
**Head, SingHealth Duke-NUS  
Vascular Centre**



**Assoc Prof Chuah Thuan Heng Charles**  
Senior Consultant, Haematology;  
**Director, Office of Translational  
Medicine Oversight**




**Assoc Prof Low Lian Leng**  
Consultant, Family Medicine & Continuing Care;  
Head, Dept of Post-Acute & Continuing Care,  
SCH @ Outram Community Hospital;  
Director, SingHealth Office of Regional Health, SGH Campus;  
Director, Population Health and Integrated Care Office, SGH;  
**Chief Medical Informatics Officer, SingHealth Office of  
Regional Health (CMIO, SORH)**




**Dr Tan Woei Jen  
Michelle**  
*Head & Consultant*  
**Dept**  
Family Medicine &  
Continuing Care


## PROMOTIONS – SENIOR CONSULTANTS




**Dr Lim Kai Inn**  
*Senior Consultant*  
**Dept**  
Anaesthesiology




**Dr Abey Matthew  
Varughese Mathews**  
*Senior Consultant*  
**Dept**  
Anaesthesiology




**Dr Andrew James  
Roscoe**  
*Senior Consultant*  
**Dept**  
Anaesthesiology




**Dr Tan Pei Yu**  
*Senior Consultant*  
**Dept**  
Anaesthesiology




**Dr Khor Li Yan**  
*Senior Consultant*  
**Dept**  
Anatomical Pathology




**Dr Cherng Pei Zhi  
Benjamin**  
*Senior Consultant*  
**Dept**  
Infectious Diseases



**Dr Xie Wanying**  
*Senior Consultant*  
**Dept**  
Nuclear Medicine &  
Molecular Imaging



**Dr Ravichandran  
Nadarajah**  
*Senior Consultant*  
**Dept**  
Obstetrics &  
Gynaecology




**Dr Tay Ci An Gerald**  
*Senior Consultant*  
**Dept**  
Otorhinolaryngology -  
Head & Neck Surgery



**Dr Tay Yoong Chuan**  
*Senior Consultant*  
**Dept**  
Pain Medicine




**Dr Zhu Haibei**  
*Senior Consultant*  
**Dept**  
Pain Medicine



**Dr Chew Khong Yik**  
*Senior Consultant*  
**Dept**  
Plastic, Reconstructive  
& Aesthetic Surgery

# Specialist Promotions & Appointments


## PROMOTIONS – SENIOR CONSULTANTS



**Dr Gan Shien Wen Sheryl**  
*Senior Consultant*  
**Dept**  
Renal Medicine




**Dr Tay Chee Kiang Melvin**  
*Senior Consultant*  
**Dept**  
Respiratory & Critical Care Medicine



**Dr Fong Weng Seng Warren**  
*Senior Consultant*  
**Dept**  
Rheumatology & Immunology

## PROMOTIONS – CONSULTANTS



**Dr Anusha Kannan**  
*Consultant*  
**Dept**  
Anaesthesiology




**Dr Kwa Xian Wen, Charlene**  
*Consultant*  
**Dept**  
Anaesthesiology



**Dr Lee Song En, John**  
*Consultant*  
**Dept**  
Anaesthesiology



**Dr Tan Shi Hui**  
*Consultant*  
**Dept**  
Anaesthesiology




**Dr Ng Ying Ru, Yvonne**  
*Consultant*  
**Dept**  
Colorectal Surgery



**Dr Chan Shi-En, Joanna**  
*Consultant*  
**Dept**  
Emergency Medicine



**Dr Nurul Aidah Binti Abdul Halim**  
*Consultant*  
**Dept**  
Haematology




**Dr Lee Wai Yen**  
*Consultant*  
**Dept**  
Obstetrics & Gynaecology



**Dr Tan Bingchao, Alfred**  
*Consultant*  
**Dept**  
Vascular & Interventional Radiology

## APPOINTMENT – SENIOR CONSULTANT



**Assoc Prof Maciej Piotr Chlebicki**  
*Senior Consultant*  
**Dept**  
Infectious Diseases

## APPOINTMENT – CONSULTANT



**Dr Kua Ee Hsiang, Jonah**  
*Consultant*  
**Dept**  
Plastic, Reconstructive & Aesthetic Surgery



## APPOINTMENTS – ASSOCIATE CONSULTANTS



**Dr Rachel Leong Wei-Li**  
*Associate Consultant*  
**Dept**  
Anaesthesiology



**Dr Lin Huixin, Sarah**  
*Associate Consultant*  
**Dept**  
Anaesthesiology



**Dr Monica Tan @ Pyi Phyo Kywe**  
*Associate Consultant*  
**Dept**  
Anaesthesiology



**Dr Shi Ruoyu**  
*Associate Consultant*  
**Dept**  
Anatomical Pathology



**Dr Liu Zhenghong**  
*Associate Consultant*  
**Dept**  
Emergency Medicine



**Dr Ng Mingwei**  
*Associate Consultant*  
**Dept**  
Emergency Medicine



**Dr Cheong May Anne**  
*Associate Consultant*  
**Dept**  
Haematology



**Dr Chua Weiquan, Darren**  
*Associate Consultant*  
**Dept**  
Hepato-pancreato-biliary and Transplant Surgery



**Dr Loh Wei-Liang**  
*Associate Consultant*  
**Dept**  
Hepato-pancreato-biliary and Transplant Surgery



**Dr Lim Wenrui, Rachel**  
*Associate Consultant*  
**Dept**  
Internal Medicine



**Dr Tay Tian En, Jason**  
*Associate Consultant*  
**Dept**  
Internal Medicine



**Dr Tang Yu Lin, Charlene**  
*Associate Consultant*  
**Dept**  
Nuclear Medicine & Molecular Imaging

## NEW APPOINTMENTS



**Dr Wong Hang Siang**  
*Chief & Senior Consultant*  
**Dept**  
Sleep Medicine, Surgery & Science



**Clin Assoc Prof Andrew Wong Siang Yih**  
*Senior Consultant;*  
*Deputy Chairman Medical Board (Surgical Disciplines)*  
**Sub-specialties**  
Robotic Surgery, Therapeutic Endoscopy, Advanced Endoscopic Imaging, Adrenal Surgery, Upper Gastrointestinal, Metabolic & Bariatric Surgery, Hernia Surgery, Laparoscopic



**Dr Jansen Koh**  
*Senior Consultant;*  
*Assistant Chairman, Medical Board (Performance Excellence)*



**Dr Adrian Chiow Kah Heng**  
*Chief & Senior Consultant*  
**Dept**  
Surgery  
**Sub-specialties**  
Hepato-pancreato-biliary, General Surgery

# Specialist Promotions & Appointments

## PROMOTIONS – SENIOR CONSULTANTS



**Dr Poongkulati D/O Anaikatti**  
Senior Consultant  
**Dept**  
Accident & Emergency



**Dr Lai Shieh Mei**  
Senior Consultant  
**Dept**  
Accident & Emergency



**Dr Mong Rupeng**  
Senior Consultant  
**Dept**  
Accident & Emergency



**Dr Zheng Jin Xi**  
Senior Consultant  
**Dept**  
Anaesthesia and Surgical Intensive Care



**Dr Ong Sugin**  
Senior Consultant  
**Dept**  
Dermatology



**Dr Puar Hai Kiat**  
Senior Consultant  
**Dept**  
Endocrinology



**Dr Ang Guat Cheng**  
Senior Consultant  
**Dept**  
Geriatric Medicine



**Dr Akram Farooq**  
Senior Consultant  
**Dept**  
Internal Medicine



**Dr Wong Hang Siang**  
Senior Consultant  
**Dept**  
Respiratory & Critical Care Medicine

## PROMOTIONS – CONSULTANTS



**Dr Oh Ying Zi**  
Consultant  
**Dept**  
Cardiology



**Dr Tan Jian Jing**  
Consultant  
**Dept**  
Cardiology



**Dr Yap Su Yan**  
Consultant  
**Dept**  
Geriatric Medicine



**Dr Tan Toh Hui, Leonard**  
Consultant  
**Dept**  
Otorhinolaryngology - Head & Neck Surgery



**Dr Mok Jialing, Tabitha**  
Consultant  
**Dept**  
Psychological Medicine



**Dr Ang Teck Wee**  
Consultant  
**Dept**  
Surgery

## APPOINTMENTS – ASSOCIATE CONSULTANTS



**Dr Kwong Hui Li**  
Associate Consultant  
**Dept**  
Dermatology



**Dr Lim Yuan Ting, Elvin**  
Associate Consultant  
**Dept**  
Diagnostic Radiology  
**Sub-specialties**  
Body Imaging, Vascular and Interventional Radiology



**Dr Tan Tai Long, Evan**  
Associate Consultant  
**Dept**  
Diagnostic Radiology  
**Sub-specialties**  
Neuroradiology, Breast Radiology



**Dr Gurinderjit Kaur Sidhu**  
Associate Consultant  
**Dept**  
Geriatric Medicine





## PROMOTIONS – SENIOR CONSULTANTS



**Dr Tay Yu-Kwang  
Donovan**  
*Senior Consultant*  
**Dept**  
General Medicine,  
Endocrinology



**Dr Ng Tong Yong**  
*Senior Consultant*  
**Dept**  
Pathology




**Dr Kam Juinn Huar**  
*Senior Consultant*  
**Dept**  
Surgery

## PROMOTIONS – CONSULTANTS



**Dr Eunizar Binte Omar**  
*Consultant*  
**Dept**  
Emergency Medicine



**Dr Ting Boon Ping**  
*Consultant*  
**Dept**  
Emergency Medicine



**Dr Chiang Shu Min,  
Brenda**  
*Consultant*  
**Dept**  
General Medicine,  
Endocrinology




**Dr Chen Enhau  
Dominic**  
*Consultant*  
**Dept**  
General Medicine,  
Rehabilitation Medicine




**Dr Maaz Mohammad  
Salah**  
*Consultant*  
**Dept**  
Radiology



**Dr Chua Hui Wen**  
*Consultant*  
**Dept**  
Surgery



**Dr Tan Yong Hui, Alvin**  
*Consultant*  
**Dept**  
Surgery



**Dr Lim Yong Wei**  
*Consultant*  
**Dept**  
Urology

## APPOINTMENT – SENIOR CONSULTANT



**Dr Al Jajeh Issam**  
*Senior Consultant*  
**Dept**  
Pathology

## APPOINTMENT – CONSULTANT



**Dr Chia Sinn Yii Dawn**  
*Consultant*  
**Dept**  
Orthopaedic Surgery,  
Hand Surgery

# Specialist Promotions & Appointments

## APPOINTMENTS – ASSOCIATE CONSULTANTS



**Dr Ho Huimin, Kayleigh**  
*Associate Consultant*

**Dept**  
General Medicine



**Dr Kwan Kah Wai  
Clarence**  
*Associate Consultant*

**Dept**  
General Medicine,  
Gastroenterology



KK Women's and  
Children's Hospital  
SingHealth

Appointments: 6692 2984 | Email: [centralappt@kkh.com.sg](mailto:centralappt@kkh.com.sg)

## NEW APPOINTMENTS



**Dr Sashikumar  
Ganapathy**  
*Head & Senior  
Consultant*

**Dept**  
Emergency Medicine



**Assoc Prof Tan Lay Kok**  
*Head & Senior  
Consultant*

**Dept**  
Maternal Fetal  
Medicine

## APPOINTMENTS – ASSOCIATE CONSULTANTS



**Dr Chitra Gangadaran  
Ramalingam**  
*Associate Consultant*

**Dept**  
Child Development



**Dr Chan Wei Keong,  
Daniel  
(Chen Weiqiang)**  
*Associate Consultant*

Endocrinology Service



**Dr Goh Lay Kuan,  
Jeannette  
(Wu Lijuan, Jeannette)**  
*Associate Consultant*

Genetics Service



**Dr Tong Wing Yee**  
*Associate Consultant*

**Dept**  
Neonatology



**Dr Yap Jia Ying**  
*Associate Consultant*

Nephrology Service



**Dr Chia Xian Qing,  
Pamela**  
*Associate Consultant*

**Dept**  
Women's Anaesthesia



National Dental  
Centre Singapore  
SingHealth

Appointments: 6324 8798 | Email: [appointment@ndcs.com.sg](mailto:appointment@ndcs.com.sg)

## PROMOTIONS – SENIOR CONSULTANTS



**Dr Chelsia Sim Qiu Xia**  
*Senior Consultant*

**Dept**  
Oral & Maxillofacial  
Surgery



**Dr Lai Wen Pui Bien**  
*Senior Consultant*

**Dept**  
Restorative Dentistry  
**Sub-specialty**  
Paediatric Dentistry



## PROMOTIONS – CONSULTANTS



**Dr Lee Ming Hsien,  
Albert**  
Consultant  
**Dept**  
Oral & Maxillofacial  
Surgery



**Dr Tan Mei Hui**  
Consultant  
**Dept**  
Oral & Maxillofacial  
Surgery



**Dr Chia Ai Ping  
Vanessa**  
Consultant  
**Dept**  
Restorative Dentistry  
**Sub-specialty**  
Prosthodontics



National Heart  
Centre Singapore  
SingHealth

Appointments: 6704 2222 | Email: [central.appt@nhcs.com.sg](mailto:central.appt@nhcs.com.sg)

## NEW APPOINTMENTS



**Clin Asst Prof Ho Kay Woon**  
Senior Consultant;  
Vice Chair, Training and Education,  
SingHealth Duke-NUS Cardiovascular  
Sciences Academic Clinical Programme  
**Dept**  
Cardiology  
**Sub-specialty**  
Interventional Cardiology



**Clin Asst Prof Paul Lim**  
Consultant;  
Director, Residency Programme,  
SingHealth Duke-NUS Cardiovascular  
Sciences Academic Clinical Programme  
**Dept**  
Cardiology  
**Sub-specialty**  
Electrophysiology & Pacing



**Clin Assoc Prof Jonathan Yap**  
Consultant;  
Director, Medical Student Training,  
SingHealth Duke-NUS Cardiovascular  
Sciences Academic Clinical Programme  
**Dept**  
Cardiology  
**Sub-specialty**  
Interventional Cardiology

## APPOINTMENTS - ASSOCIATE CONSULTANTS



**Dr Chew Yun Chi  
Kenneth Michael**  
Associate Consultant  
**Dept**  
Cardiology

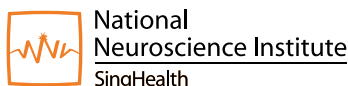


**Dr Tan Weixian Alex**  
Associate Consultant  
**Dept**  
Cardiology  
**Sub-specialties**  
Echocardiography,  
Heart Failure



**Dr Yap Kok Hooi**  
Associate Consultant  
**Dept**  
Cardiothoracic  
Surgery


# Specialist Promotions & Appointments




**Appointments:**  
(SGH Campus) 6326 6060  
(TTSH Campus) 6330 6363

**Email:**  
gpnetwork@sgh.com.sg  
appointments@nni.com.sg

## PROMOTIONS – SENIOR CONSULTANTS



**Dr Ang Kexin**  
*Senior Consultant*  
**Dept**  
Neurology  
(TTSH Campus)  
**Sub-specialty**  
Supportive and  
Palliative Care




**Dr Lin Xuling**  
*Senior Consultant*  
**Dept**  
Neurology  
(TTSH Campus)  
**Sub-specialty**  
Neuro-oncology



**Dr Ng Peng Soon**  
*Senior Consultant*  
**Dept**  
Neurology  
(TTSH Campus)  
**Sub-specialties**  
Peripheral Nerve  
Disorders, Clinical  
Neurophysiology




**Dr Tu Tian Ming**  
*Senior Consultant*  
**Dept**  
Neurology  
(TTSH Campus)  
**Sub-specialty**  
Stroke




**Dr Colum Patrick Nolan**  
*Senior Consultant*  
**Dept**  
Neurosurgery  
(TTSH Campus)  
**Sub-specialty**  
Spine surgery

## PROMOTIONS – CONSULTANTS



**Dr Koh Pei Xuan**  
*Consultant*  
**Dept**  
Neurology  
(TTSH Campus)  
**Sub-specialty**  
General Neurology




**Dr Julian Han**  
*Consultant*  
**Dept**  
Neurosurgery  
(TTSH Campus)  
**Sub-specialty**  
General Neurosurgery


## APPOINTMENTS – ASSOCIATE CONSULTANTS



**Dr Charles Chan Chung**  
*Associate Consultant*  
**Dept**  
Neurology  
(SGH Campus)



**Dr Justin Ker**  
*Associate Consultant*  
**Dept**  
Neurosurgery  
(TTSH Campus)




**Dr Wan Kai Rui**  
*Associate Consultant*  
**Dept**  
Neurosurgery  
(SGH Campus)



**Appointments:** 6322 9399 | **Email:** appointments@s nec.com.sg

## PROMOTION – SENIOR CONSULTANT



**Clin Assoc Prof Tan Cheng Sim Anna**  
*Senior Consultant*  
**Dept**  
Medical Retina  
**Sub-specialty**  
Ophthalmology

## Embark on a Life-Changing Journey with a Career at SingHealth

If you are a qualified doctor, a challenging career awaits you at SingHealth. We seek suitably qualified candidates to join us as:

- SENIOR CONSULTANTS/  
CONSULTANTS/  
ASSOCIATE CONSULTANTS
- RESIDENT PHYSICIANS
- STAFF REGISTRARS/  
SERVICE REGISTRARS

Interested applicants are to email your CV with full personal particulars, educational and professional qualifications (including housemanship details), career history, present and expected salary, names of at least two professional references, contact numbers and email address together with a non-returnable photograph.

Please email your CV to the respective institutions' email addresses/online career portals with the Reference Number DM2107.



The SingHealth Duke-NUS Academic Medical Centre draws on the collective strengths of SingHealth and Duke-NUS Medical School to drive the transformation of healthcare and provide affordable, accessible, quality healthcare.

With 42 clinical specialties, a network of 4 Hospitals, 5 National Specialty Centres, 8 Polyclinics and 3 Community Hospitals, it delivers comprehensive, multidisciplinary and integrated care.

### Singapore General Hospital

#### Departments seeking:

##### Resident Physicians and Staff Registrars

- Anaesthesiology
- Diagnostic Radiology
- Emergency Medicine
- Surgical disciplines such as General Surgery, ENT-HNS, O&G, Breast, SPRinT, Colorectal, Vascular Surgery, Urology, Orthopaedics, Hand and Plastic

##### Consultants

- Acute Care Surgery/Trauma
- Anatomical Pathology
- Surgical Oncology (Sarcoma, Peritoneal and Rare Tumours)
- Clinical Epidemiologist

**Website:** [www.sgh.com.sg](http://www.sgh.com.sg)

**Career Portal:** [www.sgh.com.sg/careers](http://www.sgh.com.sg/careers)

**Email:** [careers.medical@sgh.com.sg](mailto:careers.medical@sgh.com.sg)

### Changi General Hospital

#### Departments seeking Resident Physicians and Staff Registrars

- Anaesthesia & Surgical Intensive Care
- Accident & Emergency
- Diagnostic Radiology
- General Medicine
- Surgery
- Ophthalmology
- Orthopaedic Surgery
- Otorhinolaryngology - Head & Neck Surgery
- Sleep Medicine, Surgery & Science

##### Associate Consultants

- Anaesthesia & Surgical Intensive Care
- Gastroenterology & Hepatology
- Orthopaedic Surgery
- Renal Medicine
- Surgery

**Website:** [www.cgh.com.sg](http://www.cgh.com.sg)

**Email:** [medical\\_hr@cgh.com.sg](mailto:medical_hr@cgh.com.sg)

### Sengkang General Hospital

#### Departments seeking:

##### Resident Physicians and Staff Registrars

- Anaesthesiology
- Cardiology
- Emergency Medicine
- Surgery
- General Medicine (with interest in Dermatology and Palliative Medicine)
- Intensive Care Medicine
- Orthopaedic Surgery (with interest in Hand Surgery and Orthopaedic Surgery)
- Otorhinolaryngology - Head & Neck Surgery
- Plastic, Reconstructive & Aesthetic Surgery Service
- Urology

##### Senior Consultant, Consultant, Associate Consultant

- Intensive Care Medicine
- Radiology
- Pathology
- Urology

**Website:** [www.skh.com.sg](http://www.skh.com.sg)

**Career Portal:** [www.skh.com.sg/careers/Pages/careers.aspx](http://www.skh.com.sg/careers/Pages/careers.aspx)

**Email:** [careers@skh.com.sg](mailto:careers@skh.com.sg)

### KK Women's and Children's Hospital

#### Departments/Services seeking:

##### Senior Consultants/Consultants/

##### Associate Consultants

##### (Gynaecologic & Breast Pathologist, Microbiologist, Chemical Pathologist and Paediatric Pathologist)

- Pathology & Laboratory Medicine

##### Senior Consultants/Consultants/ Associate Consultants

- Diagnostic & Interventional Imaging

##### Staff Registrars

- Paediatric Surgery

##### Family Physician

- Family Medicine

##### Resident Physicians

- Emergency Medicine
- Orthopaedic Surgery
- Otolaryngology
- Paediatric Surgery

**Website:** [www.kkh.com.sg](http://www.kkh.com.sg)

**Email:** [medical.hr@kkh.com.sg](mailto:medical.hr@kkh.com.sg)

### National Cancer Centre Singapore

#### Departments seeking Resident Physicians

- Breast Surgery
- SingHealth IMU

**Website:** [www.nccs.com.sg](http://www.nccs.com.sg)

**Email:** [HR-Clinical@nccs.com.sg](mailto:HR-Clinical@nccs.com.sg)

### National Heart Centre Singapore

#### Departments seeking Resident Physicians

- Cardiology
- Cardiothoracic Surgery

**Website:** [www.nhcs.com.sg](http://www.nhcs.com.sg)

**Email:** [lim.bee.kuan@nhcs.com.sg](mailto:lim.bee.kuan@nhcs.com.sg)

### National Neuroscience Institute

#### Departments seeking Resident Physicians and Service Registrars

- Neurology
- Neuroradiology
- Neurosurgery

**Website:** [www.nni.com.sg](http://www.nni.com.sg)

**Email:** [nni\\_hr@nni.com.sg](mailto:nni_hr@nni.com.sg)

### Singapore National Eye Centre

#### Department seeking

- Resident Physician, Ophthalmology

For more information, please visit the Career Opportunities section on the Singapore National Eye Centre website.

**Website:** [www.sneec.com.sg](http://www.sneec.com.sg)

**Email:** [recruitment@sneec.com.sg](mailto:recruitment@sneec.com.sg)

### SingHealth Community Hospitals

#### (Sengkang Community Hospital, Outram Community Hospital and Bright Vision Hospital)

##### Department seeking:

##### Staff Registrars, Resident Physicians

- Family Medicine

**Website:** <http://www.singhealthch.com.sg/>

**Career Portal:** [www.singhealth.com.sg/SCH/careers/Pages/Careers.aspx](http://www.singhealth.com.sg/SCH/careers/Pages/Careers.aspx)

**Email:** [schrecruitment@singhealthch.com.sg](mailto:schrecruitment@singhealthch.com.sg)

## SGH Weekly Lunchtime GP Q+A Sessions



Meet our specialists as they address your questions on the latest updates in their specialty area, patient care and the referral process.

Date	Time	Hosted via	Free admission
Every Wednesday	1pm to 2pm	Zoom Webinar	

Date	Session 1 (1pm to 1.30pm)	Session 2 (1.30pm to 2pm)
14 Jul	<b>Dept of Gastroenterology &amp; Hepatology</b> Dr Ravishankar Asokkumar (Consultant)	<b>Dept of Colorectal Surgery</b> Assoc Prof Tang Choong Leong (Senior Consultant)
21 Jul	<b>Dept of Respiratory &amp; Critical Care Medicine</b> Dr Chew Si Yuan (Associate Consultant), Ms Lee Siew Ling (Nurse Clinician)	<b>Dept of Hepato-pancreato-biliary and Transplant Surgery</b> Dr Teo Jin Yao (Consultant)
28 Jul	<b>Dept of Haematology</b> Clin Assoc Prof Aloysius Ho (Senior Consultant), Dr Tan Chuen Wen (Consultant), Dr Lawrence Ng (Associate Consultant)	<b>Dept of Head &amp; Neck Surgery</b> Prof Gopalakrishna Iyer (Head & Senior Consultant), Dr Natascha Ekawati Putri (Consultant), Dr Rahul Nagadia (Consultant)
4 Aug	<b>Dept of Pain Medicine</b> Dr Diana Chan (Head & Consultant)	TBC
11 Aug	<b>Dept of Upper Gastrointestinal &amp; Bariatric Surgery</b> Dr Lim Chin Hong (Consultant)	<b>Dept of Colorectal Surgery</b> Dr Ronnie Mathew (Senior Consultant)
18 Aug	<b>Dept of Breast Surgery</b> Dr Preetha Madhukumar (Senior Consultant)	<b>Dept of Internal Medicine</b> Dr Sri Kumaran Shalini (Consultant), Dr Lee Guo Zhang (Consultant)
25 Aug	<b>Dept of Obstetrics &amp; Gynaecology</b> Dr Lim Whui Whui (Associate Consultant)	<b>Dept of Rheumatology &amp; Immunology</b> Dr Annie Law (Consultant)
1 Sep	<b>Dept of Orthopaedic Surgery</b> Prof Andrew Tan (Head & Senior Consultant)	<b>Dept of Hand &amp; Reconstructive Microsurgery</b> Dr Chung Sze-Ryn (Associate Consultant)
8 Sep	<b>Dept of Gastroenterology &amp; Hepatology</b> Dr Webber Chan (Senior Consultant)	<b>Dept of Colorectal Surgery</b> Dr Isaac Seow En (Consultant)
15 Sep	<b>Dept of Respiratory &amp; Critical Care Medicine</b> Dr Leow Leong Chai (Senior Consultant)	<b>Dept of Hepato-pancreato-biliary and Transplant Surgery</b> Assoc Prof Chan Chung Yip (Head & Senior Consultant)
22 Sep	<b>Dept of Haematology</b> Dr Chandramouli (Senior Consultant), Dr Esmeralda Teo (Consultant), Dr Cheong May Anne (Associate Consultant)	<b>Dept of Renal Medicine</b> Dr Kwek Jia Liang (Consultant)
29 Sep	<b>Dept of Otorhinolaryngology</b> Adj Assoc Prof Toh Song Tar (Head & Senior Consultant), Dr Thong Jiun Fong (Senior Consultant)	<b>Dept of Endocrinology</b> Dr David Carmody (Consultant)



Scan the QR code to register.

For enquiries and to submit questions, please email to [gpnetwork@sgh.com.sg](mailto:gpnetwork@sgh.com.sg).





**GPFIRST**  
YOUR FAMILY DOCTOR, YOUR FIRST STOP

# GPFirst CME Webinars



## MANAGING CHRONIC PAIN IN PRIMARY CARE

### An Interdisciplinary Holistic Approach

Join us for practical insights into the evidence-based **pharmacological and non-pharmacological management of chronic pain**, with tips on how it can be cared for in the primary setting.

The webinar will include an interactive Q&A session between GPs and the interdisciplinary panel.

<b>Date</b> 17 July 2021 (Saturday)	<b>Time</b> 2pm to 4.15pm	<b>Hosted via</b> Zoom Webinar	<b>2 CME</b> points awarded
<b>Free admission</b>			

Scan the QR code to register.



## STROKE SURVIVOR

### Beyond Complications to Wellness

We invite you to rethink the process of recovery for stroke survivors.

Going beyond potential complications, the webinar will discuss the incorporation of wellness into the continuum of post-stroke care through **appropriate physical activity and exercise**. It will also discuss the application of **robotics in stroke rehabilitation**.

<b>Date</b> 14 August 2021 (Saturday)	<b>Time</b> 2pm to 4pm	<b>Hosted via</b> Zoom Webinar	<b>2 CME</b> points awarded
<b>Free admission</b>			

Scan the QR code to register.



**For enquiries, please contact:**

Ms Nurazila Binti Zakaria at [nurazila\\_zakaria@cgh.com.sg](mailto:nurazila_zakaria@cgh.com.sg), or  
Ms Lyndia Lee at [lyndia.lee.s.h@singhealth.com.sg](mailto:lyndia.lee.s.h@singhealth.com.sg).

## CMEs & Courses

# 7th Respiratory Care Online Symposium



Join us to discover the latest in respiratory care for children and newborn babies.

The symposium aims to provide the latest in paediatric and neonatal practices revolving around respiratory issues, and the enhancement of treatments using various therapies.

Topics include:

- Non-invasive ventilation in paediatrics
- Acute respiratory care considerations and practices in the paediatric intensive care unit (PICU)
- Sleep-related hypoventilation in children
- High velocity therapy – a viable alternative to nasal continuous positive airway pressure (nCPAP) in children
- Transcutaneous CO<sub>2</sub> (TcCO<sub>2</sub>) in paediatrics

Organised by the Children's Intensive Care Unit, KKH



**Date**  
27 August 2021 (Friday)

**Time**  
9am to 2.30pm

**Hosted via**  
Zoom Webinar

**CME points**  
will be awarded

Free admission



**Scan the QR code to register.**

Registration closes on **23 August 2021 (Monday)**.

For enquiries, please email to [marcoms@kkh.com.sg](mailto:marcoms@kkh.com.sg).



## HOTLINES



### GP Fast Track Appointment Hotlines

 Singapore General Hospital **6326 6060\***

 KK Women's and Children's Hospital **6692 2984**

 National Heart Centre Singapore **6704 2222**


 Changi General Hospital **6788 3003**

 National Cancer Centre Singapore **6436 8288**

 National Neuroscience Institute **6330 6363**

 Sengkang General Hospital **6930 6000**

 National Dental Centre Singapore **6324 8798**

 Singapore National Eye Centre **6322 9399**

\*The SGH GP hotlines at 6326 4402 and 6326 3598 are no longer in use. Please call 6326 6060.

[www.singhealth.com.sg](http://www.singhealth.com.sg)

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