College of Family Physicians Singapore

# The Singapore Family Physician

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## Dementia

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- Information on mental health conditions
- Service providers
- Self-care tips
- Information on mental wellness
- Resources to empower you

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# DEMENTIA

A/Prof Goh Lee Gan

**SFP2013; 39(2) Supplement: 3-4**

This Family Practice Skills Course on Dementia builds on the course that the College ran jointly with the Ministry of Health in 2011. The novelty of the 2011 course was the inclusion of Dementia under the Chronic Disease Management Programme.

What about the newness of this Skills Course? We have two new units – namely Unit 2 – Early diagnosis of dementia in primary care setting, and Unit 6 – Community Resources for Patients and Caregivers which are now coordinated by Agency for Integrated Care (AIC). These replaced Unit 5 and Unit 6 which have now been summarised as useful information in Dementia Management in this issue. The remaining papers in this Family Practice Skills Course – Overview and Diagnosis (Unit 1), Behavioural and Psychological symptoms of dementia (Unit 3), and Pharmacological treatment of Dementia (Unit 4) have been updated where needed to information current as of early 2013.

We would therefore like to recommend this Family Practice Skills Course to all Family Physicians. Thanks are due to the Agency for Integrated Care (AIC), Institute of Mental Health (IMH) and Ministry of Health (MOH) for supporting this Family Practice Skills Course.

The first unit in this Family Practice Skills Course gives an overview of dementia and its epidemiology in Singapore. Dementia represents a late stage of disease along the continuum of cognitive impairment. Early diagnosis of dementia is important to allow timely pharmacological and non-pharmacological management. Early diagnosis also allows adequate time for patients and caregivers to cope with the significant emotional and economic costs of the illness. A 4-step clinical approach could be a succinct framework to aid the family physician in evaluating the individual who presents to the clinic with cognitive complaints such as forgetfulness or confusion: (1) Exclusion of delirium as the cause of the forgetfulness or confusion; (2) Establishing the diagnosis of dementia; (3) Assessing for the behavioural, functional, and social problems associated with dementia; and (4) Establishing the aetiological diagnosis of dementia. Management of cognitive disorders requires a multidisciplinary approach including pharmaceutical and non-pharmaceutical management of the patient, caregiver support and provision of long term nursing care.

GOH LEE GAN, Professorial Fellow, Division of Family Medicine, University Medicine Cluster, National University Health System

Unit 2 is a new unit in this Dementia Family Practice Skills Course. Early diagnosis of dementia and the General Practitioner (GP) in Singapore are inextricably linked. As the first point of reference in the community, the GPs are in the vanguard of early detection of dementia and have considerable influence on the subsequent diagnostic process and clinical care that the person with dementia (PWD) receives. A consideration of barriers and enablers of this process can aid the diagnostic process. Early referral for Specialist evaluation is an important step. The GP can also provide additional advice and support to the patient and caregiver during diagnosis. Early person-centred and caregiver interventions has the potential of improving the quality of care and reducing caregiver stress, depression and burden. For those in the early stages of disease, it is also important for them to realise that life does not stop after the diagnosis and there is much to live for. The GP, being at the forefront, will continue to play a pivotal role in initiating this process in the years ahead.

Unit 3 focuses on the behavioural and psychological symptoms of dementia (BPSD). These symptoms are common in dementia. They cause significant distress to people with dementia and their carers. In managing BPSD, medical causes such as delirium must be excluded. Non pharmacological management, such as environmental and behavioural interventions are effective first line strategies. Medication may be useful in moderate to severe BPSD but must be used carefully in view of the risk of side-effects.

Unit 4 deals with pharmacological treatment - a vital part of the multi-pronged strategy of dementia management. All dementia patients should be evaluated for suitability of pharmacological strategies to address the underlying disease, enhance cognitive symptomatology, and treat attendant behavioural complications. Once a definitive diagnosis of dementia has been made, the key factors determining choice of symptomatic treatment are dementia etiology and stage of severity. The pre-requisite to skillful use of symptomatic treatment is a firm knowledge of the pharmacokinetic and dosing properties, side effect profile and expected benefits of such medications. The decision to initiate costly symptomatic treatment should be individualised and always made in conjunction with the patient and caregiver. Patients who are started on cognitive enhancers should be monitored for benefit and side effects.

Unit 5 focuses on the role of primary care physicians in helping caregivers of persons with dementia (PWD). Caregiver interventions have been shown to reduce caregiver depression, burden of care, and improve their health and quality of life. Caregiver support also benefits the PWD. It is important to recognise that caregivers too need care.

Caregivers of PWD are usually middle-aged daughters and sons followed by spouses. Foreign domestic helpers also play a pivotal role in Singapore. Stressors arising from caregiving change at different stages of the disease. As the disease progresses into the advanced stages, stress from having to deal with behavioural problems can lessen as the burden from coping with functional impairments increases. For this reason, caregiver interventions should be stage appropriate. There is a need to work towards creating a positive experience in the GP consultation with the important elements of early diagnosis, providing stage specific information and interventions, and up-to-date information on dementia resources available in the community.

Unit 6 is another new unit. It gives a description of and access to community resources for patients with dementia and their caregivers coordinated by Agency for Integrated Care (AIC). Dementia is a progressive brain dysfunction that leads to disintegration of ability to look after oneself and the need for community resources to minimise the resulting impact of the progressive disability. The various care services available in Singapore for elderly patients and their caregivers are: hospital based, community centre-based, community home-based, and nursing home based. New services for dementia care are: senior care centres (SCC), integrated community mental health and dementia support networks, and Community Intervention Teams (COMIT). The Mobile Eldercare Locator (MEL) enables users to search for health and social care services in Singapore based on specified eldercare needs of the individuals. Referral to community centre-based services such as day rehabilitation and dementia day care services and homecare services such as home nursing, home medical, and home therapy services are coordinated by AIC referral team. Family physicians can apply for such services either via hardcopy or online.

A selection of 10 readings from the current medical literature (circa 2011 to 2013) has been shortlisted and the abstracts printed in this issue. They provide additional readings on the subject.

Two other documents complete the dossier of current information on dementia care for the Family Physician. One is the Chronic Disease Management Programme (CDMP) Handbook for Healthcare Professionals 2011 edition. A summary of the handbook has been made as the paper – Useful information in Dementia.

The other document is the MOH Clinical Practice Guidelines 2/2013 which was launched on 5 April 2013. The aim of the guidelines is to provide guidance to healthcare professionals in Singapore to assess, evaluate and manage dementia in their patients. The booklet includes chapters on epidemiology, diagnosis, screening and management of dementia. There is discussion on ethical and legal issues related to dementia, palliative care and young-onset dementia. Useful information on community resources are also provided in this issue of the MOH CPG 2/2013.

# Distance Learning Course on "Dementia"

- Overview of "Dementia" Family Practice Skills Course
- Unit 1 : Overview of Dementia and Diagnosis of Dementia
- Unit 2 : Early Diagnosis of Dementia in the Primary Care Setting
- Unit 3 : Behavioural and Psychological Symptoms of Dementia
- Unit 4 : Pharmacological Treatment of Dementia
- Unit 5 : The Role of GPs in Helping Caregivers of Persons with Dementia
- Unit 6 : Community Resources for Patients and Caregivers

# OVERVIEW OF "DEMENTIA" FAMILY PRACTICE SKILLS COURSE

A/Prof Goh Lee Gan

SFP2013; 39(2) Supplement: 6-7

## INTRODUCTION

This Family Practice Skills Course on Dementia builds on the course that the College ran jointly with the Ministry of Health in 2011. The novelty of the 2011 course was the inclusion of Dementia under the Chronic Disease Management Programme.

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## COURSE OUTLINE AND CME POINTS

This Family Practice Skills Course is made up of the following components. You can choose to participate in one or more parts of it. The CME points that will be awarded are also indicated below.

### Components and CME Points

- Distance Learning Course – 6 units (6 Core FM CME points upon attaining a minimum pass grade of 60% in Distance Learning Online MCQ Assessment)
- 2 Seminars (2 Core FM CME points per seminar)
- 2 Workshops (1 Core FM CME point per workshop)
- 10 Readings – read 5 out of 10 recommended journals (maximum of 5 CME points for the whole CME year)

GOH LEE GAN, Professorial Fellow, Division of Family Medicine, University Medicine Cluster, National University Health System

### Distance Learning Course

Unit 1 : Overview of Dementia and Diagnosis of Dementia
*Dr Nagaendran Kandiah*

Unit 2 : Early Diagnosis of Dementia in the Primary Care Setting
*Dr Dennis Seow Chuen Chai*

Unit 3 : Behavioural and Psychological Symptoms of Dementia
*Dr Ng Li-Ling*

Unit 4 : Pharmacological Treatment of Dementia
*Dr Lim Wee Shiong*

Unit 5 : The Role of GPs in Helping Caregivers of Persons with Dementia
*Dr Dennis Seow Chuen Chai, Dr Philip Yap Lin Kiat*

Unit 6 : Community Resources for Patients and Caregivers
*See Yen Theng*

## COURSE TOPIC DETAILS

Unit 1: Overview of Dementia and Diagnosis of Dementia

- Introduction
- Epidemiology
- Etiology and Risk Factors
- Mild Cognitive Impairment
- Assessment
- Investigations
- Management
- Conclusions

Unit 2: Early Diagnosis of Dementia in the Primary Care Setting

- Introduction
- Barriers to Early Diagnosis
- Enablers of Early Diagnosis
- A Workflow Process for Initial Evaluation of Cognitive Complaints and Early Referral at the GP Clinic
- Additional Tips for GPs
- Conclusion

Unit 3: Behavioural and Psychological Symptoms of Dementia

- Introduction
- Definition
- Assessment
- Management

Unit 4: Pharmacological Treatment of Dementia
- Introduction
- Overview
- Cholinesterase Inhibitors
- NDMA Antagonists
- Common Issues in the Use of Dementia-specific Drugs
- New Frontiers in Dementia Treatment

Unit 5: The Role of GPs in Helping Caregivers of Persons with Dementia
- Introduction
- Caregivers
- Caregivers' Experiences with GPs
- Optimal Care and the Health Care Triad
- Management and Support of Caregiver
- Conclusion

Unit 6: Community Resources for Patients and Caregivers
- Ageing Population & Dementia
- Need for Community Resources
- Current Resources for Elderly and Dementia Care
- New Resources for Dementia Care
- Quick Search for Eldercare Services
- Quick Referral Steps for Services
- Helpline
- Why should you be part of the Mental Health GP Partnership Programme (GPPP)?

## FACE-TO-FACE SESSIONS

**Seminar 1: 1 June 2013, 2.00pm – 4.00pm**

Unit 1 : Overview of Dementia and Diagnosis of Dementia
*Dr Nagaendran Kandiah*

Unit 2 : Early Diagnosis of Dementia in the Primary Care Setting
*Dr Dennis Seow Chuen Chai*

Unit 3 : Behavioural and Psychological Symptoms of Dementia
*Dr Seng Kok Han*

**Workshop 1: 1 June 2013, 4.30pm – 6.00pm**

(A) Cognitive and Functional Assessments, Early Diagnosis and Early Referral
*Dr Dennis Seow Chuen Chai, Dr Nagaendran Kandiah*

(B) Non-pharmacological Management of Behaviours
*Dr Seng Kok Han, Dr Ng Li-Ling*

**Seminar 2: 2 June 2013, 2.00pm – 4.00pm**

Unit 4 : Pharmacological Treatment of Dementia
*Dr Lim Wee Shiong*

Unit 5 : The Role of GPs in Helping Caregivers of Persons with Dementia
*Dr Philip Yap Lin Kiat*

Unit 6: Community Resources for Patients and Caregivers
*See Yen Theng*

**Workshop 2: 2 June 2013, 4.00pm – 5.30pm**

Chronic Disease Management Programme (CDMP) on Dementia; Case Studies
*Dr Chong Mei Sian*

UNIT NO. 1

# OVERVIEW OF DEMENTIA AND DIAGNOSIS OF DEMENTIA

Dr Nagaendran Kandiah


## ABSTRACT

**Dementia is a syndrome characterised by cognitive, behavioural and neurological deficits. Both neurodegenerative and non-neurodegenerative conditions can result in dementia. Neurodegenerative diseases include diseases such as Alzheimer's disease, Frontotemporal Dementia and Dementia with Lewy body, while non-neurodegenerative conditions include conditions such as vascular dementia and normal pressure hydrocephalus. The prevalence of dementia is on a rising trend with the rapidly ageing population in Singapore. Early diagnosis of dementia is important to allow timely pharmacological and non-pharmacological interventions. A thorough history, cognitive evaluation along with suitable investigational studies is necessary for early diagnosis. The ability to diagnose dementia at the earliest stages has been greatly improved with the use of biomarkers such as medial temporal atrophy on MR imaging and cerebrospinal fluid beta amyloid levels. A 4-step approach to dementia evaluation, incorporating local data, where possible can be used: The first step requires the exclusion of delirium as the cause of the forgetfulness or confusion; the second step involves establishing the diagnosis of dementia; the third step assesses for the behavioural, functional and social problems associated with dementia; and the final step, with the use of a focused history, physical examination, investigations and selected use of neuroimaging, attempts to establish the aetiological diagnosis of the dementia. The management of dementia requires a multidisciplinary approach. While acetyl cholinesterase inhibitors and NMDA antagonist can slow cognitive deterioration, research for newer disease modifying drugs which target the underlying pathology is ongoing. Research into non-pharmacological interventions such as cognitive training is also on-going.**


**Keywords: Integrated care; Elderly; Chronic conditions**

**SFP2013; 39(2) Supplement: 8-14**

## INTRODUCTION

Dementia is a brain disorder that affects millions of people, mostly older adults. Dementia should be viewed as a "late stage" in the continuum of cognitive difficulties. To be able to manage dementia effectively, clinicians should aim to identify the earliest stages of dementia.

NAGAENDRAN KANDIAH, Consultant, Department of Neurology, National Neuroscience Institute; Asst Prof, Duke-NUS Graduate Medical School Singapore

With the rising trend in the prevalence of dementia, especially with Singapore's rapidly greying population, this is an area of intense research in the area of therapeutics as well as the diagnosis of dementia in the earlier stages, even in the preclinical dementia state as with early diagnosis, because the affected patients are then more amendable to benefit from treatment advances.

Dementia is now included as a disease in the chronic disease management programme where Medisave can be used to pay primary care visits.

The diagnosis of dementia requires the presence of dysfunction in memory and other cognitive domains which are progressive, resulting in a decreased level of function[1]. At the stage of dementia the pathological changes in the brain are often well established and profound. Alzheimer's disease (AD) is the most common cause of dementia and the pathological hallmarks of AD include beta-amyloid plaques and neurofibrillary tangles. The second commonest cause of dementia is Vascular Dementia (VaD). In the majority of elderly patients, AD and VaD co-exist and this is termed as Mixed Dementia.

There is evidence to show that these pathological changes begin many years prior to the onset of dementia[2]. The challenge for physicians would be to identify subtle changes in cognition when the pathological changes are only beginning to develop. These earlier stages of disease have been described using several terminologies including mild cognitive impairment (MCI) and cognitively impaired not demented (CIND)[3-4]. It is crucial that clinicians are able to identify these earliest stages of cognitive impairment as intervention is most likely to be effective when initiated at this early stage.

## EPIDEMIOLOGY

In Singapore the prevalence of dementia and cognitive disorders is likely to increase rapidly over the coming years. We have the fastest ageing population in the Asia-Pacific region with 15-20% of the total population being above the age of 65 by the year 2030. At the present time it is estimated that we have about 25 thousand patients with dementia and this number is set to increase to 53 thousand by 2020[5-7]. The prevalence of MCI is presently unclear but based on western prevalence rates of 18.5% at age 50-60 and 35-38% at age greater than 60, it is estimated that we currently have 75-100 thousand subjects with MCI[8-9].

## ETIOLOGY AND RISK FACTORS

Dementias are largely neurodegenerative conditions including Alzheimer's disease[10], Parkinson's Disease Dementia[11], Lewy Body dementia, Frontotemporal dementia[12], and Creutzfeldt-Jakob disease. However reversible causes such as normal pressure

hydrocephalus, neurosyphilis, B12 deficiency, folate deficiency and Hashimoto's encephalopathy need to be considered and excluded. AD represents the most common cause of dementia followed by vascular dementia.

The main pathological hallmarks of AD are the beta-amyloid plaques and neurofibrillary tangles. The risk factors for the development of this pathology include advanced age, family history, vascular risk factors and APOE4 genotype[13-14]. It is also increasingly evident that AD and vascular pathology often coexist and manifests as mixed dementia. Optimisation of vascular risk factors such as diabetes mellitus and hypertension is believed to slow the amyloid cascade resulting in stabilisation of cognitive function among patients with vascular cognitive impairment.

## MILD COGNITIVE IMPAIRMENT

Cognitive changes in the elderly occur over a continuum, ranging from normal ageing at one end of the spectrum to dementia at the other end. There has been intense interest in the intermediate stage between normal ageing and dementia. Of the various classification systems, the Mayo Clinic's mild cognitive impairment (MCI) has received the most attention. Its pathological validity is supported by conversion rates to dementia of approximately 12% annually and 80% at six years of follow-up. Originally, MCI diagnosis required the presence of memory complaint (preferably corroborated by an informant), objective memory impairment for age, essentially preserved general cognitive function, normal functional activities and no dementia[15].

The heterogeneity within MCI has led to the proposal of a new classification system, based predominantly on neuropsychological profiles and includes amnestic or single memory MCI, multiple-domain MCI and single non-memory MCI[16-17]. However, the existing clinical criteria for diagnosis of MCI are subjective, variable in operationalisation, and highly dependent on clinical judgment. They are also unable to reliably predict who amongst those with MCI would progress to dementia. Thus, the differentiation between normal cognitive aging and MCI (especially the early stages of MCI) would be extremely challenging using only clinical methods. This has prompted research into the use of more objective neuroimaging (structural and functional), cerebrospinal fluid (CSF), genetic and molecular biomarkers which reflect AD pathogenesis, to complement clinical approaches towards an early and accurate diagnosis of AD. Initial drug trials have not shown clinical benefit, likely related to the heterogeneity of this MCI entity.

Clinical research in accurate characterisation of MCI is of paramount importance in tandem with the concurrent development of disease-modifying therapies to identify those MCI subjects who would stand to gain most from early intervention. These issues currently render MCI to be mainly a research entity at this moment and preclude their current use in routine clinical practice. As such, the discussion below will focus mainly on established dementia.

## ASSESSMENT

The evaluation of dementia should be targeted at individuals in whom there is some suspicion of cognitive impairment. This includes subjects with memory or other cognitive complaints, this could either be self-reported or noticed by family members or caregivers; subjects in whom the physician has suspicion of cognitive impairment during the consultation despite the absence of memory or cognitive complaints; subjects who are at increased risk for dementia, such as those with strong family history of dementia and elderly subjects who need to make an important decision (such as making a will, sale of flat, handling complicated financial matters) and in whom mental competency is in question. It is important to note that forgetfulness is not a part of normal aging, while normal older persons might take a longer time to recall, they should still be able to function independently and maintain social functioning should they be given more time to do so.

The evaluation of cognitive impairment should been done via a multifaceted approach, focusing not only on the cognitive complaints, but also on the functional and social consequences of these cognitive changes. This would help the clinician diagnose dementia early, assess for the complications of dementia and establish the aetiology of the dementia and manage accordingly.

With a patient presenting with forgetfulness or confusion, we can use a 4-step assessment to evaluate the cognitive complaint:

(i) Is the forgetfulness or confusion acute or chronic?
(ii) If the forgetfulness or confusion is chronic, is it dementia?
(iii) If it is dementia, what are the complications?
(iv) If it is dementia, what is the aetiology?

### (i) Is the forgetfulness or confusion acute or chronic?

If the cognitive complaints is of an acute nature, with a rapid onset and short duration (lasting from few hours to days), it would be important to exclude delirium.

Delirium is defined by the Diagnostic and Statistical Manual of Mental Disorders – fourth edition (DSM-IV); however, this may be difficult to apply in clinical practice. The Confusion Assessment Method (CAM) is a brief and structured assessment commonly used in clinical setting to diagnose delirium. It requires the presence of 3 of the following 4 features: presence of acute change in mental status, fluctuating course with inattention, coupled with either the presence of disorganised thinking or altered level of consciousness. CAM has been shown to have 94-100% sensitivity and 90-100% specificity in the identification of delirium with good inter-observer reliability (kappa test 0.81-1.0). If the cognitive complaints are assessed to be secondary to delirium, the underlying precipitating factors (such as sepsis, stroke disease or drug causes) should be looked out for and the patient would require hospitalisation to manage the delirium and the underlying medical illness.

One must also be mindful that acute confusional state can sometimes be superimposed on chronic confusion. If the forgetfulness or confusion is of a subacute nature, developing over a period of week to few months, conditions such as stroke disease, space-occupying lesion, Creutzfeld-Jakob disease and hydrocephalus have to be excluded.

### (ii) Is it dementia?

If the cognitive complaints are of a chronic nature, it is first important to exclude depression and late-onset psychiatry disorders. The diagnosis of dementia is then assessed via a clinical approach, either subjectively (looking for features of cognitive decline in the subject) or objectively (testing the subject's cognitive abilities using validated performance-based assessments).

#### *Subjective approach*

The DSM-IV criteria for dementia are often used as the gold standard for clinical diagnosis of dementia. It requires the presence of memory impairment, together with deficits in one other cognitive domain (aphasia, apraxia, agnosia and executive dysfunctioning). Examples of practical questions to be asked to the patient's informants with regards to these cognitive domains are shown in Table 1.

The Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE) is a 26-item test that enquires about the subject's memory, cognition and language ability of the last 10 years. The strength of this instrument is its assessment of cognitive changes over a period of time, instead of a single point in time and also it is independent of the subject's premorbid ability or past educational attainments. This has also been validated locally among elderly Chinese subjects with an optimal cut-off score of 3.3/3.4 with 94.3% sensitivity and 94% specificity.

#### *Objective approach*

This is an observer-based approach using either performance-based instruments, such as mental status test (brief screening instruments), or a more detailed neuropsychological tests, which is usually administered by clinical psychologists.

There are several mental status tests, some of which have been validated locally. These include the Elderly Cognitive Assessment Questionnaire (ECAQ), Abbreviated Mental Test (AMT), the Mini Mental State Examination[18] the Chinese Mini Mental Status Examination (CMMSE), the Montreal Cognitive Assessment (MOCA), the AD8 questionnaire[19], clock drawing test (CLOX) and Brief Informant Screening test.

The ECAQ (Table 2) is a 10-item cognitive test which assesses memory and information-orientation. Using a cut-off score of 5/6, it has 85.3% sensitivity with 91.5% specificity for identifying cognitive impairment. The 10-item AMT (Table 2) and 28-item CMMSE has also been validated locally. For mild cognitive impairment, AMT's cut-off score is 7/8 (81% sensitivity with 89% specificity) and CMMSE cut-off score of 20/21 (sensitivity 83%, specificity 94%). The CMMSE is more useful in those with higher educational attainment as the AMT has a ceiling effect on these individuals.

The MOCA is a 30-item questionnaire and includes evaluation of memory, executive function, visuospatial function, language and orientation[20]. It has been locally validated for the diagnosis of mild cognitive impairment and mild dementia. It has a higher sensitivity for the diagnosis of early dementia[21].

It is important to keep in mind that these cut-off scores serve as a screening instrument for dementia; where some subjects may score low on cognitive screening test and have no dementia, while others may score very well but have dementia. Language barriers, advanced age and low education may confound the results and provide false-positive scores. We recommend a combined subjective and objective approach and acknowledge the challenges in diagnosing dementia in a certain group of patients.

Neuropsychological testing is useful in detecting subtle cognitive difficulties which is not picked up by the brief screening instruments. They should be performed on subjects who have

**TABLE 1. DSM-IV CLINICAL CRITERIA FOR DIAGNOSIS OF DEMENTIA**

| Cognitive domain | Questions |
|---|---|
| Amnesia | Any forgetfulness? Did it start gradually or suddenly? Is it progressively worse? And if so, is it smoothly declining or showing a step-wise/ fluctuating decline? Is it over short-term or long-term matters? |
| **AND declines in one of the following domains:** | |
| Aphasia | Any word-finding difficulty or other difficulties with communication? |
| Apraxia | Any problems with buttoning or dressing? Any difficulties with using utensils during mealtimes? |
| Agnosia | Any problems recognising familiar faces or familiar items? |
| Executive dysfunctioning | Any problems handling money (loose change)? Any change in general problem-solving abilities? Is one's work getting to be more disorganised? |
| OF sufficient severity to cause significant impairment in social or occupational functioning | As a result of the above, is he becoming less independent in the<br>- community?<br>- home-care?<br>- self-care level? |

memory complaints but do not yet satisfy criteria for dementia; depressed subjects who present with memory complaints to help in determining whether the memory complaints is due solely to the depression or whether they have concomitant dementia; and subjects in whom decision-making capacity is being assessed. Psychometric testing can be a useful adjunct in the latter scenario. In addition, neuropsychological testing may be helpful in dementia aetiological differentiation[22]. Neuropsychometric batteries have been validated locally in the elderly Chinese and the Vascular Dementia Battery test has also been validated in the Singapore population.

Neuropsychological tests are also useful in individuals in whom the diagnosis of dementia is inconclusive (such as those subjects with performance below 1SD or 1.5SD below age and education adjusted norms) and serial monitoring for performance decline over time is useful in establishing the diagnosis.

**TABLE 2. LOCALLY VALIDATED BEDSIDE SCREENING INSTRUMENTS FOR DEMENTIA**

**Elderly Cognitive Assessment Questionnaire (ECAQ)**

| Items | Score |
|---|---|
| Memory | |
| 1. I want you to remember this number. Can you repeat after me (4517). I shall test you again in 15 mins. | 1 |
| 2. How old are you? | 1 |
| 3. When is your birthday? OR in what year were you born? | 1 |
| Orientation and information | |
| 4. What is the year? | 1 |
| 5. Date? | 1 |
| 6. Day? | 1 |
| 7. Month? | 1 |
| 8. What is this place called? Hospital/Clinic | 1 |
| 9. What is his/her job? (e.g. nurse/doctor) | 1 |
| Memory Recall | |
| 10. Can you recall the number again? | 1 |
| Total score | |

**Abbreviated Mental Test (AMT)**

| Items | Score |
|---|---|
| What is the year? | 1 |
| What is the time? (within 1 hour) | 1 |
| What is your age? | 1 |
| What is your date of birth? | 1 |
| What is your home address? | 1 |
| Where are we now? | 1 |
| Who is our country's Prime Minister? | 1 |
| What is his/her job? (show picture) | 1 |
| Memory phrase "37 Bukit Timah Road" | |
| Count backwards from 20 to 1 | 1 |
| Recall memory phrase | 1 |
| Total score | |

### (iii) What are the Dementia complications?

The complications of dementia can be broadly divided into behavioural and psychological symptoms, functional problems and social problems (discussed in subsequent chapters). These should be evaluated in all patients with dementia as these issues are the major cause of stress on the caregiver and assessment would enable the clinician to target subsequent management effectively.

Functional difficulties can be assessed at 3 levels: community functioning, home functioning and self-care. They are generally affected with the progression of dementia in a descending order and also allow these functional deficits to serve as markers of dementia severity. It is important when asking for functional deficits to ask for a change in the level of function, i.e. whether the patient is functioning at the same level as before and whether the patient is as independent as before. It is also important to make sure that these difficulties result from cognitive difficulties and not physical disabilities.

The severity of dementia can be staged using the Diagnostic and Statistical Manual of Mental Disorders-3rd revised edition (DSM-III-R) criteria where mild dementia is defined as impairment for work and social activities with the capacity for independent living remaining largely intact. Moderate dementia takes place when independent living is hazardous and would require some degree of supervision. Severe dementia is characterised by impaired activities of daily living such that continual supervision is required. Other formal functional assessment scales include Clinical Dementia Rating Scale (CDR), Functional Assessment Staging (FAST), Barthel Index and Blessed Dementia Scale (BDS).

### (iv) What is the Dementia aetiology?

Having determined the cognitive impairment to be chronic and having met clinical criteria for dementia, as well as assessing for the complications of dementia, the final step of the clinical evaluation involves determining the dementia aetiology.

The types of dementia can be broadly divided into 2 categories – irreversible and reversible causes (Table 3). The aim of determining dementia aetiology is to rule out potentially reversible causes of dementia and selecting appropriate treatment strategies for the irreversible dementias. This is done via clinical history and physical examination, followed by laboratory investigations and neuroimaging. There are guidelines and practice parameters developed for evaluating of dementia etiology and also more specific criteria for diagnosis of the more common Alzheimer's disease (AD) and vascular dementia (VD).

In the history, it is important to ask for the nature of the cognitive decline (sudden or gradual), progression – either gradually progressive (more suggestive of AD) or stepwise/fluctuating course (suggestive of VD). A history of significant alcohol ingestion and medication use (such as antipsychotics, antidepressants, anticholinergic agents and sedative-hypnotic agents) and history of medical, neurological and psychiatric illness is important.

**TABLE 3. TYPES OF DEMENTIA**

**Irreversible causes**
- Degenerative causes – Alzheimer's disease (AD), frontotemporal dementia, diffuse Lewy body dementia.
- Cerebrovascular disease – vascular dementia (VD).
- Prion-associated disorders (Creutzfeld-Jakob disease).
- Neurogenetic disorders.

**Potentially reversible causes**
- Infectious disorders – meningitis, encephalitis.
- Toxic or metabolic causes – hypothyroidism, vitamin B12 deficiency, alcohol-related syndromes.
- Autoimmune Dementia-Hashimoto's Encephalopathy, VGKC associated dementia
- Neoplastic causes.
- Hydrocephalus – obstructive or normal pressure hydrocephalus.

A targeted physical examination should be performed, looking for focal neurological deficits (such as visual field defects, hemiparesis, hemisensory loss, asymmetric deep tendon reflexes or unilateral extensor plantar responses). It is also important to examine for extrapyramidal signs such as rigidity and bradykinesia, movement disorders and gait abnormalities as these may point to certain aetiological diagnosis.

Dementias which are related to metabolic abnormalities are thought to be reversible. The most commonly recommended haematological tests are: full blood count, urea and electrolytes, serum calcium, serum glucose, thyroid function tests and vitamin B12 levels. We do not advise routine testing for neurosyphilis given the problems in interpreting the results of testing. Serum Venereal Disease Research Laboratory (VDRL) testing detects only 75% of tertiary syphilis and CSF VDRL may be negative in 30-70% of cases and neurosyphilis. Thus we recommend testing only when patients exhibit clinical features of neurosyphilis.

Other biomarkers which can help in establishing dementia diagnosis include apolipoprotein-E e4 allele, CSF-tau and β -amyloid for AD, CSF 14-3-3, neuron-specific enolase and electroencephalogram for Creutzfeld-Jakob disease. However, these are not performed routinely.

Neuroimaging is useful in the differential diagnosis of dementia and are also necessary in the diagnostic criteria in AD and VD. This may be helpful in justification of aggressive management of vascular risk factors in those patients found to have cerebrovascular disease on neuroimaging. They are also useful in detection of very early dementia as the functional and structural brain changes takes place before clinical manifestation of cognitive deficits. They consist of either structural imaging techniques [computed tomography (CT) scan of head and magnetic resonance imaging (MRI)] or functional neuroimaging techniques (Positron emission tomography and single-photon emission tomography).

Whether all patients with dementia require a structural imaging is an important clinical question, for which there is no consensus. The value of neuroimaging is the identification of cerebral infarcts and clinically important surgical brain lesions (SBLs) such as subdural haematomas, cerebral tumours and normal pressure hydrocephalus. The Canadian Consensus Conference on the Assessment of Dementia (CCCAD) has outlined the criteria for undertaking a CT scan, only if certain conditions are met (Table 4).

We also believe that the functional stage of the dementia is also relevant and important, over and above the duration of cognitive symptoms. In a patient with advanced dementia of long duration (>2 years), we believe that a brain scan is not warranted to detect potentially reversible SBLs. However, if the patient's dementia is still mild and moderate (even after 2 years), a brain scan is indicated.

**TABLE 4. CANADIAN CONSENSUS CONFERENCE CRITERIA FOR PERFORMING CRANIAL CT IN PATIENTS WITH DEMENTIA**

CT is recommended if one or more of these criteria are present.
- Patients are less than 60 years old.
- Rapid (e.g. over 1-2 months), unexplained decline in cognition or function.
- Dementia of relatively short duration (< 2 y).
- Recent, significant head trauma.
- Unexplained neurologic symptoms (e.g. new onset of severe headache or seizures).
- History of cancer, especially of a type or at a site associated with metastasis to the brain.
- Use of anticoagulants or history of bleeding disorder.
- History of urinary incontinence and gait disturbance early in the course of dementia (suggestive of normal pressure hydrocephalus).
- Presence of any new localising signs on physical examination (hemiparesis, Babinski's sign).
- Unusual or atypical cognitive symptoms or presentation (e.g. progressive aphasia).
- Gait disturbance.

### Summary of Approach to Patient with Memory Complaint

- Is the memory complaint acute or chronic?
  Rule out delirium
- If it is chronic, is it dementia?
- If it is dementia, what are the complications?
  Behavioural, functional, social aspects of dementia
- What is the aetiology?
  Clinical evaluation (history, clinical examination, laboratory tests, + neuroimaging)
  To rule out reversible causes.
  If irreversible cause, clinical criteria in the differential diagnosis of dementia aetiology.

## INVESTIGATIONS

We are now fortunate to have a wide range of investigational tools including CT brain, MRI brain, PET scans, cerebrospinal fluid (CSF) studies and genotyping. With the availability of such tools which have been demonstrated to have reliable sensitivity and specificity the diagnosis of dementia and MCI should move away from being a "diagnosis of exclusion" to a

"diagnosis of inclusion". Structural brain imaging with MRI is useful to evaluate for hippocampal atrophy which is the hallmark of AD while disproportionate atrophy of the frontal lobes may be indicative of frontotemporal dementia[23]. MRI is also valuable in demonstrating white matter disease and lacunar infarctions which are suggestive of vascular dementia. Special MRI sequences such as the diffusion weighted imaging (DWI) can demonstrate diffusion abnormalities which are highly specific for Creutzfeldt-Jakob disease. These advanced neuroimaging techniques will have increasing importance once MCI is accurately characterised and disease-modifying treatments have been shown to be effective. CSF studies of beta amyloid, total tau and phospho-tau have been demonstrated to have a high specificity for the diagnosis of AD. CSF examination is also valuable in managing reversible conditions such as encephalitis and autoimmune encephalopathies. PET scans also can help distinguish between AD and FTLD based on the pattern of glucose hypometabolism.

## MANAGEMENT

Management of cognitive disorders requires a multidisciplinary approach including pharmaceutical and non-pharmaceutical management of the patient, caregiver support and provision of long term nursing care. The mainstay of pharmaceutical management includes acetyl cholinesterase inhibitors[24]. Patients who are initiated on AchEIs should be offered the highest tolerable dose for an adequate length of time. Switching from one AchEI to another or switching from an oral formulation to a patch delivery may need to be considered for patients who develop intolerable side effects.

Memantine, a NMDA receptor antagonist may be useful for patients with moderate to severe AD. In view of the increased risk of cardiovascular and cerebrovascular events with both typical and atypical antipsychotics, these drugs should be reserved for patients with severe behavioural symptoms. Several disease modifying agents are now in phase 3 clinical studies. They target the amyloid cascade or the production of tau and preliminary studies have demonstrated promising results.

## CONCLUSIONS

Dementia represents a late stage of disease along the continuum of cognitive impairment. Early diagnosis of dementia is important to allow timely pharmacological and non-pharmacological management. Early diagnosis also allows adequate time for patients and caregivers to cope with the significant emotional and economic costs of the illness. A 4-step clinical approach could be a succinct framework to aid the family physician in evaluating the individual who presents to the clinic with cognitive complaints such as forgetfulness or confusion. Management of cognitive disorders requires a multidisciplinary approach including pharmaceutical and non-pharmaceutical management of the patient, caregiver support and provision of long term nursing care.

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**LEARNING POINTS**

- **Cognitive dysfunction manifests along a continuum ranging from mild cognitive impairment to dementia.**
- **The strongest risk factors for AD are age, family history and APOE genotype.**
- **While dementia is often secondary to a neurodegenerative pathology, other reversible causes such as normal pressure hydrocephalus needs to be excluded.**
- **Investigative tools such as MRI and CSF studies can help establish a diagnosis of mild cognitive impairment and early dementia.**
- **The four-step approach to dementia evaluation consists of:**
  - **Exclusion of delirium as the cause of the forgetfulness or confusion.**
  - **Establishing the diagnosis of dementia.**
  - **Assessing for the behavioural, functional, and social problems associated with dementia.**
  - **Establishing the aetiological diagnosis of dementia.**
- **Management of cognitive disorders requires a multidisciplinary approach including pharmaceutical and non-pharmaceutical management of the patient, caregiver support and provision of long term nursing care.**

UNIT NO. 2

# EARLY DIAGNOSIS OF DEMENTIA IN THE PRIMARY CARE SETTING

Dr Dennis Seow Chuen Chai


## ABSTRACT

**General Practitioners (GPs) play an important role in early detection and initiation of the diagnostic process of dementia. A consideration of barriers and enablers of this process can aid the diagnostic process. Early referral for Specialist evaluation is an important step. The GP can also provide additional advice and support to the patient and caregiver during diagnosis.**


**Keywords: barriers, enablers, educational needs, early referrral**

**SFP2013; 39(2) Supplement: 15-18**

## INTRODUCTION

Early diagnosis of dementia and the General Practitioner (GP) in Singapore are inextricably linked. As the first point of reference in the community, the GPs are in the vanguard of early detection of dementia and have considerable influence on the subsequent diagnostic process and clinical care that the person with dementia (PWD) receives. Post-GP consult however, it is likely that a proportion of patients in the community with cognitive and/or neuropsychiatric complaints do not get referred to a tertiary centre for evaluation of these complaints. A World Alzheimer Report commissioned by Alzheimer's Disease International in 2011 on the benefits of early diagnosis and intervention estimated that only 20-50% of cases of dementia were routinely recognised and documented in primary care case note records.[1] A systematic review published in 2009 to ascertain the prevalence and contributing factors for missed and delayed dementia diagnoses among primary care physicians revealed that sensitivity of providers' diagnoses appeared to be strongly related to dementia severity.[2] In the review, for patients with few or mild symptoms of dementia, primary care providers' diagnostic sensitivity ranged from 0.09 to 0.41. In contrast, for patients with "severe" dementia, overall sensitivity was 0.26 to 0.69.

### The importance of early diagnosis

From the patient's perspective, it is important to note that the cause of his/her cognitive complaints may not be due to dementia. Non-dementia states include Mild Cognitive Impairment (MCI) (an at risk pre- dementia stage),[3] subjective cognitive impairment (SCI) or age associated memory impairment (AAMI). Oftentimes, it provides much reassurance and relief to the patient and their family members that the patient does not have dementia (yet) after a thorough evaluation. In addition, non-dementia states provide opportunities to promote healthy brain ageing interventions through cognitive activity, cognitive stimulation and regular cognitive surveillance. Cognitive impairment may also be due to organ illness, nutritional deficiencies or other undetected illnesses; giving further reasons on the need for early thorough evaluation of cognitive complaints. Other important elements and benefits of early diagnosis with reference to the patient, family or caregiver, general practitioner, healthcare policy makers and socioeconomic savings are summarised in Table 1. In addition, through early diagnosis, studies have shown that collaborative care between primary care doctors, specialists and community care providers can improve quality of care, reduce behavioural symptoms, increase access to community serves and reduce caregiver stress and depression.[4,5]

## BARRIERS TO EARLY DIAGNOSIS

Having considered the benefits of early detection and early evaluation of cognitive complaints, it is then important to consider the barriers to this process in the primary care setting. Factors to consider include (1) Time constraints (2) Heterogeneity of clinical presentation (3) Lack of corroborative history (3) Patient/caregiver factors (4) Healthcare provider factors.

Regarding health provider factors, in a survey of Australian family carers, general practitioners were perceived as the most helpful health professional but yet, paradoxically, were the recipient of most of the complaints about lack of diagnosis, management and information.[6] A subsequent survey of Australian GPs found that they were not making a diagnosis because of insufficient knowledge, lack of time, lack of suitable screening tools for assessing memory complaints, uncertainty of management and lacked of confidence.[7]

A systematic review[2] in 2009 of publications related to factors contributing to missed or delayed diagnosis of dementia in the primary care setting classified healthcare provider factors into the following:

**(1) Demographics**

One study showed that younger providers outperformed older physicians on a test of dementia knowledge, although older physicians had greater confidence in their ability to diagnose dementia.[8]

**(2) Educational needs**

The review demonstrated that lack of education about dementia was a real concern. Targetted training needs included: (a) lack of knowledge about what changes are "normal" in aging, (b) perceived difficulty in detecting

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**TABLE 1. THE BENEFITS AND IMPORTANCE OF EARLY DIAGNOSIS OF DEMENTIA**

| | |
|---|---|
| Patient | • It may not be dementia!<br>• The right to a dignified diagnosis[1]<br>• Early care planning including healthcare preferences (advance care planning), legal, financial, living arrangements, spiritual and other needs as deemed important to the patient.<br>• Appointment of lasting power of attorney (donee) under the Mental Capacity Act, Singapore (2008)(if able to make decisions).<br>• Lifestyle changes including adjustments at work and driving.<br>• Detection and treatment of reversible causes of cognitive impairment e.g. depression, delirium, organ disease, hypothyroidism, B12 deficiency, anemia etc. Drug induced causes of cognitive impairment e.g. postural hypotension would also be included in this category and a review of medications would be essential.<br>• Management of behavioural and psychological changes related to dementia.<br>• Management of comorbid conditions e.g. DM, hypertension, coronary artery and stroke disease etc<br>• Improved quality of care and life.<br>• Cognitive engagement and rehabilitation programmes.<br>• Early enrolment and utilization of community services e.g. dementia care programmes and dementia care centres.<br>• Early pharmacological treatment (as appropriate) to slow cognitive decline.<br>• Participation in clinical trials for disease modifying therapies (if suitable). |
| Family / Caregiver | • Relief and understanding that cognitive complaints are due to dementia and not due to any other disease.<br>• Management of comorbid conditions including vascular risk factors.<br>• Caregiver education.<br>• Care planning.<br>• Management of behavioural and psychological symptoms.<br>• Person centred interventions.<br>• Support and interventions to reduce caregiver stress, depression and burden. |
| General Practitioner | • Clarity of diagnosis.<br>• Participation in collaborative care with Specialist Physician and community care providers in management of dementia and comorbid conditions. |
| Healthcare Policy makers | • Enables forward planning in allocation of healthcare resources to persons with dementia (PWD) and the caregivers. |
| Socioeconomic savings | • In high income countries, the costs of high quality dementia diagnosis and early intervention are more than likely offset by projected future savings from delayed institutionalization[1]<br>• Greater cost effectiveness through improved health and quality of life of carers and PWD[1] |

and/or managing dementia, (c) perception that specialists rather than primary care providers were more appropriate for making the diagnosis.

**(3) Concern about consequences of misdiagnosing of dementia**

The review remarked that physicians were presumably reluctant to make a diagnosis because of concerns of the negative impact on patient and family; hence diagnosis was deferred till they were more certain.

**(4) Attitudes towards dementia**

Concerns cited included potential stigmatization from the diagnosis, doubts about usefulness or desirability of early diagnosis, perception of limited treatment options, unwillingness of physician to discuss cognitive function with patient or caregivers, low prioritisation of cognitive problems relative to physical health problems and avoidance of pressure for intervention once diagnosis was made. Primary care physicians also expressed concerns of formally giving the diagnosis and being responsible for the care of patients with dementia with consequent strain of resources of their practices.

**(5) Testing for dementia**

Barriers cited included physicians' discomfort in administering assessment instruments and reluctance to seek specialty consultation or referrals.

**(6) Communication problems**

Issues included perceived difficulty in disclosure or explanation of diagnosis, language barriers, poor communication skills and providers' difficulty in discussing or explaining dementia specifically.

## ENABLERS OF EARLY DIAGNOSIS

Can the barriers to early diagnosis be overcome? What then are the enablers of early detection and subsequent diagnosis of dementia in the primary care setting? Useful enablers[9] in our local setting include:

**(1) Time**

The use of multiple short office visits is advocated. In a time limited setting, obtaining and re-visiting complaints over several short visits would be practical and useful. As cognitive complaints can be varied, multiple visits over time

can enable the GP to obtain better and consistent picture of the cognitive symptoms. The GP would also be less pressured to obtain a sweeping cognitive history in one visit.

**(2) Family member (and/or foreign domestic helper [FDH]) corroboration of activities of daily living (ADL) and investigation of memory problem**

Oftentimes, the primary family caregiver may not be present at the first visit and another family member or foreign domestic helper is present. At other times, the patient may present alone in the clinic. In such office encounters, it is important to identify the family caregiver who is familiar with the patients. Such a person may not be the principal decision maker but the familiarity with PWD and observations of the symptoms displayed by the patient would be crucial. The family caregiver can then be asked to come to the GP's clinic at the next visit whereby corroborative history can be obtained. This also emphasises the utility of multiple visits to glean the cognitive history. If the FDH is present, use the opportunity to enquire about the patient through her observations. Not uncommonly, the FDH can be the only person most familiar with the behaviour, habits and function of the patient; and thus becomes a very valuable source of information. If the FDH is not present, one can ask the family to bring her/him along at the next clinic visit.

**(3) Other staff reporting**

Observations by the clinic staff can be useful in providing further information of the patient while waiting to see the doctors. Repeated visits would also enable the staff to be familiar with the patient and caregiver.

**(4) Use of assessment tools**

Short screening tools such as the locally validated abbreviated mental test[10] (AMT) (performed by doctor) or 8-item Ascertain Dementia tool[11,12] (AD8) (informant or self rated) can be used in the GP clinic. These are short and do not take more than 5-7 min to use. Screening for depression should also be done.

**(5) Initial laboratory investigations**

At the primary care level, haematological and biochemical investigations including full blood count, renal panel (with calcium, magnesium and phosphate), liver function, vitamin B12, folate and thyroid function. HIV and syphilitic serology can also be done if appropriate. These will reduce the investigational process at the Memory Clinic when the patient is referred to the tertiary centres.

**(6) Use of guidelines**

The clinical practice guidelines on dementia is published and updated every 5 years. The recent edition has been published in April 2013 and available at the Ministry of Health, Singapore website.[13]

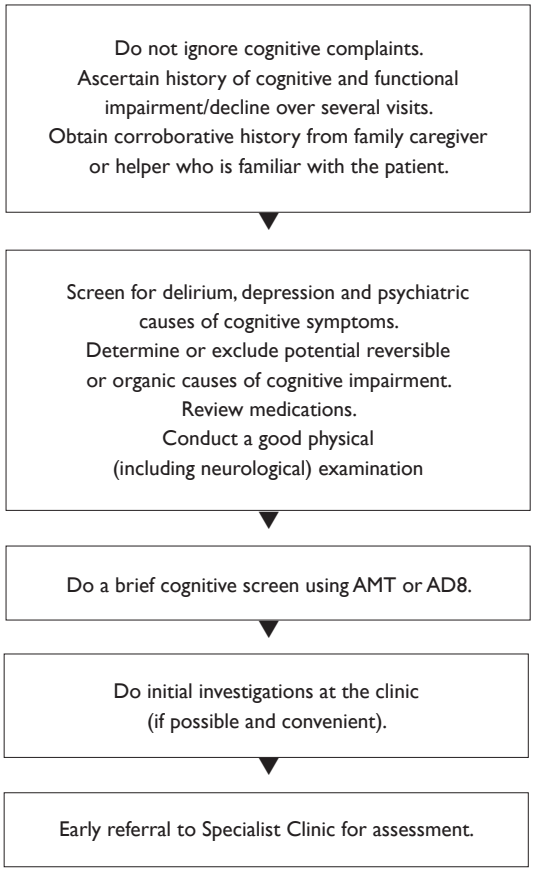
http://www.moh.gov.sg/content/moh_web/healthprofessionalsportal/doctors/guidelines/cpg_medical/2013/cpgmed_dementia_revised.html

**(7) Early referral to Specialist Clinics for assessment and intervention**

Early referrals can be made to any neurology, psychiatry or geriatric medicine clinic specialising in assessment of cognitive complaints or disorders especially there is strong clinical suspicion or there is significant caregiver stress, burden or depression.

## A WORKFLOW PROCESS FOR INITIAL EVALUATION OF COGNITIVE COMPLAINTS AND EARLY REFERRAL AT THE GP CLINIC

A practical guide on the steps taken to assess cognitive complaints in the primary care setting is as follows:




## ADDITIONAL TIPS FOR GPS

- Inform the patient and caregiver that the evaluation and diagnostic process at the Specialist will entail several steps over several visits including cognitive assessment, blood investigations (if not done), brain imaging and neuropsychological assessment (if deemed necessary by the Specialist). This will enable patients and caregivers to be mentally prepared.

- Encourage the patient and caregiver to attend the Specialist appointment as delays would not be beneficial and prolong the diagnostic process.
- Cognitive engagement and stimulation. If a neurodegenerative process is highly suspected, then helping the patient cognitively would be useful. Use of memory aids e.g. diaries, note books, Sudoku, IPAD games/calendars can be suggested. Making the home elder friendly would also be useful.
- For the caregiver, early referral to community services such as Alzheimer's Disease Association (ADA) (Singapore) would be useful to help relieving caregiver stress and burden.
- For families with foreign domestic helpers, enquiring on their welfare and stress in caring for the PWD would be important as they can be the silent sufferers while doing the physical caregiving. Referral to agencies for training of helpers in dementia care can also be initiated. This would also help the FDH understand the disease and perhaps be more empowered and motivated to help the PWD. A list of agencies can be found on the ADA website (www.alz.org.sg)
- Use of remote teletechnology. The use of web-based cameras (webcams) has increased over the years and family caregivers who stay away from the PWD have used them to help monitor the safety and movement of their loved one at home. They can also be used as a visual check on medication taking and hence ensure compliance. Other assistive technology devices such as bed fall detectors, motion sensor lights can also be considered to help with home safety. Certain tracking technologies for those who wander can also be purchased commercially.
- If unsure, one can always call the Specialist Doctor or Specialty Nurse Clinician (Dementia) at the hospitals for advice.

## CONCLUSION

As the number of PWD increases in rapidly ageing Singapore, early detection and diagnosis of dementia is crucial step in helping the patient, caregiver and physician understand and manage the disease. Early person-centred and caregiver interventions can be initiated thereby improving the quality of care and reducing caregiver stress, depression and burden. For those in the early stages of disease, it is also important for them to realise that life does not stop after the diagnosis and there is much to live for. The GP, being at the forefront, will continue to play a pivotal role in initiating this process in the years ahead.

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### LEARNING POINTS

- **Early detection and evaluation of cognitive complaints in the GP clinic are important in the diagnosis of early dementia.**
- **While there are barriers to early diagnosis at the GP clinic, there are enablers which can help overcome these difficulties.**
- **GP can provide much advice and support to the patient and caregiver early in the diagnostic process.**

UNIT NO. 3

# BEHAVIOURAL AND PSYCHOLOGICAL SYMPTOMS OF DEMENTIA

Dr Ng Li-Ling


## ABSTRACT

**Behavioural and psychological symptoms of dementia (BPSD) are common in dementia. They cause significant distress to people with dementia and their carers. In managing BPSD, medical causes such as delirium must be excluded. Non pharmacological management, such as environmental and behavioural interventions are effective first line strategies. Medication may be useful in moderate to severe BPSD but must be used carefully in view of the risk of side-effects.**


**Keywords: Anxiety, depressive mood, hallucinations, misidentifications, delusions, apathy**

**SFP2013; 39(2) Supplement: 19-20**

## INTRODUCTION

Dementia is a devastating disease and leads to tremendous suffering for people with dementia and their families. In addition to the cognitive deficits of dementia the behavioural and psychological symptoms of dementia (BPSD) are an integral part of dementia. In the original description of Alzheimer's disease 100 years ago, prominent symptoms of paranoia, screaming and hallucinations were present. BPSD, sometimes referred to as non-cognitive or neuropsychiatric symptoms of dementia, is common and occurs in up to 90% of patients over the course of the disease. It is a significant cause of distress in people with dementia as well as their carers and if untreated can lead to premature institutionalisation.

## DEFINITION

BPSD refers to the symptoms of disturbed perception, thought content, mood or behaviour that frequently occur in patients with dementia (Consensus Conference, International Psychogeriatric Association). Table 1 lists some of common BPSD.

## ASSESSMENT

A comprehensive diagnosis of dementia must include an assessment of cognitive and behavioural symptoms as well as the needs of the family. In the initial assessment any medical causes for the behavioural symptoms must be sought and laboratory tests to exclude treatable causes are necessary. (See Table 2).

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**TABLE 1. COMMON BEHAVIOURAL AND PSYCHOLOGICAL SYMPTOMS OF DEMENTIA**

| BPSD | Common examples |
|---|---|
| Anxiety | Repeatedly asking questions of an upcoming event<br>Fear of being left alone<br>Worries about their finances |
| Depressive mood | Pervasive depressed mood or loss of pleasure<br>Self-deprecatory statements<br>Expressing wish to die |
| Hallucinations | Seeing people in the home who are not really there<br>Hearing deceased people call their names |
| Misidentifications | Not recognising their image in the mirror<br>Mistaking carers for other people<br>Misidentification of events on TV or Radio as if they were real |
| Delusions | People are stealing things<br>House is not one's home<br>Spouse or caregiver is an impostor<br>Spouse is unfaithful |
| Apathy | Lack of interest in daily activities<br>Decrease in social interaction<br>Decrease in emotional responsiveness<br>Decrease in initiative |
| Negativism | Refusal to co-operate<br>Resistance to care |
| Disinhibition | Crying Impulsiveness<br>Verbal aggression<br>Sexual disinhibition – stripping, masturbation |
| Sleeplessness | Night-time wandering |
| Agitation | Complex phenomenon<br>Defined as socially inappropriate verbal, vocal of motor activity may include the following: physically aggressive behaviours, restlessness, screaming, wandering |
| Physically aggressive behaviours | Hitting<br>Pinching<br>Kicking & biting<br>Slapping<br>Grabbing |
| Restlessness | Pacing |
| Screaming | Calling for help, asking to go home, cursing |
| Wandering | Shadowing/stalking of carer<br>Aimless walking<br>Excessive activity<br>Repeatedly trying to leave the house |

**TABLE 2. SOME COMMON CAUSES OF BPSD**

| Causes | |
|---|---|
| Delirium | Due to infections, medication, dehydration, metabolic causes etc. |
| Constipation | Faecal impaction |
| Pain | Arthritis, toothache |
| Discomfort | Uncomfortable clothing, ingrown toe nail |
| Sensory impairment | Faulty hearing aid |

## MANAGEMENT

The main objectives in the management of BPSD are to maximise functional independence, improve the quality of life of patients, minimise caregiver stress and distress, and help

families cope with the behaviours.

After comprehensive assessment and treatment of underlying medical causes specific BPSD are identified. The general principles in management are:

- to understand the cause of the behaviour disturbance e.g. environmental factors, stressful tasks or caregiver reactions.
- decide if the symptoms need to be treated.
- formulate a management plan with the caregiver.
- implement specific strategies.
- review care plans regularly.

General advice for caregivers includes: maintaining a calm familiar environment with a regular routine, organising an activity programme that is appropriate to the person with dementia or arrange for the person with dementia to attend a dementia day care centre. Caregivers need support and can seek help from family support groups and counselling centres.

## Non-pharmacological Management

Non-pharmacological interventions are usually first line management for mild to moderate BPSD and it has been shown that environmental and behavioural interventions in conjunction with caregiver education, training and support are effective. Some examples of interventions in the care plan for people with BPSD are listed in Table 3.

## Pharmacological management

Medication is indicated if non-pharmacological interventions have failed or when the symptoms are moderate or severe and has an adverse impact on the person with dementia or his caregiver.

**TABLE 3. EXAMPLES OF NON-PHARMACOLOGICAL INTERVENTIONS**

| Symptom | Interventions |
|---|---|
| Agitation and aggression | Use a calm approach to the person.<br>Speak in a soft voice.<br>Distract if possible – offer a drink, talk about a pleasant activity, hand massage.<br>Use music or audio or video tapes. |
| Wandering | Reassure when the person appears lost.<br>Use large written signs with clear words or symbols.<br>If there is a risk that they wander out of the house use identity bracelets with a contact number.<br>Allow access to safe wandering places e.g. a garden that is enclosed.<br>Use digital locks at exit doors.<br>Use artificial partitions or visual barriers to hide exit areas.<br>Electronic alarm systems may be useful.<br>Handphones with GPS tracking are available. |
| Sleeplessness | Maintain a regular activity and exercise programme.<br>Avoid day time naps and caffeine in the evenings.<br>Sleep hygiene. |

## Guidelines to pharmacotherapy:

- Treat only moderate or severe BPSD with medication.
- Use lower doses especially in the elderly.
- Target specific behaviours e.g. hallucinations, delusions, aggression.
- Start with one drug at a time.
- Be aware of adverse effects and drug sensitivity.
- Regular reviews of medication effects and side-effects.
- Make sure use of medication is time limited.

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3. The 36 hour Day, Nancy Mace and Peter Rabins.

**TABLE 4. PHARMACOLOGICAL INTERVENTIONS**

| Drug | Use | Daily dose range | Comments |
|---|---|---|---|
| Anti-psychotics | Hallucinations<br>Delusions<br>Agitation<br>Aggression | Haloperidol (0.5-2 mg)<br>Risperidone (0.5-2 mg)<br>Olanzapine (5-10 mg)<br>Quetiapine (25-150 mg) | Extrapyramidal side effects<br>Over sedation<br>Atypical anti-psychotics associated with possible raised risk of cerebrovascular adverse events and prolongation of Q-T interval |
| Anti-depressants | Depression | Fluoxetine (20-30 mg)<br>Fluvoxamine (50-150 mg)<br>Escitalopram (10-20 mg)<br>Paroxetine (20-30 mg)<br>Mirtazapine (15-45 mg) | |
| Cholinesterase inhibitors | Apathy<br>Hallucinations | Donepezil (5-10 mg)<br>Rivastigmine (6-12 mg)<br>Galantamine (16-24 mg) | Nausea<br>GIT symptoms |
| Anti-convulsants | Agitation<br>Aggression | Sodium Valproate (400-1000 mg) | Monitor liver function |
| Benzodiazepines | Insomnia<br>Anxiety<br>Agitation | Lorazepam (0.5-2 mg) | Excessive sedation<br>Risk of falls |

### LEARNING POINTS

- **Exclude delirium and psychiatric disorders such as depression as the cause of behavioural problems.**
- **Non pharmacological management of BPSD with environmental and behavioural interventions, is the first line of treatment.**
- **When using medication for moderate to severe BPSD, use the lowest dose and regularly review treatment.**

UNIT NO. 4

# PHARMACOLOGICAL TREATMENT OF DEMENTIA

Dr Lim Wee Shiong


## ABSTRACT

**Pharmacotherapy is a vital part of the multi-pronged strategy in dementia management. All dementia patients should be evaluated for suitability of pharmacological strategies to address the underlying disease, enhance cognitive symptomatology, and treat attendant behavioural complications. Once a definitive diagnosis of dementia has been made, the choice of symptomatic treatment hinges mainly on dementia etiology and stage of severity. While skillful use of symptomatic treatment can offer tangible but modest benefits in many cases, the decision to initiate such costly treatment should be individualised and always made in conjunction with the patient and caregiver. Disease-modifying treatment which goes beyond a primary symptomatic effect to target the underlying amyloid and tau pathways are currently undergoing clinical trials.**


**Keywords: palliation, chronic disease, cholinesterase inhibitors, NMDA antagonists, side effects**

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## INTRODUCTION

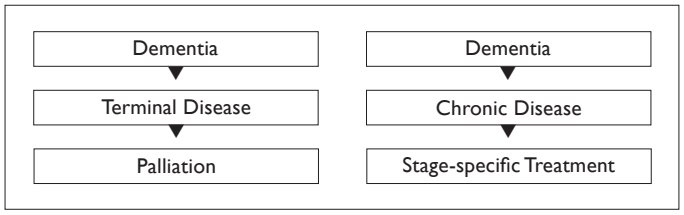
An executive report in 2006 highlighted the threat of an impending epidemic of dementia in the Asia-Pacific region in line with the greying demographic trend.[1] This has implications for Singapore, which has one of the most rapidly aging populations in the region. There is a compelling need for primary care physicians to be trained in the care and management of dementia patients to meet the projected burgeoning demand. From the standpoint of pharmacological management, it is foreseeable that the primary care physician would be involved in one of two ways:

- initiate treatment in a newly diagnosed dementia patient, or
- more commonly, continue care in dementia individuals whose treatment regimes have been initiated and stabilised by the hospital-based dementia specialist.

## OVERVIEW

In the past, dementia was often perceived as a terminal illness for which the main focus of treatment is palliation. Increasingly, there is a paradigm shift towards treating dementia as a chronic disease, not unlike conditions like diabetes mellitus, where specific treatment goals can be formulated depending on the stage of the disease (Figure 1). In the mild stage, the focus is on maintenance of patient independence and autonomy, whereas in the advanced stages, carer and psychosocial issues predominate. Seen in this light, it is important to appreciate that pharmacotherapy is only one of the tenets of a comprehensive multi-pronged strategy for dementia management that encompasses other aspects such as a well-established diagnosis, education of patient and carer, non-pharmacological measures and comprehensive caregiver psychosocial intervention.

**FIGURE 1: PARADIGM SHIFT IN DEMENTIA TREATMENT**




Pharmacological treatment can be broadly conceptualised into three broad categories:

1. Reverse or stabilise the underlying disease.
2. Improve cognitive symptomatology, and
3. Treat behavioural and psychiatric symptoms associated with dementia.

As behavioural and psychiatric symptoms associated with dementia are covered in Unit 3, the rest of the article shall focus on the first two aspects of pharmacotherapy.

### (1) Reverse or stabilise the underlying disease

Pharmacological strategies to address the underlying disease include treating identifiable reversible causes, reduction of established risk factors, and disease modifying measures to slow the rate of disease progression (Table 1).

It is now established that vascular risk factors are putative not only in vascular dementia (VaD), but also in Alzheimer's disease (AD); thus, vascular risk factors should be assiduously sought for and appropriately managed in all dementia cases. While a search for reversible causes should be undertaken in all newly diagnosed dementia patients, in truth, only a small percentage of potentially reversible abnormalities are truly reversible, most notably conditions such as depression and hypothyroidism. There is concomitant neurodegenerative causes such as AD in many of these patients. Moreover, when significant neuronal damage has occurred, treatment of potentially reversible causes often arrests the underlying pathophysiology but does not reverse the dementia.

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Trials involving NSAIDS, cyclooxygenase-2 inhibitors, low-dose prednisolone and estrogen replacement therapy have yielded null findings. High dose vitamin E (2000 IU per day) is currently not recommended as ancillary treatment for dementia, because the debatable marginal benefits are mitigated by concerns about safety, especially in doses above 400 IU/day.[2] A Cochrane review of 3 RCTs did not find any significant difference in cognition or global function between statin and placebo groups.[3] The LEADe study also reported no benefit in cognition or global function when Atorvastatin 80mg/day was given to patients with mild to moderate Alzheimer's disease who were taking donepezil.[4] A recent Cochrane review did not show any benefit of omega-3 fatty acid in the prevention of dementia.[5]

### (2) Medications for improving cognitive symptomatology

Currently, the established modalities for dementia treatment are considered to be primarily symptomatic rather than disease modifying in their mode of action. There are two main classes (Table 2):

- Cholinesterase Inhibitors (ChEIs) based on the cholinergic hypothesis, which states that many of the cognitive, functional and behavioural symptoms derive from an absolute or relative deficit in brain acetylcholine activity, and;
- N-methyl D-aspartate (NMDA) receptor antagonists, which protect against glutamate-mediated excitotoxicity.

Other less established treatment options for dementia include:

- Ginkgo biloba, which exhibits "inconsistent and unconvincing benefits" based on a 2007 Cochrane systematic review of 35 clinical trials and 4247 participants.[6] In a recent study with a 5-year follow up, 120 mg standardised ginkgo biloba extract did not reduce the risk of progression to Alzheimer's disease compared with placebo in elderly patients with memory complaints.[7] Practitioners who prescribe ginkgo should be aware of the variability of active ingredient among preparations and the potential for drug interactions, such as increased bleeding risk when combined with warfarin and antiplatelet agents, and the antagonism of thiazides and anticonvulsants (valproate and carbamazepine).
- Selegiline, piracetam and rosiglitazone, which are not recommended for the treatment of core cognitive symptoms of dementia.

## CHOLINESTERASE INHIBITORS

ChEIs form the mainstay of dementia treatment. Most of the published data on ChEIs are derived from randomised controlled trials of mild-to-moderate stages of AD. There is evidence that ChEIs can improve cognition and preserve function in moderate to severe AD, including the more severe stages of AD (MMSE<10).[8] In general, ChEIs confer modest improvement in (1) cognition and global functioning of short-term duration (6 to 9 months), (2) activities of daily living (best described as a slowing of decline rather than an actual improvement), and (3) neuropsychiatric symptoms (delay in emergence of symptoms, improvement in apathy, and variable patterns of improvement for milder degrees of anxiety, depression and hallucination). In some open-label studies, the duration of benefit was observed to persist for as long as three years.[9]

Trials of mixed dementia and VaD reported significant improvement in cognition and to a lesser extent, global function but the benefit in activities of daily living and behaviour was less obvious. Studies of rivastigmine in Parkinson's disease dementia (PDD) and dementia with Lewy bodies (DLB) also demonstrated cognitive, neuropsychiatric and functional benefits without worsening of motor symptoms.[10-11]

There are currently three ChEIs regularly used for the symptomatic treatment of dementia. To reduce intolerability to gastrointestinal adverse effects, ChEIs are often started at lower doses (donepezil 2.5 mg/day; galantamine 8 mg/day; rivastigmine 1.5 mg twice daily) (Table 2). Studies have consistently shown that patients who received recommended doses of ChEIs exhibited better outcomes than those who received placebo or lower doses.[12] Thus, where tolerated, ChEIs should be gradually titrated to recommended doses (5-10 mg/day donepezil; 16-24 mg/day galantamine; 6-12 mg/day oral and 4.6-9.5 mg/24hr transdermal rivastigmine). Since there is no definitive evidence to support a difference in clinical efficacy between the three available agents, the choice of ChEI therapy depends on the experience of the clinician, tolerance to side effects, ease of use, and the clinical profile of the individual to be treated (such as co-morbid diseases and drug interactions) (Table 3). For patients who require medications to be crushed due to swallowing difficulties, the capsule formulations (rivastigmine and galantamine PR) should be avoided.

The side effects of the three ChEIs are broadly similar (Table 4). The most common side effect is gastrointestinal (nausea, vomiting, diarrhea, anorexia), which is dose-related, transient, and often alleviated to a large extent by a slower titration and taking the medication with food. Using healthcare databases from Ontario, Canada, Gill et al reported that the use of AChEI is associated with increased rates of hospital visits for syncope, bradycardia, pacemaker insertion and hip fracture in older adults with dementia.[13] Thus although cardiovascular side effects (such as symptomatic bradycardia and syncope) are generally not frequent, ChEIs should be avoided in patients with significant bradycardia, sick sinus syndrome or cardiac conduction disturbances. Other uncommon side effects that have been reported (with donepezil, in particular) include muscle cramps, insomnia and vivid dreams; the latter can be avoided by ingestion of donepezil in the morning. Weight should be regularly monitored as weight loss is not uncommon.

**TABLE 2. DOSING RECOMMENDATIONS OF DEMENTIA DRUGS IN CLINICAL USE**

| Medication | Forms | Starting Dose | Titration | Example of titration schedule |
|---|---|---|---|---|
| (1) Cholinesterase inhibitors | | | | |
| Donepezil (Aricept ®) | Tablet (5mg, 10mg) | 2.5-5mg once daily | Increase to 10mg/day after 4-8 weeks | 2.5mg om → 5mg om → 10mg om |
| Rivastigmine (Exelon ®) | Capsule (1.5mg, 3mg, 4.5mg, 6mg)<br>Patch (4.6mg/24h, 9.5mg/24h) | 1.5mg bid after meals<br><br>4.6mg/24h once daily | Increase by 1.5mg bid every 2-4 weeks up to 6mg bid<br>Increase to 9.5mg/24h after 4 weeks | 1.5mg bid → 3mg bid → 4.5mg bid → 6mg bid<br>4.6mg/24h → 9.5mg/24h |
| Galantamine (Reminyl ®) | IR Tablet (4mg, 8mg, 12mg)* PR Capsule (8mg, 16mg and 24mg)* Solution (4mg/ml; 100ml bottle)† | 4mg bid after meals‡ | Increase by 4mg bid every 4 weeks up to 12mg bid‡ | 4mg bid → 8mg bid → 12mg bid‡ |
| (2) NMDA antagonists | | | | |
| Memantine (Exiba ®) | Tablet (10mg) | 5mg once daily | Increase by 5mg every 1-2 weekly up to 10mg bid<br><br>Increase by 5mg every 1-2 weekly up to 20mg om | 5mg om → 5mg bid → 10mg om<br><br>5mg at 2pm → 10mg bid<br><br>5mg om → 10mg om → 15mg om → 20mg om |

** IR: immediate release; PR: prolonged release once-a-day formulation.*

*† Solution can be mixed with non-alcoholic beverage, but must be consumed immediately.*

*‡ Dose expressed in terms of immediate release formulation. To calculate the equivalent dosing for the PR formulation, simply add up the total daily dose e.g. galantamine 4mg IR tab bid = galantamine 8mg PR cap once daily; galantamine 8mg IR tab bid = galantamine 16mg PR cap once daily.*

**TABLE 3. IMPORTANT PRESCRIBING INFORMATION OF DEMENTIA DRUGS IN CLINICAL USE**

| Medication | Dose adjustment | | Significant drug interactions |
|---|---|---|---|
| | Hepatic impairment | Renal impairment | |
| Donepezil | None | None | None |
| Rivastigmine | None | None | None |
| Galantamine | Child-Pugh score 7-9: max 16mg/day<br>Child-Pugh score 10-15: use not recommended | Moderate renal impairment: max 16mg/day<br>CrCl < 9ml/min: use not recommended | Amitriptylline, ketoconazole, prosac (fluoxetine), faverin (fluvoxamine) and paroxetine decrease galantamine clearance. |
| Memantine | None | CrCl 40-60 ml/min: 10mg/day<br>Severe: use not recommended | Concomitant use of amantadine, ketamine or dextromethorphan should be avoided. Effects of L-dopa and dopaminergic agents may be enhanced. Caution is recommended with patients suffering from epilepsy. |

There is a transdermal preparation for rivastigmine, which allows smooth continuous delivery of the drug to result in less fluctuation between peak and trough drug levels. This can reduce by 3-fold side effects such as nausea and diarrhea whilst maintaining comparable efficacy when compared with equivalent doses of the capsule formulation Skin tolerability is good and skin irritation generally is limited to mild reactions such as erythema and itch. The patch is available in two doses: 4.6mg/24 hours and 9.6 mg/24 hours (Table 2). It should be applied every 24 hours at a consistent time each day to the upper back, upper arm or chest; application to other body sites may result in reduced absorption. Indications for the patch include: gastrointestinal side effects during titration to higher doses, non-compliance and when a smooth drug delivery is desired (e.g. presence of co-morbidity such as epilepsy).

**TABLE 4. SIDE EFFECTS OF DEMENTIA DRUGS**

**Cholinesterase inhibitors**

| *Common* | *Less common* |
|---|---|
| • Nausea | • Bradycardia |
| • Vomiting | • Syncope |
| • Diarrhoea | • Weight loss |
| • Anorexia | • Fatigue |
| • Abdominal pain | • Urinary incontinence |
| • Headache | • Vivid dreams, insomnia |
| • Dizziness | • Muscle cramps |

**Memantine**

| *Common* | *Less common* |
|---|---|
| • Headache | • Anxiety |
| • Dizziness | • Vomiting |
| • Fatigue | • Cystitis |
| • Diarrhoea | • Increased muscle tone |
| • Hallucination | |
| • Confusion | |

## NMDA ANTAGONISTS

Although memantine has been used in Germany for over 20 years, it is only in recent years that it has been approved in the US and UK for the symptomatic treatment of moderate-to-severe AD. Memantine appears to be beneficial alone or in combination with donepezil for moderately advanced AD.[14] In an industry sponsored study in moderately severe AD patients (MMSE 5-14) on stable doses of donepezil, the addition of memantine 20mg a day slightly improved cognitive, functional and global scores in comparison with patients adding placebo.[15] The cost-effectiveness of memantine therapy in moderately advanced AD remains to be established. There is also evidence of benefit in mild to moderate AD and VaD, but of a smaller magnitude compared with ChEI therapy. A small randomised controlled study of PDD and DLB patients reported that memantine produced cognitive and global benefits, although there were earlier case reports that memantine can worsen confusion in patients with DLB.

The initial dose is 5mg once a day, with 5mg increments at intervals of at least one week until a maximum of 10mg twice a day is achieved (Table 2). A recent study reported that a once-daily 20mg regime titrated over 4 weeks is equally efficacious and better tolerated compared with the b.i.d. dosing (Table 2).[16] Memantine should be used with caution in patients with epilepsy and renal impairment, and the clinician should be aware of interactions involving commonly prescribed medications such as dextromethorphan and L-dopa (Table 3).

Memantine is generally better tolerated (especially gastrointestinal-related side effects) than ChEIs. Common adverse events such as dizziness, headache, fatigue, hallucinations and confusion tend to be transient (Table 4). In clinical experience, the side effects that are most likely to lead to discontinuation are restlessness and hyperexcitation.

## COMMON ISSUES IN THE USE OF DEMENTIA-SPECIFIC DRUGS

### 1. How should I decide whether to start symptomatic dementia treatment?

Dementia-specific treatment should only be contemplated in patients with a definitive diagnosis of dementia. ChEI therapy did not delay progression to dementia nor confer any consistent cognitive, global or functional benefits in the pre-dementia stage of mild cognitive impairment (MCI); there was also a higher prevalence of side effects (including cases of sudden deaths) in the treatment group.[17] Thus, ChEIs are presently not recommended in the routine treatment of MCI.

Because the costs of ChEI and memantine therapy are not subsidised, the greatest challenge of whether to initiate cognitive enhancers resides in the cost-effectiveness, especially in the more severe stages of dementia where the benefit of costly symptomatic treatment is going to be even more marginal. In the AD 2000 study, despite the small but measurable improvements in cognition and activities of daily living, there were no benefits for donepezil in institutionalisation, progression of disability and cost savings for health and social services.[18] Thus, treatment decisions regarding the use of symptomatic treatment need to be individualised for each patient, with a conjoint decision reached after careful discussion of the pros and cons of treatment. For instance, where financial resources are limited, the opportunity cost of employing a maid to look after a patient requiring help with activities of daily living may override the modest benefits of symptomatic therapy.

To avoid unrealistic expectations, it is important to communicate with the patient and his caregiver/family from the onset that:

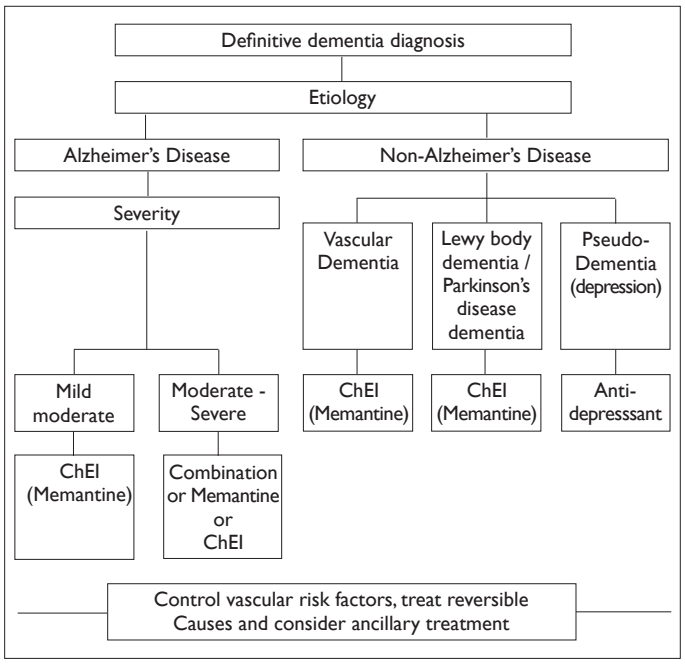
- The medications are not a cure.
- The medications do not work for everyone. The principle of one-thirds generally applies: one- third improve, one-third remain stable, while the remaining one-third deteriorate at a rate as if untreated.
- Although there may be a response in terms of modest improvement or "stabilisation", symptomatic therapy does not prevent progression of disease and cognitive decline will continue even with treatment.
- The medication will be discontinued if the patient does not respond after an adequate trial of 3-6 months.

### 2. Which modality should I choose?

Once a definitive diagnosis of dementia has been made, the choice of treatment modality is dependent on 2 key factors (Figure 2):

- Etiology of dementia, which can be broadly classified into AD and non-AD categories.
- Stage of dementia severity, which can be easily ascertained using functional-based scales such as the DSM-IIIR criteria (Table 5).

**FIGURE 2. ALGORITHM FOR PHARMACOLOICAL TREATMENT OF COGNITIVE SYMPTOMS OF DEMENTIA**



For AD individuals, ChEIs remain the preferred modality in the mild-moderate stages. Memantine is an option if ChEIs are contraindicated, not tolerated, or if there is disease progression despite an adequate trial of ChEI therapy. In the moderate-severe stages, although combination therapy appears to have the best benefit, the cost remains prohibitive. Memantine has more robust data of benefit in the more severe stages compared with ChEI.[14-15]

With regards to non-AD etiologies, the choice of treatment depends on the underlying etiology. ChEI therapy is the preferred modality in vascular dementia, as well as the synucleinopathy-based dementias such as DLB and PDD. While memantine offers a viable option in vascular dementia, it should be used with great caution in DLB and PDD, since there are reports of worsening confusion and behaviour (delusions and hallucinations) with memantine therapy in this group of dementias.[19] Conversely, there are reports of worsening behaviour in patients with frontotemporal dementia treated with ChEIs.[20]

### 3. How do I monitor the benefits of symptomatic treatment?

Patients who are started on cognitive enhancers should be assessed for cognition, mood and behaviour, and function within 3-6 months of starting therapy and thereafter, at least once yearly or as clinically indicated. Stabilisation or modest improvement above baseline may be observed with cognitive enhancers in the first 6-9 months, followed a lesser decline thereafter. During follow-up, patients should be assessed using: (i) clinical methods, via assessment of cognitive, functional and behavioural domains through interview with the patient and caregiver; and/or (ii) brief mental status tests, such as the Chinese MMSE, Abbreviated Mental Test (AMT) and Elderly Assessment Cognitive Questionnaire (ECAQ),

When a patient does not appear to be responding to ChEI therapy, and this is not due to non-compliance or other confounding conditions such as delirium, the options[12,21] include:

- Increasing the dose.
- Switching to another ChEI.
- Switching to memantine.
- Adding on memantine (i.e. ChEI-memantine combination).
- Drug holidays can be associated with clinical deterioration that may not revert to baseline even on resumption of therapy, and hence, should be discouraged.

### 4. When should symptomatic treatment be stopped?

A trial of treatment withdrawal should be considered when the harm outweighs the benefit. Examples include intolerable or serious side effects, and progression of disease despite optimising treatment. This should be undertaken only after careful discussion with the patient and caregiver. When attempting withdrawal, it is important to monitor closely for any deterioration so that the medication can be quickly reinstated to regain the same level of symptomatic effect. The DOMINO study in patients with moderate to severe Alzheimer's disease who had progressed despite donepezil treatment found that discontinuing donepezil was associated with slightly poorer cognition (1.2-1.9 points on the 30-item Standardised MMSE) and function at 1 year compared with continuation of donepezil or switching to NMDA antagonist (memantine).[22] Many patients, however, discontinue donepezil without obvious difficulty.

## NEW FRONTIERS IN DEMENTIA TREATMENT

Recent advances in understanding disease pathogenesis have led to the development of new therapeutic approaches that might modify the underlying specific disease process (i.e. disease-modifying treatment as opposed to current symptomatic treatment). For instance, in Alzheimer's disease, a wide array of anti-amyloid and neuroprotective therapeutic approaches are under investigation on the basis of the hypothesis that amyloid beta (Aβ) protein plays a pivotal role in disease onset and progression and that secondary consequences of Aβ generation and deposition, including tau hyperphosphorylation and neurofibrillary tangle formation, oxidation, inflammation, and excitotoxicity, contribute to the disease process. Investigations are currently underway to evaluate the effectiveness of disease- modifying agents that might block the cascade of events comprising AD pathogenesis, such as anti-amyloid strategies, anti-tau strategies, limiting oxidation and excitotoxicity, and controlling inflammation.[23] With the advent of disease-modifying therapy, there will be an increasing emphasis on accurate clinical characterisation in the earlier stages of disease such as MCI, and the development of methods and trial designs to effectively identify and test promising candidate agents.[24]

**TABLE 5: CRITERIA FOR THE STAGING OF DEMENTIA SEVERITY**

| DSM III-R* criteria |
|---|
| *Mild:* although work or social activities are significantly impaired, the capacity for independent living remains, with adequate personal hygiene and relatively intact judgement. |
| *Moderate:* independent living is hazardous, and some degree of supervision is necessary. |
| *Severe:* activities of daily living are so impaired that continual supervision is required (e.g. unable to maintain minimal personal hygiene, largely incoherent or mute). |

**DSM III-R: Diagnostic and Statistical Manual of Mental Disorders, third edition, revised.*

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**LEARNING POINTS**

- **All dementia patients should be evaluated for suitability of pharmacological strategies to address the underlying disease, enhance cognitive symptomatology, and treat attendant behavioural complications.**
- **Once a definitive diagnosis of dementia has been made, the key factors determining choice of symptomatic treatment are dementia etiology and stage of severity.**
- **The pre-requisite to skillful use of symptomatic treatment is a firm knowledge of the pharmacokinetic and dosing properties, side effect profile and expected benefits of such medications.**
- **The decision to initiate costly symptomatic treatment should be individualised and always made in conjunction with the patient and caregiver.**
- **Patients who are started on cognitive enhancers should be monitored for benefit and side effects.**

UNIT NO. 5

# THE ROLE OF GPS IN HELPING CAREGIVERS OF PERSONS WITH DEMENTIA

Dr Dennis Seow Chuen Chai, Dr Philip Yap Lin Kiat

## ABSTRACT

**Caregiver interventions have been shown to reduce caregiver depression, burden of care, and improve their health and quality of life. Caregiver support also benefits the person with dementia (PWD). It is important to recognise that caregivers too need care. Caregivers of PWD are usually middle-aged daughters and sons followed by spouses. Foreign domestic helpers also play a pivotal role in Singapore. Stressors arising from caregiving change at different stages of the disease. As the disease progresses into the advanced stages, stress from having to deal with behavioural problems can lessen as the burden from coping with functional impairments increases. For this reason, caregiver interventions should be stage appropriate. There is a need to work towards creating a positive experience in the GP consultation with the important elements of early diagnosis, providing stage specific information and interventions, and up-to-date information on dementia resources available in the community.**

**Keywords: caregiver depression, caregiver intervention, proactive role, caregiver depression, burden of care, quality of life**

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## INTRODUCTION

Caregivers are an integral part of the support and care of the person with dementia (PWD). Caregiver interventions been shown to reduce caregiver depression, burden of care and improve their health and quality of life.

More importantly, intervening through the caregiver also impacts quality of life, behavioural changes, medication compliance and rates of institutionalisation in PWD as has been shown in several studies. In dementia care, two tenets are espoused: (1) Treatment through both pharmacological and non-pharmacological means (2) Treating the PWD as well as the caregiver.

The importance of caregivers cannot be over-emphasised. In Singapore, based on the findings of a study conducted by Alzheimer's Disease International in Asia Pacific 1, the prevalence of dementia in 2020 and 2050 will approximate 53,000 and 187,000 respectively. By including caregivers in the tally, this means an additional 53,000 and 187,000 caregivers and/or families being affected as well.

It is paramount in dementia care not to neglect the caregiver. He/she is often the silent patient or sufferer. Caregivers too need caring. Caring for caregivers includes: (1) continual assessment of their needs, (2) support in the form of education, empowerment and enablement, (3) Helping them look after their own health.

In ageing Singapore, General Practitioners (GPs) will play an increasing role in meeting the healthcare needs of the silver generation. In addition, care of PWD by GPs will gain increasing importance in light of the fact that there will be too many patients and insufficient specialists to meet the need.

Can GPs make a difference to dementia care? A study by Fortinsky 2 showed that when the symptoms of dementia emerge, patients and caregivers often turn first to their primary care physician for answers to questions about memory loss and to obtain a diagnosis. As GPs are in regular contact with their patients, they are in a position to recognise early signs of cognitive decline in them. They also have the benefit of having a long-standing relationship with their patients. Therefore, a GP is well poised to provide holistic care for the PWD and his caregiver. GPs will have an increasingly important role in contributing to the care of PWD and their caregivers in the years to come.

## CAREGIVERS

Local studies have shown that the majority of caregivers are Women.[3,4,5,32] Caregivers are usually middle-aged and mostly children followed by spouses.[4,5,32] Many caregivers rely on other family members for additional help. About half hold a full-time or part time job[3]. In the Chinese family, there is also a hierarchy of expectation that the relative will be a caregiver in the order of: spouse, daughter, daughter-in-law, son and other kin[3]. As a reflection of changing social norms and disintegration of the extended family, quite often it is usually the unmarried daughter or son who is left to care for the older patient.

Besides family members, most families engage the help of a foreign domestic helper (usually from Philippines, Indonesia or Myanmar). This is especially true in Singapore where a local study showed about 50% of families of PWD engage foreign domestic help[32]. This has led to a dichotomy of caregiving responsibilities. The foreign domestic helper does the physical caregiving while the children provide financial support and make the decisions regarding care. In large families, it is not uncommon for the PWD and foreign domestic helper to rotate and stay in the homes of different children for certain periods of time. For smaller families, the foreign domestic helper is sometimes the only person who resides with the PWD in a

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one or two room Housing Development Board (HDB) flat. It is thus important to look into the needs of domestic helpers as they often assume the role of the main caregiver and may be more aware of cognitive and behavioural changes in the PWD in the course of the illness.

### Factors that affect caregiver performance

Demographic characteristics that influence caregiver performance include: age, gender, healthcare status, kin relationship and racial/ethnic background (Table 1).[6] Older spouses have more caregiver stress and burden as they themselves are often beset with ill-health or even become cognitively impaired themselves. Women and wives tend to have more psychological stress in caregiving.[7,8] The relationship to the PWD also matters. Daughters-in- law who have a difficult relationship with their mothers-in-law often have more caregiver stress.[3] With regards to ethnicity and caregiving, not much is known locally; although Malay families appear more willing to take up caregiving roles for their relative with dementia.

**TABLE 1. DEMOGRAPHIC CHARACTERISTICS THAT INFLUENCE CAREGIVER PERFORMANCE[6]**

- Age.
- Gender.
- Healthcare status.
- Kin relationship.
- Racial/ ethnic background.

### Stressors from caregiving

As dementia progresses, caregivers can experience greater burden (Table 2). A local study 4 done in 1999 on the burden of caregiving in mild to moderate dementia revealed that even in the earlier stages of dementia, 48% of caregivers reported the caring process to be a difficult one. More importantly, these difficulties were pertinent enough to be significantly associated with the intention to institutionalise the PWD. Behavioural problems featured more prominently than functional disabilities in relation to the caregivers' experience of burden. The converse was seen in another local study[10] done on patients with more advanced dementia. As dementia progresses and behavioural problems lessen in intensity, functional impairments become more pronounced. Caregivers therefore encounter changing issues and challenges in caregiving that emerge at different stages of the disease. Understanding the background, personality and life history of the PWD plays a crucial role in helping the caregiver understand the reasons behind his behaviour. Often, behavioural issues may seem bizarre but with thoughtful reflection of the circumstances surrounding the emergence of the behavior in the PWD in the light of his past, one can often find meaning and understanding. This insight gained can direct the caregiver to find means to offer comfort and solace to the PWD who may be feeling threatened, insecure and vulnerable when he exhibits seemingly "difficult behavior".

The impact of caregiving on the caregiver can also be felt in indirect ways (Table 3). Caregivers are often torn between the needs of the patient and that of their nuclear families. Primary caregivers may suffer restricted social lives and have less time for career pursuits, hobbies and other social activities. This can lead feelings of disenchantment, disdain and even despair. A recent local study showed that more than a quarter of Singapore caregivers of PWD reported feelings of burden more than 'sometimes' and the factors that increased burden included a longer duration of caregiving and financial problems.[32] Caregiver burnout thus has to be looked out for constantly and needs to be addressed early (Table 4).

**TABLE 2. STRESSORS ARISING DIRECTLY FROM CAREGIVING (PRIMARY STRESSORS)[9]**

Pertaining to the PWD:
- Severity of cognitive problems.
- Functional disability.
- Behavioural problems.
- Resistiveness to care.

**TABLE 3. STRESSORS ARISING INDIRECTLY FROM CAREGIVING (SECONDARY STRESSORS)[9]**

Pertaining to the caregiver:
- Restriction of social life/leisure time.
- Role strain and role conflict.
- Financial strain.
- Family conflict.

**TABLE 4. FACTORS ASSOCIATED WITH CAREGIVER BURNOUT[6]**

- Feeling overwhelmed, angry or frustrated by caregiving responsibilities.
- Feeling frustrated or angry with the PWD.
- Feeling that life or health has suffered since becoming a caregiver.
- Feeling that one is not doing a good job.
- Feeling that one's efforts do not matter or are futile.

### Impact of caregiving on Caregivers

The impact of caregiving on the caregivers can be divided into 4 categories:

### (1) Impact on Emotional Well-Being

In a previous study on Chinese families of PWD in Singapore, behavioural symptoms were significantly related to caregiver stress. Overseas studies also paint a similar picture, more than 40% of family and other unpaid caregivers of PWD rate the emotional stress of caregiving as high or very high. In general, up to one-third of family caregivers experience symptoms of depression. However, in the local study, 47% of caregivers who had caregiving problems experienced significant depression.

The notion that nursing home placement would bring relief of stress may actually not be the case in some families. One study found that family caregiver stress and depression were just as high after the placement as before placement. While the physical burden of caregiving may be relieved with

institutionalisation of the PWD, the emotional burden of guilt and feeling that one is not doing enough for the PWD often persists.

### (2) Impact on the Caregiver's health

In a local study 3 involving 50 family caregivers of Chinese PWD, 56% had poorer self-rated health based on the General Health Questionnaire (GHQ) and that correlated significantly with incontinence, delusion, hallucination, agitation, sleep disturbance and depression in the PWD.

Caregivers of PWD are more likely than non-caregivers to report their health to be fair or poor.[11,12]

Caregivers are also more likely than non-caregivers to have high levels of stress hormones,[12,13,14,15] reduced immune function,[12,16] slow wound healing[17], new onset of hypertension[18] and coronary heart disease[19]. The impact on health can also be demonstrated at the chromosomal level: caregivers of Alzheimer's disease patients have significantly shorter telomeres on average than other people of the same age and gender[20].

### (3) Impact on the Caregiver's employment

Many caregivers often have to reduce working hours, take time off or quit work because of caregiving responsibilities. One study found that 57% of caregivers were employed full time or part time. Of those employed, two-thirds had to go in late, leave early or take time off because of caregiving; 18% had to take leave of absence; 13% had reduced hours; and 8% turned down promotions.[21] Clearly, loss of income and employment adds to the caregiver burden as well.

### (4) Impact on Caregivers' finances

Locally, many caregivers exhaust their finances, including their Medisave accounts, in providing care for the PWD throughout the disease course. Besides food and basic necessities, other out-of-pocket expenses include medications, day care, foreign domestic helper employment, nursing home stay, home medical and nursing services as well as ancillary services such home help and meals delivery.

### Positive aspects of caregiving

The positive aspects of caregiving are often overlooked. Physicians can help the caregivers identify and emphasise the positive aspects of caregiving.[6] Cohen found that 73% of her subjects could state at least one positive aspect of caregiving[22]. A local study on caregiving gains identified 3 areas of gains: (1) Personal growth (2) Gains in relationship and (3) Higher level gains.[23] Caregivers can derive personal satisfaction and meaning in caregiving in knowing that their actions can promote positive situations and avoid negative ones.[24] They also gain new perspectives and a sense of purpose in life. The degree of meaningfulness in caregiving was also correlated with the presence of depression in a study by Noonan and Tennstedt.[25] Locally, factors associated with a higher likelihood of gains include having positive mental well-being, adopting more positive caregiving strategies and attendance at caregiver training and support programmes.[34]

GPs can certainly help the caregiver identify the positive aspects of caregiving and are well placed to encourage caregivers to seek help and support at various caregiver programme in hospitals and community. This will boost morale of caregivers and also provide opportunities for the GPs to detect low moods, burnout and depression[9] amongst caregivers, especially when they are persistently pessimistic and unable to see the positive in providing care for the PWD.

## CAREGIVERS' EXPERIENCES WITH GPs

Caregivers report mixed experiences with GPs. A positive experience can bring about earlier detection and diagnosis of dementia, appropriate early intervention, reduction of caregiver stress and contribute to the overall holistic care of the PWD and caregiver alike. A negative experience often brings much frustration and stress on caregivers besides delay in diagnosis and treatment.

A small novel study done on GPs in Australia in 2008 focused on patients' and caregivers' experiences with GPs in settings where GPs provided a wide range of services in the absence of dementia specialist services.[26] The themes explored included diagnosis, cognitive testing, dementia knowledge, caregiver support, treatment, medication compliance. Below are some of the findings.

### Diagnosis

Twenty-five percent (5/20) respondents reported prompt diagnosis by their GPs. The rest had delays of 1-8 year intervals between onset of symptoms and diagnosis. Three patients were aware something was wrong but only one was offered investigations. Two were frustrated when the diagnosis was initially refuted by their GPs.

### Dementia Knowledge

Out of 4 respondents, two had positive comments on their GPs' ability to offer prompt diagnosis and access to support. Two had negative comments which were attributed to difficulties in accessing help and GPs' lack of knowledge about dementia.

### Caregiver support

The interviews focused on caregiver support, discussing on issues ranging from the help they received to the frustration of being unable to access help. Many positive comments demonstrated that the most reliable, up-to-date source of information about dementia support services came from other caregivers who had firsthand knowledge of pitfalls and benefits, and not from the GP. A quarter (n=5) of the interviews produced negative comments about the services received, demonstrating the significant impact of negative experiences.

*"Not a damned thing happened for us. That was the hard part because she had no help. You didn't know what help there was." (A daughter)*

### Medication compliance

Medication compliance was an issue in nearly half the cases (n=9). This was a major problem when the patient was self caring.

This study showed that the diagnosis of dementia may often be missed in routine consultations. More importantly it also showed that patients in the early stages may be aware of their condition and thus it was important to listen to them. With regards to dementia knowledge, "most PWD trusted their GPs to be informed about the disease and deficiencies in GP knowledge led to delayed diagnosis and consequently less optimal support and management." … "Negative comments were also received when GPs failed to identify the disease or arrange for support." "Caregivers appreciated a diagnosis that explained what was happening, even when providing a prognosis was difficult." For caregiver support, "PWD and caregivers expected their GPs to offer appropriate care and access to dementia services and wished for GPs to be better informed about support services." It also showed that many older persons (and caregivers) valued a GP who could inform them.

Locally, some may have similar experiences with their GPs and this reinforces the view that GPs are well placed to initiate early support, diagnosis and treatment. In addition, medication compliance is a constant issue with PWD and thus caregivers need to be encouraged and supported to take an active part in the assisting with administering medication.

## OPTIMAL CARE AND THE HEALTH CARE TRIAD

In Singapore today, GPs have a wealth of resources to draw from to help in providing care and care to PWD and their families. Against a setting of limited consultation time in primary care, evolving symptoms with disease progression in the PWD, possible negative attitudes towards dementia diagnosis and treatment, inadequate reimbursement and lack of incentive for in-depth consultations, the quality of interaction between the GP, PWD and caregiver(s) is most critical for optimal dementia care. A review by Holmes and Adler[27] provided a few pointers that could enhance this interaction.

These include (1) being alert to the cognitive and behavioural changes in the PWD (e.g. missed appointments, poor compliance with medications, frequent telephone calls to the clinic, missed payments and a family member accompanying the PWD to the clinic visit when there was none before), (2) involving persons with early dementia in their own care, (3) identification of a principal caregiver, (4) progressive involvement of the caregivers in the care plan as the disease progresses. The relationship of the GP with the PWD and caregiver thus forms a critical "health care triad"[2,28] which is essential for optimal dementia care and management.[29]

## MANAGEMENT AND SUPPORT OF CAREGIVER

### When and how?

The needs of the PWD change throughout the course of the illness, this means that support and intervention for the caregiver would also need to be different at various stages of dementia. These key stages are elaborated herein.

(1) Diagnosis and disclosure.
(2) Early stage disease.
(3) Middle stage disease.
(4) Final stage disease.
(5) Bereavement.
(6) Referral and use of community resources.

### (1) Diagnosis & Disclosure

Patients and families want an accurate and clearly explained diagnosis and desire to better understand the course of the illness over time.[30] "Specifically, caregivers want their physicians to listen to their concerns, devote more time to discussing diagnosis and what it means, and include the PWD even if he or she may not fully understand".[30] Research has documented that these factors are closely linked to with caregiver satisfaction.[6]

The disclosure process should be tailored to the patient and caregiver dyad. While most physicians and caregivers prefer to focus on discussions on memory problems and safety issues rather than the term Alzheimer's disease; most families want more specific information regarding the diagnosis and prognosis as mentioned above.[30]

### (2) Early stage disease

Accepting and adapting to the role of a caregiver is the primary goal for most caregivers at this stage.[6] Caregivers can be in denial during this stage and fearful of grappling with the unknown. Time taken to educate and empower the caregiver certainly helps the caregiver to cope better. Simple explanations with written materials, brochures and books, and information from caregiving websites are useful. Repetition of important information over several visits is also helpful. Referrals to caregiver support programmes are a good way for caregivers to seek peer support and advice.

Other care initiatives that can be established with the caregiver at this stage include:

- Adaptation.
- Financial, legal planning and advance directives.
- Establishment of support system for the caregiver.

#### Adaptation

Becoming a caregiver is often unplanned, life-changing and a long term event. Spouses or children have to discard old roles and take on new ones, for example a son becoming the caregiver and decision maker for the father. Emotional support & empathy are crucial at this stage.

**Financial, legal planning and advance directives**

Advice should also be given to the PWD and caregiver on sorting out financial issues such as bills, CPF/ bank accounts, and insurance. With the enactment of the Mental Capacity Act, PWD who are still mentally competent can assign health care decision making designees (known as donees). Other considerations include advance medical directives, will and estate planning.

**Establishment of support system for the caregiver**

Helping the caregiver look after him/herself is also important. GPs can play a role in involving extended family members and friends in caregiving so as to relieve the burden on the primary caregiver(s). Besides caregiver support groups, caregivers can be encouraged to seek support through religious or voluntary groups and even close neighbours.

### (3) Middle stage disease

This stage is characterised by the emergence of more behavioural/ personality changes in addition to progressive cognitive and functional decline. Most caregivers face significant burden and need more help at this stage. However, some caregivers may not see that they need more help and accepting help from others also presents an issue. The local caregiver study[3] revealed that Chinese caregivers relied more on family support and less on psychogeriatric services for fear of 'losing face'. Hence, caregivers may delay seeking help till a crisis or burnout occurs.

GPs are well placed to offer assistance. GPs need to be on the alert for caregiver distress, depression and burnout (Table 4). The ability of the caregiver to cope depends on his personal coping resources as well as the amount and quality of formal and informal support.[3] Early referral to the appropriate caregiver resources is recommended and the GP can help the caregiver select the service appropriate for his needs. These resources can be specific to the PWD or primarily targeted at caregivers. Regular contact with the GP or attending specialist can help the caregiver tide over difficult periods.

### (4) Late stage disease

At this stage, patients are often debilitated and require round-the-clock care for their activities of daily living. Caregivers are faced with decision making and preparation for various end-of-life issues and trust their physician to guide them in making difficult choices. These issues include do-not-resuscitate orders, tube feeding, rational use of medications and specialist palliative care.

### (5) Bereavement

Bereavement on the part of the family caregiver often begins from in the earlier stages of dementia when the PWD progressively ceases to be the person he used to be. Depression is prevalent especially among caregivers who experience loss of companionship and a treasured relationship[6] as the PWD becomes increasingly foreign and distant. Studies show that even after death, caregivers can still have grief reactions up to 3 years after death 9 of the PWD. GPs can provide counsel and support for the caregiver trying to come to terms with the losses in dementia.

### (6) Referral and use of community resources

Besides information from hospital-based memory clinics, the websites of Alzheimer's Disease Association of Singapore (www.alzheimers.org.sg) and the Agency for Integrated Care (ww.aic.sg) provide much information on community resources and services. ADA also runs a helpline for caregivers and the general public. A recent study found that knowledge and awareness of dementia services was the single significant predictor of use of these services. There is hence a need to provide timely and relevant information on services and resources for dementia in the community to enhance their uptake.[35]

### Additional tips for GPs in meeting the needs of the caregiver

- Establish contact and liaise with the specialist to gain greater understanding of the needs of the PWD and his caregiver.
- Understand the life history and personality of the patient. This is cardinal to providing person centred care.[31] Oftentimes, one can understand the reason behind certain behavioural issues in the PWD in the light of his past. This can help the caregiver achieve greater understanding of the PWD, cope better and in turn reduce caregiver stress.
- Provide information to caregivers appropriate to their situation and relevant to the problems consistent with the patient's stage of dementia. Divide important information into "bite-sized" portions over several visits.
- Offer a listening ear to the caregiver and allow time for him/ her to ventilate; this can be therapeutic for the caregiver.
- Enquire about the caregiver's health and coping regularly as some caregivers may not volunteer information about their own well-being.
- Engage the foreign domestic helpers (FDH) as they are caregivers as well. Enquire about her coping ability and caregiver stress as FDH's needs are often overlooked and they can be silently suffering while caring for the PWD. Oftentimes, they give a better history regarding the cognitive and behavioural function of the PWD.

## CONCLUSION

Caregiver interventions have been proven to improve caregiver coping and reduce caregiver depression and burden. Caregiver support also benefits the PWD. It is important to recognise that caregivers too need care. The GP has an indispensable role in holistic dementia care. As GPs in Singapore take up more proactive roles in dementia care in Singapore, the importance of this role cannot be over-emphasised.

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**LEARNING POINTS**

- **Support for caregivers has been shown to reduce caregiver depression, burden of care, and improve their health and quality of life.**
- **Caregiver interventions also benefit PWD.**
- **Caregivers of PWD are usually middle-aged daughters and sons, followed by spouses. Foreign domestic helpers often provide direct care to the PWD.**
- **Information given to caregivers should be tailored to their specific needs.**
- **GPs can work towards a more proactive role in dementia care in Singapore.**

UNIT NO. 6

# COMMUNITY RESOURCES FOR PATIENTS AND CAREGIVERS

See Yen Theng


## ABSTRACT

**Dementia is a progressive brain dysfunction that leads to disintegration of ability to look after oneself and the need for community resources to minimise the resulting impact of the progressive disability. The various care services available in Singapore for elderly patients and their caregivers are: hospital based, community centre-based, community home-based, and nursing home based. New services for dementia care are: senior care centres (SCC), integrated community mental health and dementia support networks, and Community Intervention Teams (COMIT). The Mobile Eldercare Locator (MEL) enables users to search for health and social care services in Singapore based on specified eldercare needs of the individuals. Referral to community centre-based services such as day rehabilitation and dementia day care services and homecare services such as home nursing, home medical, and home therapy services are coordinated by AIC referral team. Family physicians can apply for such services either via hardcopy or online.**


**Keywords: Ageing population, People with dementia, stage of dementia, hospital-based care services, community centre-based services, Nursing home services, senior care centres, COMIT**

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## AGEING POPULATION & DEMENTIA

Singapore is one of the fastest ageing countries in Asia. By 2030, those aged over 65 years old will form an estimated 23% of our population. In line with this, the number of people suffering from dementia is expected to rise. It is estimated that about 28,000 elderly aged 60 years and above are suffering from dementia, and this is expected to increase to 80,000 (about 6.7% of the population above 60 years) by 2030.

## NEED FOR COMMUNITY RESOURCES

Dementia is a progressive brain dysfunction which results in a decline in the ability to carry out daily activities such as cooking, household chores, and personal care abilities such as bathing and dressing.

People with dementia (PWDs) also have a high chance of deteriorating rapidly if their medical condition is not diagnosed early and if the appropriate treatment is not provided in time. Early diagnosis and treatment to such patients minimise social disintegration and help the patients themselves, family members, and other caregivers who are responsible for looking after them.

The needs of PWD vary with each stage of dementia due to the different levels of functional impairment that define each stage of this progressive disease. The care of PWD and the help needed by their caregivers need to be reviewed with reference to each stage of disease.

## CURRENT RESOURCES FOR ELDERLY AND DEMENTIA CARE

There are various care services on the ground provided to the elderly patients and their caregivers. These are summarised in Table 1.

## NEW RESOURCES FOR DEMENTIA CARE

The Ministry of Health and Agency for Integrated Care are working with community service providers to pilot various programmes to address the needs on the ground:

### 1. Senior Care Centres (SCC)

Senior Care Centre is an integrated day centre to support frail elderly with multiple social and healthcare needs to age-in-place at a single setting within the community as far as possible. Core services delivered includes maintenance day care services, community rehabilitation services. Centre-based nursing services (procedural nursing care, medication administration) and dementia day care programmes may be provided according to the needs of the local population. The long term aim of the SCCs is to serve as the 'staging points' for the delivery of home care services to raise efficiency in service delivery.

### 2. Integrated community mental health and dementia support networks

At national level, we are developing regional networks of community based services to support with dementia and help them age in place in the community.

To date, one such integrated support network has been piloted in northern Singapore. CARITAS iCommunity@ North is a collaboration where Khoo Teck Puat Hospital Geriatric Medicine Department provides training and resource support to service partners in the community such as Thye Hua Kwan Moral Charities, O'Joy Care Services, SWAMI Dementia Day Care Centre and Sree Narayana's Multi-Service Centre @ Woodlands.

SEE YEN THENG, Assistant Director, Community Mental Health Division, Agency for Integrated Care (AIC)

## TABLE 1. CARE SERVICES PROVIDED TO ELDERLY PATIENTS AND THEIR CAREGIVERS

| | Facilities | Services | Referral Process |
|---|---|---|---|
| **A** | **Hospital-Based** | | |
| 1 | Memory Clinics | • Provide diagnosis and intervention services for dementia.<br>• Run by multidisciplinary teams (such as geriatric psychiatrists, nurse clinician, psychologist, occupational therapist, medical social worker). | Available in restructured hospitals (CGH, IMH, SGH, NNI, NUHS, TTSH, KTPH) |
| **B** | **Community Centre-Based** | | |
| 1 | Senior Activity Centre (SAC)*<br>**Under purview of Ministry of Social and Family Development* | • Drop-in Centre for needy and vulnerable seniors staying in one- and two-room HDB rental flats in service cluster.<br>• Provide socio-recreational programmes and activities for elderly. | Locate the nearest SAC through the Mobile Eldercare Locator.<br><br>See Section on Quick Search for Eldercare services for more details. |
| 2 | Social Day Care Centre | • Provide services in:<br>– Custodial day care.<br>– social-recreational activities.<br>– meals.<br>– maintenance therapy programme. | Refer PWD to centre-based services via AIC's referral system.<br><br>See Section on Quick referral steps for services. |
| 3 | Day Rehabilitation Centre | • Provide active rehabilitation services to people with physical functional rehabilitation needs.<br>• Client must be referred by a Singapore Medical Council-registered medical practitioner who will certify that the client is suitable and can benefit from rehabilitation to improve his/her functional status. | |
| 4 | Dementia Day Care Centre | • Provide services in:<br>– Custodial day care, cognitive and behavioural therapy, recreational activities and maintenance therapy during the day to seniors with dementia.<br>– Education, support and respite care to their caregivers.<br>• Client must be diagnosed as dementia by Singapore Medical Council-registered medical practitioner. | |
| | *Overall direction for centre-based Services : Senior Care Centres (SCCs)*<br>• *One-stop social and healthcare services for elderly clients*<br>• *See section on SCCs for more details* | | |
| 5 | SPICE (Singapore Programme for Integrated Care for the Elderly) | • Centre-based programme that provides comprehensive care for frail elderly, many of whom are nursing home eligible.<br>• Provides services such as nursing and primary care; recreational activities; rehabilitative therapy; assistance with activities of daily living and home-based care services as determined by the SPICE participant's individual care plan (ICP). | Refer PWD to centre-based services via AIC's referral system.<br><br>See Section on Quick referral steps for services. |
| **C** | **Community Home-Based** | | |
| 1 | Senior Care Associates | • Provide services such as personal hygiene, housekeeping and simple health-related care tasks. | Refer PWD to home-based services via AIC's referral system. |
| 2 | Home Care | **Home Medical Services**<br>• Assessing and managing chronic illness.<br>• Prescription of medication.<br><br>**Home Nursing**<br>• Follow up of chronic illness.<br>• Procedures – change of feeding tube/ urinary catheter. Injection, wound care, stoma care.<br>• Health education/ monitor BP / Blood glucose.<br>• Teaching simple exercises.<br>• Caregiver training.<br>• Others e.g. packing of medication.<br><br>**Home Therapy**<br>• Physiotherapy.<br>• Training for Activities of Daily Living (ADL) / Instrumental ADL.<br>• Home environmental assessment & Home equipment training. | See Section on Quick referral steps for services. |
| 3 | Dementia Eldersitter | • Engage the PWDs in meaningful and structured activities to maintain their cognitive function, and providing respite to caregivers.<br>• Client must be diagnosed as dementia by Singapore Medical Council-registered medical practitioner. | Currently provided by the Alzheimer's' Disease Association (ADA).<br><br>Referral Steps:<br>• Please download the referral form from ADA website: http://www.alz.org.sg/support-services/caregiver-support-service<br>• Fax the completed form to 65936 444<br>• For any queries, please call ADA Dementia Helpline 63770 700 |
| 4 | Home Intervention | • Provide intervention to PWDs exhibiting behavioural issues which include environmental modification, dementia management skills and psycho-education support to caregivers.<br>• Client must be diagnosed as dementia by Singapore Medical Council-registered medical practitioner.. | |

| D | Nursing Home | | |
|---|---|---|---|
| 1 | Nursing Home | Provide residential nursing care for seniors who are not able to be cared for at home. Service include included regular maintenance therapy services, as well as socio-recreational activities, are organised for the seniors. | Refer PWD to centre-based services via AIC's referral system.<br><br>See Section on Quick referral steps for services. |
| 2 | Nursing Home with Dementia Beds | Nursing home with dementia-friendly facilities to PWDs. | |

### 3. COMIT (Community Intervention Teams)

COMIT supports GPs in managing elderly with dementia in the community by providing allied health professionals services and counselling services for the seniors and their caregivers:

- Care coordination for various services required (e.g. DDCC, Home Help Services etc)
- Caregiver education and understanding of the condition for better communications and management of elderly
- Where Allied Health Professional services are available, home visits for environmental assessment to reduce risks of falls; psychosocial therapies of caregivers

As COMIT programmes is still in pilot phase, the details for GP referrals are being worked out and AIC will share the referral workflow when the programmes are more established.

## QUICK SEARCH FOR ELDERCARE SERVICES

The Mobile Eldercare Locator (MEL) is a mobile application developed by the Singapore Silver Pages (SSP) team, it enables users to search for health and social care services in Singapore, based on specified eldercare needs of the individuals or their loved ones.

Users can find out more about the services offered by the service providers and are able to locate the service providers easily with the directional maps and instructions provided.

### 1. Search Functions

**TABLE 2. SEARCH FUNCTIONS**

| | |
|---|---|
| a. Search by Services | A non-location specified search which allows users to look for health and/or social care service providers |
| b. Search by Region | A location specified search which allows users to look for service providers based on an identified region or zone(s). |
| c. Search by My Current Location | A search which allows users to look for service providers located around their current location, or by providing a postal code or address. |
| d. Search by Service Provider | A basic search which allows users to browse through a list of service providers, arranged in alphabetical order. |

### 2. Steps to download

- Go to http://www.aic.sg/silverpages/mobile_eldercare_locator_mel/
- Download the mobile application which is compatible with:
  - iPhone, iPod touch, and iPad running on iOS 4.3 or later.
  - Android devices running on Android version 2.1 and above.

## QUICK REFERRAL STEPS FOR SERVICES

Referral to community centre-based services such as day rehabilitation and dementia day care services, and homecare services such as home nursing, home medical and home therapy services are coordinated by AIC referral team. Primary care physicians can apply for their patients for the above services either via hardcopy or online. They may also contact the AIC referral team at 6603 6932 for any enquiries.

**TABLE 3. QUICK REFERRAL STEPS FOR SERVICES**

| Online | Hard Copy |
|---|---|
| **Referral via Integrated Referral Management System (IRMS)**<br>• Apply system account to become the system user<br>– Login to AIC website: http://www.aic.sg<br>– Click on the icon (bottom left) of "Login to e-referral System" On IRMS website https://app.aic.sg/eReg/(S(bcwgvyba5snu3b5k122acrpr))/Login.aspx) click on the icon of "Register as new user". Complete the necessary fields & submit the e-form<br>– For enquiry pertaining to application for account, contact 6603 6995 from Monday to Friday (8.30am until 5.30pm) or email to enquiries@aic.sg<br>– An account typically takes about 3 workings days for approval<br><br>• Guidance on System Navigation<br>– Once you are successfully registered as user, you are allowed to put up E-referral via IRMS<br>– If you require training in using the system, please contact 66036995 from Monday to Friday (8.30am until 5.30pm) or email to enquiries@aic.sg | **Referral via hardcopy referral form (only applicable to General Practitioner)**<br>– Download & print our AIC Referral Form from AIC Website: http://www.aic.sg/page.aspx?id=57<br><br>– Click on "Care Referral Forms" or "Care Referrals"<br><br>– On AIC website (http://www.aic.sg/page.aspx?id=149), scroll down & click on:<br>– ***"Day Rehabilitation/ Dementia Daycare Services Referral Form"*** - for Day Rehabilitation or Dementia Daycare Services<br>– ***"Home Care Services Application Forms"*** - for Home Nursing, Home Medical and Home Therapy Services<br><br>– Please fax the completed referral forms to 6820 0732<br><br>– For enquiry regarding to referral, please contact 6603 6932 from Monday to Friday(8.30am until 6pm) |

In view of the complexity of nursing home referral (requires detailed information included medical, nursing, mobility & functional status, social background, financial assessment etc.), it is advisable that patient approach the medical social worker of the institution that have regular follow ups to advise them on long term care arrangement. For enquiry regarding to referral, please contact 6603 6932 from Monday to Friday (8.30am until 6pm).

## HELPLINE

For general enquiries e.g. assistance schemes, programmes, you may wish to contact AIC hotline at 6603 6800 or enquiries@aic.sg

## WHY SHOULD YOU BE PART OF THE MENTAL HEALTH GP PARTNERSHIP PROGRAMME (GPPP)?

The mental health GPPP aims at collaborative care between mental health professionals and GPs in managing patients with depression, anxiety and eventually dementia and psychosis as well. The goal would be for the GP network to be a viable option and source for patients to seek treatment for their mental health issues. MOH, AIC and the RHs can provide the support necessary for this collaborative care in the form of:

### Training for GPs in mental health care

- Family Physician Skills Course;
- Training and support on cases from RHs;
- GDMH.

### Linkages and coordination with RHs and AIC

- It is important to know that GPs can choose the RHs they wish to partner and the type of MH patients they wish to manage;
- RHs and AIC would provide liaison services to help coordinate patients to and from GPs to expedite and facilitate the management of appointments, meetings and the sharing of information.

To be a part of the Community Mental Health GP Partnership Programme or to find out more about the programme, please email enquiries@aic.sg

**LEARNING POINTS**

- **People with dementia (PWD) need community resources to minimise the resulting impact of the progressive disability.**
- **The various care services available in Singapore for elderly patients and their caregivers are: hospital based, community centre-based, community home-based, and nursing home based.**
- **New services for dementia care are: senior care centres (SCC), integrated community mental health and dementia support networks, and Community Intervention Teams (COMIT).**
- **The Mobile Eldercare Locator (MEL) enables users to search for health and social care services in Singapore based on specified eldercare needs of the individuals.**
- **Referral to community centre-based services such as day rehabilitation and dementia day care services and homecare services such as home nursing, home medical, and home therapy services are co-ordinated by AIC referral team.**
- **Family physicians can apply for such services either via hardcopy or online.**

## ASSESSMENT OF 30 MCQs

# FPSC NO : 54
# MCQs on DEMENTIA
# Submission DEADLINE : 16 JULY 2013 12 NOON

**INSTRUCTIONS**

- **To submit answers to the following multiple choice questions, you are required to log on to the College On-line Portal (www.cfps2online.org).**
- **Attempt ALL the following multiple choice questions.**
- **There is only ONE correct answer for each question.**
- **The answers should be submitted to the College of Family Physicians Singapore via the College On-line Portal before the submission deadline stated above.**

**1. In Singapore, the prevalence of dementia is likely to increase rapidly over the coming years. What is the estimated number of patients with dementia in Singapore today?**
(A) 22 thousands.
(B) 23 thousands.
(C) 24 thousands.
(D) 25 thousands.
(E) 26 thousands.

**.2. In Singapore, currently, what is the estimated number of patients with mild cognitive impairment?**
(A) 70-100 thousands.
(B) 75-100 thousands.
(C) 80-100 thousands.
(D) 85-100 thousands.
(E) 90-100 thousands.

**3. In a patient presenting with forgetfulness or confusion we can use a 4-step assessment to evaluate the cognitive complaint. Which of the following is the first step in the evaluation?**
(A) If it is dementia, what is the aetiology?
(B) If the forgetfulness or confusion is chronic, it is dementia?
(C) Is the forgetfulness or confusion acute or chronic?
(D) If it is dementia, what are the complications?
(E) Is the dementia, Alzheimer's Disease or something else?

**4. The DSM-IV criteria for dementia are often used as the gold standard for clinical diagnosis of dementia. It requires the presence of memory impairment, together with one other cognitive domain. Which of the following is NOT one of the domains?**
(A) Agnosia.
(B) Aphasia.
(C) Apraxia.
(D) Behavioural symptoms.
(E) Executive dysfunctioning.

**5. About the potentially reversible causes of dementia, which of the following is CORRECT?**
(A) Lewy body dementia.
(B) Vascular Dementia.
(C) Neurogenetic disorders.
(D) Alcohol related syndromes.
(E) Creutzfeld-Jakob Disease.

**6. That mild cognitive impairment (MCI) is a pathological entity is suggested by the conversion to dementia. What is the annual rate of conversion to dementia?**
(A) 3%
(B) 6%
(C) 9%
(D) 12%.
(E) 15%

**7. Early diagnosis of dementia is not easy. A World Alzheimer Report commissioned by Alzheimer's Disease International estimated that only a percentage of dementia cases were routinely recognized and documented in primary care records. What is this percentage?**
(A) 5-25%.
(B) 10-35%.
(C) 15-45%.
(D) 20-50%.
(E) 25-55%.

**8. There are benefits and importance of early diagnosis of dementia. Which of the following is the LEAST IMPORTANT benefit or importance?**
(A) Early care planning.
(B) The right to a dignified diagnosis.
(C) Insurance claim can be made.
(D) Rule out other causes of cognitive impairment.
(E) Early appointment of lasting power of attorney (donee) under the Mental Capacity Act.

**9. There are several barriers to the early diagnosis of dementia. Which of the following is the LEAST likely factor?**

(A) Lack of education about dementia.
(B) Concern about consequences of misdiagnosis.
(C) Young family physicians.
(D) Doubts about desirability of early diagnosis.
(E) Reluctance to seek specialty consultation.

**10. A 60-year-old man is diagnosed to have early dementia, which of the following is LEAST likely to be a laboratory finding?**

(A) Raised TSH level.
(B) HIV positive test.
(C) Raised gamma-GT level.
(D) Low Vitamin B12 level.
(E) Polycythemia.

**11. A 70-year-old woman is diagnosed to have moderate dementia. Her carer complains that she walks aimlessly, is repeatedly trying to leave the house, and stalks the carer round the house. Which of the following best describes this kind of behaviour?**

(A) Wandering.
(B) Sleeplessness.
(C) Disinhibition.
(D) Agitation.
(E) Delusions.

**12. About the management of behavioural and psychological symptoms of dementia (BPSD), which of the following is a general principle?**

(A) Understand the precipitating factors of the behavioural disturbance.
(B) Implement comprehensive strategies.
(C) Treat every symptom early.
(D) Review care plans quarterly.
(E) Formulate a management plan with the patient.

**13. The carer of a 65-year-old woman with dementia sees you for advice on how to deal with agitation and aggression in the patient. Which of the following is NOT appropriate advice?**

(A) Use a calm approach to the person.
(B) Speak in a soft voice.
(C) Distract if possible e.g., offer a drink.
(D) Use music or audio or video tapes to distract the patient.
(E) Avoid day time naps.

**14. The carer of a 63-year-old patient with moderate dementia complains that the patient sees people in the home who are not really there and hears deceased people call her name. Which of the following will be a suitable medication to prescribe the patient?**

(A) Fluoxetine.
(B) Haloperidol.
(C) Sodium valproate.
(D) Lorazepam.
(E) No medication is required.

**15. A carer of a 72-year-old woman with dementia complains that of late the patient is aggressive. Sodium valproate is prescribed. Which of the following tests should be used to monitoring this patient for adverse effects?**

(A) Serum electrolytes.
(B) Thyroid function tests.
(C) Liver function tests.
(D) Serum creatinine level.
(E) Full blood counts.

**16. A 70-year-old man has mixed Alzheimer's disease and vascular dementia. Which of the following medication will be useful in improving cognition?**

(A) High dose vitamin E.
(B) Statins.
(C) Cholinesterase inhibitors.
(D) Gingko biloba.
(E) Low dose prednisolone.

**17. A 65-year-old man has moderate dementia. He is prescribed Donapezil. Which of the following side effects is common and dose related?**

(A) Insomnia.
(B) Vivid dreams.
(C) Muscle cramps.
(D) Fatigue.
(E) Nausea.

**18. A 64-year-old man has moderate dementia. Memantine is being considered as the medication for him. Which of the following is NOT a caution or contraindication to its use?**

(A) Antihypertensive.
(B) Dextromethorphan.
(C) L-dopa.
(D) Epilepsy.
(E) Renal impairment.

**19. In the use of memantine for moderate and severe dementia, which of the following side effects is most likely to lead to the discontinuation of this medication?**

(A) Headache.
(B) Restlessness.
(C) Dizziness.
(D) Fatigue.
(E) Hallucinations.

**20. The cholinesterase inhibitors form the mainstay of dementia treatment. Which of the following statements is correct?**

(A) They are drugs of choice in mild cognitive impairment to slow progression.
(B) They should not be combined with memantine.
(C) They are safe to use in patients with bradycardia.
(D) They are most effective in early dementia.
(E) They can improve cognition and preserve function in moderate to severe Alzheimer's Disease.

**21. Providing care to person with dementia is stressful. Primary stressors and secondary stressors are recognized. Which of the following is a primary stressor?**

(A) Financial strain.
(B) Role strain.
(C) Family conflict.
(D) Restriction of social life.
(E) Resistiveness to care.

**22. Caregiving can be emotionally stressful. What is the proportion of caregivers who rate the emotional stress of caregiving as high or very high in local and overseas studies?**

(A) 50%.
(B) 40%.
(C) 30%.
(D) 20%.
(E) 10%.

**23. Caregiving results in changes of the caregiver's health. When caregivers and their peers who are of the same age and gender are compared, which of the following is NOT true in the caregivers?**

(A) Longer telomeres.
(B) Slower wound healing.
(C) More new onset of hypertension.
(D) Reduced immune function.
(E) Higher levels of stress hormones.

**24. With regards to diagnosis and disclosure, which of the statements about the expectations of carers is NOT correct?**

(A) Caregivers want an accurate and clearly explained diagnosis.
(B) Caregivers want their physicians to listen to their concerns .
(C) Caregivers feel that persons with dementia will not benefit in the discussion on diagnosis.
(D) Caregivers desire to better understand the course of illness over time.
(E) Caregivers desire more time be devoted to discussing diagnosis.

**25. In persons with middle stage disease, the stress from caring increases. Which of the following characteristics of the caregivers at this disease stage is correct?**

(A) Most caregivers do not need help.
(B) Fear of losing face is usually an exception.
(C) Rely more on family support than psychogeriatric services.
(D) Early seeking of help.
(E) Usually have learnt how to cope with caring duties.

**26. New services for dementia care coordinated by Agency for Integrated Care have been set up in recent years. Which of the following is one such new service?**

(A) Nursing home-based care.
(B) Senior care centres (SCC).
(C) Hospital based care.
(D) Community based-care.
(E) Mobile Eldercare Locator (MEL).

**27. The Mobile Eldercare Locator (MEL) has several search functions. Which of the following is not available as a search function presently?**

(A) Search by cost of service.
(B) Search by services
(C) Search by region.
(D) Search by current location.
(E) Search by service provider.

**28. Senior care centres (SCCs) support elderly patients with certain demographic characteristics. Which of the following is such a characteristic?**

(A) Single social need.
(B) Frail elderly.
(C) Single healthcare need.
(D) Staying in the nursing home.
(E) Early dementia.

**29. The Community Intervention Teams (COMIT) provides care for what kind of elderly patients?**

(A) Elderly with mild cognitive impairment.
(B) Elderly with renal failure.
(C) Elderly with dementia.
(D) Elderly with malignancy.
(E) Elderly with heart failure.

**30. About the services available from the Community Home-Based programme, which of the following is NOT a service provided by the Home Therapy programme?**

(A) Physiotherapy.
(B) Training for ADL and instrumental ADL.
(C) General caregiver training.
(D) Home environmental assessment.
(E) Home equipment training.

# READINGS

- A Selection of Ten Current Readings on Topics Related to Dementia

# A SELECTION OF TEN CURRENT READINGS ON TOPICS RELATED TO DEMENTIA –

**some available as free full-text and some requiring payment**

**Selection of readings made by A/Prof Goh Lee Gan**

## READING 1 – TRAINING PROGRAM TO DEVELOP PRIMARY CARE MEMORY CLINICS IN DEMENTIA CARE

**Lee L, Kasperski MJ, Weston WW. Building capacity for dementia care: training program to develop primary care memory clinics. Can Fam Physician. 2011 Jul;57(7):e249-52. Review. PubMed PMID: 21753083; PubMed Central PMCID: PMC3135463.**

URL: http://www.cfp.ca/content/57/7/e249.long - free full text

The Centre for Family Medicine, 10 B Victoria St S, Kitchener, ON N2G 1C5. joelinda5@rogers.com

ABSTRACT

PROBLEM BEING ADDRESSED: Currently, dementia care provided by family physicians is suboptimal and access to specialist resources is limited. With the aging population, there is a need for system-wide, programmatic interventions to improve the diagnosis and management of patients with memory difficulties. The development of primary care memory clinics addresses this need. OBJECTIVE: The Memory Clinic Training Program aims to develop highly functioning interprofessional memory clinics that assist family physicians in providing improved care for patients with dementia and other forms of cognitive impairment. PROGRAM DESCRIPTION: The interprofessional training program consists of a 2-day case-based workshop, 1 day of observership and clinical training at the Centre for Family Medicine Memory Clinic, and 2 days of on-site mentorship at each newly formed memory clinic. CONCLUSION: The Memory Clinic Training Program is an accredited, comprehensive program designed to assist family practice groups with developing primary care memory clinics. These clinics aim to transform the current limited practice capability of individual family physicians into a systematic, comprehensive, interprofessional health care service that improves capacity and quality of primary care for patients with cognitive impairment and dementia. PMCID: PMC3135463 PMID: 21753083 [PubMed - indexed for MEDLINE]

## READING 2 – NEUROPATHOLOGICAL PROFILE OF MILD COGNITIVE IMPAIRMENT (MCI)

**Stephan BC, Hunter S, Harris D, Llewellyn DJ, Siervo M, Matthews FE, Brayne C. The neuropathological profile of mild cognitive impairment (MCI): a systematic review. Mol Psychiatry. 2012 Nov;17(11):1056-76. doi: 10.1038/mp.2011.147. Epub 2011 Dec 6. Review. PubMed PMID:**

URL: http://dx.doi.org /10.1038/mp.2011.147 – payment require

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ABSTRACT

Whether mild cognitive impairment (MCI) has a distinct neuropathological profile that reflects an intermediate state between no cognitive impairment and dementia is not clear. Identifying which biological events occur at the earliest stage of progressive disease and which are secondary to the neuropathological process is important for understating pathological pathways and for targeted disease prevention. Many studies have now reported on the neurobiology of this intermediate stage. In this systematic review, we synthesize current evidence on the neuropathological profile of MCI. A total of 162 studies were identified with varied definition of MCI, settings ranging from population to specialist clinics and a wide range of objectives. From these studies, it is clear that MCI is neuropathologically complex and cannot be understood within a single framework. Pathological changes identified include plaque and tangle formation, vascular pathologies, neurochemical deficits, cellular injury, inflammation, oxidative stress, mitochondrial changes, changes in genomic activity, synaptic dysfunction, disturbed protein metabolism and disrupted metabolic homeostasis. Determining which factors primarily drive neurodegeneration and dementia and which are secondary features of disease progression still requires further research. Standardization of the definition of MCI and reporting of pathology would

greatly assist in building an integrated picture of the clinical and neuropathological profile of MCI. PMID: 22143004 [PubMed - indexed for MEDLINE]

## READING 3 – ROLE OF PHARMACOTHERAPY FROM COGNITIVE DYSFUNCTION TO ALZHEIMER'S DISEASE

**Delrieu J, Piau A, Caillaud C, Voisin T, Vellas B. Managing cognitive dysfunction through the continuum of Alzheimer's disease: role of pharmacotherapy. CNS Drugs. 2011 Mar;25(3):213-26.**

URL: http://dx.doi.org/10.2165/11539810-000000000-00000 -- payment required

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ABSTRACT

It has been shown that, during several years preceding the diagnosis of Alzheimer's disease there is a gradual cognitive decline with a continuum between the pre-dementia stage (still known as the prodromal stage but now included within the general concept of mild cognitive impairment [MCI]) and the other stages of the disease. In MCI, the use of cholinesterase inhibitors (ChEIs) is not associated with any delay in the onset of Alzheimer's disease or dementia. During the dementia stages, the three ChEIs (donepezil, galantamine and rivastigmine) are efficacious for mild to moderate Alzheimer's disease; therefore, monotherapy with a ChEI can be envisaged as initial treatment. Confirmation of the efficacy of ChEIs in the mild dementia stage is essentially based on the results from a single, randomized study carried out specifically among patients at this stage of severity. Memantine can represent an alternative to ChEIs in the moderate stage of Alzheimer's disease. At the severe stage of the disease, memantine and donepezil are currently indicated. Indeed, memantine has been approved by numerous drug regulatory agencies for use in severe stages of the disease, whereas donepezil has only been approved by the US FDA. There is currently insufficient evidence for recommending combination therapy in Alzheimer's disease. PMID: 21323393 [PubMed - indexed for MEDLINE]

## READING 4 – FINANCES IN THE OLDER PATIENT WITH COGNITIVE IMPAIRMENT

**Widera E, Steenpass V, Marson D, Sudore R. Finances in the older patient with cognitive impairment: "He didn't want me to take over". JAMA. 2011 Feb 16;305(7):698-706.doi: 10.1001/jama.2011.164. Review. PubMed PMID: 21325186.**

URL: http://jama.jamanetwork.com/article.aspx?articleid=645575 – payment required

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ABSTRACT

Financial capacity can be defined as the ability to independently manage one's financial affairs in a manner consistent with personal self-interest. Financial capacity is essential for an individual to function independently in society; however, Alzheimer disease and other progressive dementias eventually lead to a complete loss of financial capacity. Many patients with cognitive impairment and their families seek guidance from their primary care clinician for help with financial impairment, yet most clinicians do not understand their role or know how to help. We review the prevalence and impact of diminished financial capacity in older adults with cognitive impairment. We also articulate the role of the primary care clinician, which includes (1) educating older adult patients and their families about the need for advance financial planning; (2) recognizing signs of possible impaired financial capacity; (3) assessing financial impairments in cognitively impaired adults; (4) recommending interventions to help patients maintain financial independence; and (5) knowing when and to whom to make medical and legal referrals. Clearly delineating the clinician's role regarding identification of financial impairment could establish for patients and families effective financial protections and limit the economic, psychological, and legal hardships of financial incapacity on patients with dementia and their families. PMID: 21325186 [PubMed - indexed for MEDLINE]

## READING 5 – PRACTICAL GUIDELINES FOR RECOGNITION AND DIAGNOSIS OF DEMENTIA

**Galvin JE, Sadowsky CH; NINCDS-ADRDA. Practical guidelines for the recognition and diagnosis of dementia. J Am Board Fam Med. 2012 May-Jun;25(3):367-82. doi: 10.3122/jabfm.2012.03.100181. Review. PubMed PMID: 22570400.**

URL: http://www.jabfm.org/content/25/3/367.long -- free full text

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ABSTRACT
To date, user-friendly, practical guidelines for dementia have not been available for busy family physicians. However, the growing number of patients with dementia means that primary care physicians will have an increasingly important role in the diagnosis and subsequent management of dementia. This article provides practical guidance for the recognition and diagnosis of dementia and is aimed at family physicians, who are usually the first clinicians to whom patients present with dementia symptoms. Because Alzheimer disease (AD) is the most common form of dementia, this condition is the main focus of this article. We review the pathophysiology of AD and discuss recommended diagnostic protocols and the importance of early diagnosis. An AD diagnostic algorithm is provided, with clearly defined steps for screening and diagnosing AD and assessing daily functioning, behavioural symptoms, and caregiver status. PMID: 22570400 [PubMed - indexed for MEDLINE]

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## READING 6 – EVALUATION OF SUSPECTED DEMENTIA

**Simmons BB, Hartmann B, Dejoseph D. Evaluation of suspected dementia. Am Fam Physician. 2011 Oct 15;84(8):895-902. Review. PubMed PMID: 22010769.**

URL: http://www.aafp.org/afp/2011/1015/p895.pdf -- free full text. Evaluation of suspected dementia.

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ABSTRACT
As the proportion of persons in the United States older than 65 years increases, the prevalence of dementia will increase as well. Risk factors for dementia include age, family history of dementia, apolipoprotein E4 genotype, cardiovascular comorbidities, chronic anticholinergic use, and lower educational level. Patient history, physical examination, functional assessment, cognitive testing, laboratory studies, and imaging studies are used to assess a patient with suspected dementia. A two-visit approach is time-effective for primary care physicians in a busy outpatient setting. During the first visit, the physician should administer a screening test such as the verbal fluency test, the Mini-Cognitive Assessment Instrument, or the Sweet 16. These tests have high sensitivity and specificity for detecting dementia, and can be completed in as little as 60 seconds. If the screening test result is abnormal or clinical suspicion of another disease is present, appropriate laboratory and imaging tests should be ordered, and the patient should return for additional cognitive testing. A second visit should include a Mini-Mental State Examination, Geriatric Depression Scale, and verbal fluency and clock drawing tests, if not previously completed.
PMID: 22010769 [PubMed - indexed for MEDLINE]

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## READING 7 – VASCULAR COGNITIVE IMPAIRMENT: DISEASE MECHANISMS AND THERAPEUTIC IMPLICATIONS

**Levine DA, Langa KM. Vascular cognitive impairment: disease mechanisms and therapeutic implications. Neurotherapeutics. 2011 Jul;8(3):361-73. doi: 10.1007/s13311-011-0047-z. Review. PubMed PMID: 21556678; PubMed Central PMCID: PMC3167237.**

URL: http://www-ncbi-nlm-nih-gov/pmc/articles/PMC3167237/ – free full text

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ABSTRACT
The prevalence of vascular cognitive impairment (VCI) is likely to increase as the population ages and cardiovascular disease survival improves. We provide an overview of the definition and disease mechanisms of VCI and present a systematic literature review of the current evidence for the pharmacologic and no pharmacological therapies used to treat the VCI symptoms of cognitive dysfunction or to modify VCI through primary and secondary prevention. The Cochrane Database of Systematic Reviews was searched from 2005 to October 2010 using the keywords "vascular dementia" or "vascular cognitive impairment and therapy." MEDLINE was searched for English-language articles published within the last 10 years using the combined Medical Subject Headings (MeSH) "therapeutics and dementia," "vascular" or "vascular cognitive impairment." Although cholinesterase inhibitors and memantine produce small cognitive improvements in patients with VCI, these drugs do not improve global clinical outcomes and have adverse effects and costs. Selective serotonin reuptake inhibitors and dihydropyridine calcium channel blockers may improve short-term cognitive function in patients with VCI. Anti-hypertensive therapy with an ACE inhibitor-based regimen and statins may prevent the major subtype of VCI known as poststroke cognitive decline. Clinical and effectiveness studies with long-term follow-up are needed to determine the benefits and risks of pharmacologic and nonpharmacological therapies to prevent and treat VCI. Given its growing health, social, and economic burden, the prevention and treatment of VCI are critical priorities for clinical care and research.
PMCID: PMC3167237 PMID: 21556678 [PubMed - indexed for MEDLINE]

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## READING 8 – GUIDELINES FOR MANAGEMENT OF COGNITIVE AND BEHAVIORAL PROBLEMS IN DEMENTIA

**Sadowsky CH, Galvin JE. Guidelines for the management of cognitive and behavioural problems in dementia. J Am Board Fam Med. 2012 May-Jun;25(3):350-66. doi: 10.3122/jabfm.2012.03.100183. Review. PubMed PMID: 22570399.**

URL: http://www.jabfm.org/content/25/3/350.full.pdf+html – free full text

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ABSTRACT
Family physicians play a crucial role in the management and ongoing care of patients with Alzheimer disease (AD). This article reviews the effects of nonpharmacological and pharmacologic interventions on the functional abilities and behaviour of patients with dementia and how these can be implemented into clinical practice. Nonpharmacological interventions are recommended as the initial strategy for managing problematic behaviours. Strategies for improving behaviour include ensuring that the patient's environment is safe, calm, and predictable; removing environmental stressors; and identifying and avoiding situations that agitate or frighten the patient. Simple interventions include redirecting and refocusing the patient, increasing social interaction, establishing regular sleep habits, eliminating sources of conflict and frustration, and establishing rewards for successes. The effectiveness of long-term behavioural management is largely dependent on the caregiver; as such, it is important to assess the role and needs of the caregiver. Because currently available therapies cannot reverse the pathologic processes of AD, the primary objective of pharmacotherapy is to preserve cognitive and functional ability, minimize behavioural disturbances, and slow disease progression. Cholinesterase inhibitors represent first-line therapy for patients with mild to moderate AD, whereas a glutamate N-methyl D-aspartate antagonist is used in the treatment of moderate to severe AD. Looking forward, there are a number of therapies in development aimed at modifying the disease course; these include amyloid-lowering drugs, τ-based and neuroprotective approaches, acetylcholine agonists, and mitochondrial inhibitors.
PMID: 22570399 [PubMed - indexed for MEDLINE]

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## READING 9 – DELIRIUM: EVALUATION AND MANAGEMENT AMONG OLDER PERSONS

**Flaherty JH. The evaluation and management of delirium among older persons. Med Clin North Am. 2011 May;95(3):555-77, xi. doi: 10.1016/j.mcna.2011.02.005. Epub 2011 Mar 31. Review. PubMed PMID: 21549878.**

URL: http://linkinghub.elsevier.com/retrieve/pii/S0025-7125(11)00010-1 – payment required

ABSTRACT

This article reviews the pathophysiology, prevalence, incidence, and consequences of delirium, focusing on the evaluation of delirium, the published models of care for prevention in patients at risk of delirium, and management of patients for whom delirium is not preventable. Evidence on why physical restraints should not be used for patients with delirium is reviewed. Current available evidence on antipsychotics does not support the role for the general use in the treatment of delirium. An example of a restraint-free, nonpharmacological management approach [called the TADA approach (tolerate, anticipate, and don't agitate)] is presented. Published by Elsevier Inc. PMID: 21549878 [PubMed - indexed for MEDLINE]

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## READING 10 – MANAGEMENT OF END-STAGE DEMENTIA

**Lussier D, Bruneau MA, Villalpando JM. Management of end-stage dementia. Prim Care. 2011 Jun;38(2):247-64, viii. doi: 10.1016/j.pop.2011.03.006. Review. PubMed PMID: 21628037.**

URL: http://linkinghub.elsevier.com/retrieve/pii/S0095-4543(11)00019-4 – payment required

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ABSTRACT

Dementia is a progressive and noncurable illness, and its management in late stages should follow a palliative care approach. However, many patients with advanced dementia sustain aggressive interventions that do not improve their survival and might hinder their comfort and quality of life. This is likely explained by a lack of research on this population; a lack of knowledge from health care providers, patients, and family members; and lack of communication between those caring for these patients. There is therefore an urgent need for research and education on this topic, as well as palliative care services devoted to this population.  PMID: 21628037 [PubMed - indexed for MEDLINE]

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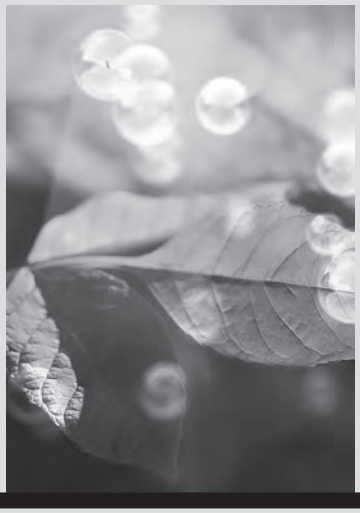

# Useful Information

- **Information extracted from CDMP Handbook on Dementia - Chronic Disease Management Programme for Dementia**

# INFORMATION EXTRACTED FROM CDMP HANDBOOK ON DEMENTIA – CHRONIC DISEASE MANAGEMENT PROGRAMME FOR DEMENTIA

## INTRODUCTION

The following pages are selected from the Handbook for Healthcare Professionals Edition 2011 on Chronic Disease Management of Dementia and Bipolar Disorder.

## INCLUSION OF DEMENTIA AND BIPOLAR DISORDER INTO THE CDMP

1.1 From 1 Nov 2011, Dementia and Bipolar Disorder will be included into the CDMP. This is expected to bring about better health outcomes for patients who will have better control of their conditions with close supervision from their doctors.

1.2 It is recognised that the treatment of chronic diseases is costly when administered collectively over a long period. However, this Programme will help reduce out-of-pocket payments and also reduce the barriers for patients to seek medical treatment.

1.3 With the implementation of the CDMP, GPs will be able to take on a greater role in the management of chronic diseases of their patients.

1.4 With effect from 1 Nov 2011, the use of Medisave for CDMP will apply to the ten conditions listed below:

a) Diabetes Mellitus (DM)
b) Hypertension (HPT)
c) Lipid Disorders
d) Stroke
e) Asthma
f) COPD
g) Schizophrenia
h) Major Depression
i) Dementia
j) Bipolar Disorder

## DISEASE MANAGEMENT PROGRAMMES (DMPS)

1.1 The care components in each DMP are recommended by the Clinical Advisory Committee appointed by MOH. These care components are recommended based on current available medical evidence.

1.2 Some clinics have found it administratively easier to package their services for their patients. Packages should contain the care components detailed in the DMPs. Additional components, if any, can only be offered as add-ons.

1.3 Figure 1.1 shows the treatment algorithm for dementia and bipolar disorder respectively. Details regarding each of the essential care components can also be found in the MOH Clinical Practice Guidelines, available at http:// www.moh.gov.sg/mohcorp/publications.aspx?id=16266.

### FIGURE 1.1: TREATMENT ALGORITHM FOR DEMENTIA

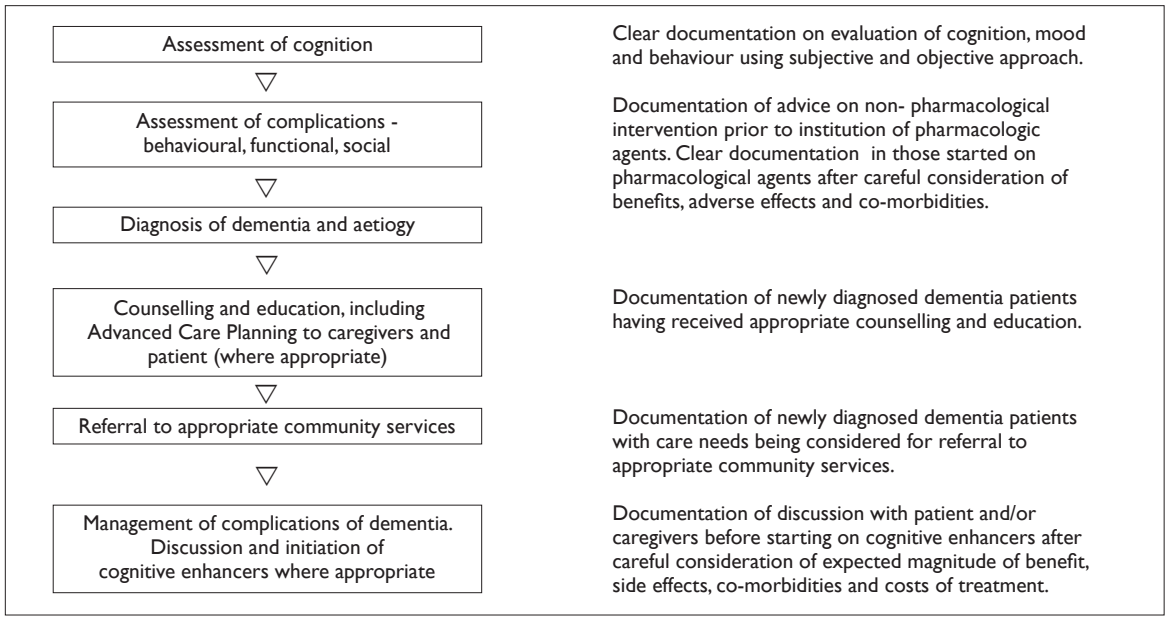

**TABLE 1.1. ESSENTIAL CARE COMPONENTS FOR DEMENTIA FOLLOW-UP MANAGEMENT IN DEMENTIA DISEASE MANAGEMENT PROGRAMME**

| Essential Component* | | Minimum Recommended Frequency (per year) | Remarks |
|---|---|---|---|
| A1 | Assessment of memory (if on cognitive enhancers to document MMSE/CMMSE scores) | At least once yearly or as clinically indicated | Enquiring about memory and/or performing cognitive screening test |
| A2 | Assessment of mood and behaviour | At least once yearly or as clinically indicated | Enquiring about mood and behaviour and initiating appropriate non-pharmacological and/or pharmacological treatment where appropriate |
| A3 | Assessment of social difficulties and caregiver stress | At least once yearly or as clinically indicated | Assessment and referral to care coordinator or medical social worker or appropriate community services |
| A4 | Functional needs assessment | As indicated | To initiate if there are concerns with regards home safety, driving safety, reports of recurrent falls, functional decline, swallowing difficulties |

*** The diagnosis of dementia needs to be already established**

In addition, components A5 to A9 are recommended for patients who are on particular drugs due to higher risk of adverse drug effects in these frail elderly patients.

| Essential Component | | Minimum Recommended Frequency (per year) | Remarks |
|---|---|---|---|
| A5 | Clinical parameters (HR/BP) | At least once yearly or as clinically indicated | Especially patients on cholinesterase inhibitors and antidepressants or antipsychotics which might affect cardiac rhythm |
| A6 | Blood test for sodium and liver function tests | At least once yearly or as clinically indicated | Only for patients on SSRIs |
| A7 | Full Blood count | At least once yearly or as clinically indicated | For patients on mood stabilisers or antiplatelet |
| A8 | Physical examination for extra-pyramidal side-effects | At least once yearly or as clinically indicated | Only for patients on antipsychotics |
| A9 | Electrocardiogram | As indicated | Especially patients who are being considered for cholinesterase inhibitor and/ or on cholinesterase inhibitor but concerns regarding heart rhythm and patients on antipsychotics |

**TABLE 2.2: ADDITIONAL CARE COMPONENTS FOR PATIENT WITH DEMENTIA AND STROKE**

| Essential Component | | Minimum Recommended Frequency (per year) | Remarks |
|---|---|---|---|
| S1 | Thomboembolism Risk Assessment | Annually | Clinical evaluation including atrial Fibrillation, cardiac Mumurs and need for anti-thombotic therapy |
| S2 | Rehabilitation need assessment | As clinically indicated | |

**TABLE 2.3. ESSENTIAL CARE COMPONENTS FOR BIPOLAR DISORDER FOLLOW-UP MANAGEMENT IN BIPOLAR DISORDER DISEASE MANAGEMENT PROGRAMME**

| Essential Component | | Minimum Recommended Frequency (per year) | Remarks |
|---|---|---|---|
| A1 | Clinical Global Impression (CGI)<br>a. Severity<br>b. Improvement | At least once yearly or as clinically indicated | Provider-administered |
| A2 | Patient attendance | At least twice a year or as clinically indicated | Provider-administered |
| A3 | Blood test for fasting glucose and lipids (only for patients on atypical antipsychotics) | At least once yearly | Provider-administered |

**Notes:** Medisave can also be used for doctor follow-up, nurse follow-up evaluation, physiotherapy, occupational therapy, speech therapy, home visit evaluation as clinically indicated and ordered by the attending doctor but not for home meal delivery, transport or other non-medical aspects of care.

## GUIDELINES FOR CONTINUING CARE

1.1 To facilitate integration of care across the various levels so that patients are able to continue and receive the appropriate management of their conditions, MOH has developed the following guidelines:

**a) Referral from Specialist to Primary Care**

i. Suitable patients must be assessed by specialist to be stable and suitable for community follow-up.
ii. They should have a clear diagnosis of dementia or bipolar disorder.
iii. For dementia, their caregivers should have been counselled on their condition, natural history and progression of illness. For bipolar disorder, their caregivers should have been counselled on their condition and the need for continual treatment.
iv. For dementia, they should not have significant behavioural issues or significant caregiver stress. If they have behavioural issues, these should be stable before transfer to their primary care physician. For bipolar disorder, their last mood episode should have been more than three months ago.
v. For dementia, if prescribed antidepressant and/or antipsychotic agents, they should be on stable doses of these medications for at least 3 months. Similarly, for bipolar disorder, they should be on stable doses of medications.

**b) Referral from Primary Care to Specialist**

i. GPs should refer for specialist's review, patients in whom diagnosis of dementia is uncertain. GPs should also refer for specialist's review, complicated cases of bipolar disorder such as co-morbidities, pregnancy, patients 18 years or younger or other complications which in the family physician's opinion would require specialist opinion.
ii. Patients who, under special circumstances, require specialist opinion for medication titration for their condition (i.e. side effects or complications from conventional medication).
iii. For bipolar disorder, patients who are relapsing.

## CLINICAL INDICATORS FOR DEMENTIA

1.1 Participating medical institutions must monitor the quality of care that patients receive. The following are for management of dementia patients after establishing diagnosis:

a) Documentation in follow-up of dementia patients
   - Documentation of assessment of memory
   - Documentation of assessment of mood and behaviour
   - Documentation of assessment of functional and social difficulties (if any)
   - Documentation of assessment of rehabilitation needs
b) Consultation for CDMP Dementia
c) For patients on cognitive enhancers, objective documentation of memory assessment must be performed, by way of a bedside cognitive screening instrument (such as the Mini-Mental State Examination (MMSE) or Chinese Mini Mental State Examination (CMMSE).
d) Blood test for sodium and liver function tests (only for patients on SSRIs or mood stabilisers)
e) Full blood count (for patients on mood stabilisers or considered anti-platelet therapy)
f) Clinical parameters (HR/BP) (especially for patients on cholinesterase inhibitors and antidepressants or antipsychotic medication)
g) Physical examination of extrapyramidal side effects (for patients on antipsychotics)
h) Electrocardiogram (especially for patients being considered for or on cholinesterase inhibitor. Also for patients on antipsychotics)

For those patients with stroke and dementia:

a) Documentation of thromboembolism risk assessment
   - Clinical evaluation including atrial fibrillation, cardiac mumurs and need for anti-thrombotic therapy
b) Documentation of rehabilitation need assessment

1.2 The Clinical Practice Guidelines details the good clinical practices required in dementia evaluation and management. The documentation of the important care component process in dementia evaluation and dementia management is captured in the first two clinical parameters to indicate good clinical dementia care.

1.3 As following up patients to detect complications early and prevent the morbidity and mortality associated with complications is an important aspect of care for dementia patients, the Consultation for CDMP Dementia (at least twice per year) is a key care compliance indicator for the Programme.

1.4 For dementia patients who are prescribed antidepressants or antipsychotic medications, biochemical tests should be performed at least once yearly.

1.5 For dementia patients who are prescribed cholinesterase inhibitors and antipsychotic agents, they should have clinical parameters taken during consultation visits and if there are concerns, electrocardiogram should be done. Recent evidence has shown association of cardiac rhythm abnormalities with cholinesterase inhibitor use.

**Note:** Indicators 1.1(c) to 1.1(h) are applicable only if patients are on these drugs

**TABLE 2.4 SUMMARISES THE CLINICAL INDICATORS FOR PATIENTS WITH DEMENTIA REQUIRED FOR SUBMISSION VIA ELECTRONIC CHANNELS TO MOH**

| Clinical Indicator | Frequency |
|---|---|
| Documentation of:<br>i. assessment of memory<br>ii. assessment of mood and behaviour<br>iii. assessment of functional and social difficulties (if any)<br>iv. assessment of rehabilitation needs | At least once yearly or as clinically indicated |
| Consultation for CDMP Dementia | Twice yearly |
| For patients on cognitive enhancers, documentation of objective assessment of memory (MMSE or CMMSE testing or other validated instruments) | At least once yearly or as clinically indicated |

**TABLE 2.6 DOSING INFORMATION FOR DEMENTIA PATIENTS***

| DRUG CLASS | DRUG NAME | EXAMPLES OF BRAND NAMES | USUAL ADULT STARTING DOSE | USUAL ADULT DOSE RANGE (PER DAY) | MAX. ADULT RECOMM. DOSE (PER DAY) |
|---|---|---|---|---|---|
| SSRI | Escitalopram | Lexapro® | 5 – 10 mg/day | 10 – 20 mg | 20 mg |
| | Fluoxetine | Prozac® | 10 – 20 mg OM | 20 – 60 mg | 80 mg |
| | Fluvoxamine | Faverin® | 25 – 50 mg/day | 50 – 300 mg | 300 mg |
| | Paroxetine | Seroxat CR® | 10 – 12.5 mg/day | 12.5 – 50 mg | 75 mg |
| | Sertraline | Zoloft® | 25 – 50 mg/day | 25 – 200 mg | 200 mg |
| SNRI | Duloxetine | Cymbalta® | 30 – 60 mg/day | 30 – 60 mg | 120 mg |
| | Venlafaxine | Efexor XR® | 75 mg/day | 75 – 225 mg | 225 mg |
| NASSA | Mirtazapine | Remeron Soltab® | 15 – 30 mg/day | 15 – 45 mg | 45 mg |
| RIMA | Moclobemide | Aurorix® | 150 mg/day | 150 – 600 mg | 600 mg |
| Cholinesterase Inhibitors | Donepezil | Aricept® | 2.5 – 5 mg once daily<br>{Tablet (5 mg, 10 mg)} | 5 – 10 mg | 10 mg |
| | Rivastigmine | Exelon® | 1.5 mg bd after meals<br>{Capsule (1.5mg, 3mg, 4.5mg, 6 mg)<br>Transdermal patch (4.6mg/24 hours, 9.5mg/24 hour)} | 6 – 12 mg<br>4.6 mg – 9.5 mg<br>(Transdermal patch) | 12 mg |
| | Galantamine | Reminyl® | 8 mg once daily after meals<br>{PR Capsule (8mg, 16 mg and 24 mg)[2]<br>Solution (4mg/ml; 100 ml bottle)[3]} | 16 – 24 mg | 24 mg |
| NMDA Antagonists | Memantine | Ebixa® | 5 mg once daily<br>{Tablet: 10 mg, Solution: 10 mg/g oral drops (10 drops = 5 mg)} | 20 mg/day (CCT4>60)<br>10 mg/day (CCT 40-60) | 20 mg |
| Others | Bupropion | Wellbutrin SR® | 150 mg OM, increase to 150 mg BD on day 4 if well tolerated | 150 – 300 mg | 300 mg |
| | Tianeptine | Stablon® | 25 – 50 mg/day in 2 – 4 divided doses | 25 – 37.5 mg | 50 mg |
| | Trazodone | Trittico® | 25 – 150 mg/day in divided doses | 50 – 300 mg | 600 mg |

* NB: - Dosing information for bipolar disorder is similar to schizophrenia and major depression.
2 PR: prolonged release once-a-day formulation. The immediate-release formulation has been phased out.
3 Solution can be mixed with non-alcoholic beverage, but must be consumed immediately.
4 Creatinine clearance

**Abbreviations**

- SSRI: Selective Serotonin Reuptake Inhibitor
- SNRI: Serotonin and Noradrenaline Reuptake Inhibitor
- NASSA: Noradrenaline and Specific Serotonin Antidepressant
- RIMA: Reversible Inhibitor of Monoamine Oxidase

**Important Notes:**

- For details, please consult the manufacturers most current product literature or other standard references.
- Lowest effective doses should be used. Elderly patients should be carefully initiated at lower doses of a suitable antidepressant. Individualized dosing for any antidepressant should be based on an in-depth evaluation of the individual patient's therapy requirement with considerations to issues such as contraindications, warnings, precautions, adverse reactions and interactions with other drugs.
- There are many adverse drug interactions with antidepressant drug use, please refer to drug literature for details. Some examples of potential clinically significant interactions with general medicines when initiating/increasing an antidepressant dose can be:
  - Triptans (e.g. Sumatriptan), St. John's Wort: Risks of serotonin syndrome with SSRIs and related antidepressants.
  - Insulins, oral hypoglycaemic agents: Risks of hypoglycaemia with some antidepressants (e.g. Fluoxetine)
  - Theophylline, Clozapine: Risks of toxicity with Fluvoxamine
  - Digoxin: Risks of toxicity with Fluoxetine
  - Anticonvulsants: Levels affected by many antidepressants. Seizure threshold reduced by TCAs, bupropion.
  - Warfarin: Risks of bleeding with many antidepressants (e.g. Fluvoxamine)
- Precautions when switching antidepressants: Other antidepressants should not be started until at least 2 weeks after Moclobemide has been stopped. Moclobemide should not be started until at least 1 week after a TCA or SSRI or related antidepressant has been stopped (2 weeks in the case of Sertraline, and at least 5 weeks in the case of Fluoxetine). Combinations of SSRIs and related antidepressants may cause serotonin syndrome, hypotension and drowsiness.

**References:**

British National Formulary Vol. 57 (Mar 2009) & Geriatric Dosage Handbook (11th Ed) MICROMEDEX (DRUGDEX) Healthcare Series Vol. 140 (2009)
American Hospital Formulary System (2009 Edition) Manufacturers' Product Information

**TABLE 3.1: RECOMMENDED INVESTIGATIONS FOR PATIENTS RECEIVING SELECTED PHARMACOTHERAPY**

| S/N | Investigation | Indication |
|---|---|---|
| **BIPOLAR DISORDER** | | |
| 1 | Full Blood Count | Patients on most mood stabilisers at baseline and yearly for carbamazepine |
| 2 | Renal Panel (U/E/Cr) | Patients on all antidepressants, carbamazepine and lithium |
| 3 | Liver Function Test | Patients on antidepressants, atypical antipsychotics, mood stabilisers |
| 4 | Thyroid function (TFTs) | Patients on lithium |
| 5 | Fasting lipids and glucose | Patients on atypical antipsychotics and those at risk of metabolic syndrome. |
| 6 | Serum levels | Patients on Lithium, Carbamazepine and Sodium Valproate |
| **DEMENTIA** | | |
| 1 | Full Blood Count | Patients on mood stabilisers. Patients for consideration or on antiplatelet agent |
| 2 | Renal Panel (U/E/Cr) | Patients on antidepressants or mood stabilisers |
| 3 | Liver Function Test | Patients on antidepressants, atypical antipsychotics, mood stabilisers |
| 4 | Electrocardiogram | Patients for consideration or on cholinesterase inhibitors and antipsychotics (both typical and atypical) and in whom there is concern with regards to cardiac rhythm abnormalities |

## TABLE 3.2: LIST OF MEDISAVE CLAIMABLE DRUGS FOR TREATMENT OF PSYCHIATRIC CONDITIONS

This list includes any new medications (excluding benzodiazepines) approved by the Health Sciences Authority (HSA) for the treatment of psychiatric conditions which are included in the CDMP programme.

| S/N | Drug | S/N | Drug |
|---|---|---|---|
| 1 | Amisulpride | 24 | Lithium* |
| 2 | Amitriptyline | 25 | Maprotiline |
| 3 | Aripiprazole | 26 | Memantine# |
| 4 | Benzhexol | 27 | Mirtazepine |
| 5 | Benztropine | 28 | Moclobemide |
| 6 | Bupropion | 29 | Nortriptyline |
| 7 | Carbamazepine* | 30 | Olanzepine |
| 8 | Chlorpromazine | 31 | Paliperidone |
| 9 | Clomipramine | 32 | Paroxetine |
| 10 | Clozapine | 33 | Perphenazine |
| 11 | Donepezil# | 34 | Quetiapine |
| 12 | Dothiepin | 35 | Risperidone |
| 13 | Doxepin | 36 | Rivastigmine# |
| 14 | Duloxetine | 37 | Sertraline |
| 15 | Escitalopram | 38 | Sodium Valproate* |
| 16 | Fluoxetine | 39 | Sulpiride |
| 17 | Flupenthixol | 40 | Tianeptine |
| 18 | Fluphenazine | 41 | Trazodone |
| 19 | Fluvoxamine | 42 | Trifluoperazine |
| 20 | Galantamine# | 43 | Trimipramine |
| 21 | Haloperidol | 44 | Venlafaxine |
| 22 | Imipramine | 45 | Ziprasidone |
| 23 | Lamotrigine | 46 | Zuclopenthixol |

* Mood stabilizers
# Drugs which are specific for the treatment of dementia

## TABLE 3.3: LIST OF ALLOWABLE THERAPIES FOR TREATMENT OF PSYCHIATRIC CONDITIONS

1. Psychological therapy in specific cases
2. Electro-convulsive therapy (ECT)
3. Occupational Therapy
4. Physiotherapy
5. Speech therapy

## COMMENCEMENT OF CLINICAL DATA COLLECTION

1.1 For patients who have been enrolled in the Dementia or Bipolar Disorder Chronic Disease Management Programme (CDMP), data collection will commence at the patient's first visit to the doctor for the chronic condition.

1.2 The clinical data fields required for Dementia is shown below :

**Dementia**

| **DATA TO BE ENTERED ONCE ONLY (EXCLUDING UPDATES)** | | |
|---|---|---|
| NRIC/FIN: | | |
| DOB (DD/MM/YYYY): | | |
| Gender: Male ( ), Female ( ) | | |
| **DATA TO BE ENTERED AT LEAST ONCE YEARLY** | | **DATA TO BE ENTERED ONCE EVERY 6 MTHS** |
| Documentation of:<br>i. assessment of memory<br>ii. assessment of mood and behaviour<br>iii. assessment of functional and social difficulties (if any)<br>iv. assessment of rehabilitation needs | Yes (if assessment done)<br>OR<br>No (if assessment not done) | Consultation for CDMP Dementia |
| For patients on cognitive enhancers, documentation of objective assessment of memory (MMSE or CMMSE testing or other validated instruments) | As above | |

### Clinical Global Impression (CGI) Scale

Considering your total clinical experience with this particular population, how would you rate this patient's mental condition at this time?

**1) Severity of Illness**

1 = Normal (not at all mentally ill)
2 = Borderline mentally ill)
3 = Mildly mentally ill
4 = Moderately mentally ill
5 = Markedly mentally ill
6 = Severely mentally ill
7 = Extremely mentally ill

**2) Global Improvement**

0 = Not assessed
1 = Very much improved
2 = Much improved
3 = Minimally improved
4 = No change
5 = Minimally worse
6 = Much worse
7 = Very much worse

# Guidelines and Information for Authors

## The Singapore Family Physician

Authors are invited to submit articles for publication in *The Singapore Family Physician* on the understanding that the work is original and that it has not been submitted or published elsewhere. Your original article will be considered for publication on the understanding that they have to be approved by the Editorial Board via a double-blinded peer-review process and subject to revision. Authors are encouraged to consult the recommendations in the *Uniform Requirements for Manuscripts Submitted to Biomedical Journals* (http://www.icmje.org/index.html) which the SFP is in accord with.

The following types of articles may be suitable for publication: case reports/ study, original research works, audits of patient care, protocols for patient or practice management and letters to the Editor. The CME and review articles will be published under the prerogative of the Institute of Family Medicine (IFM) in the College of Family Physicians Singapore. The article should be written in British English, and not be more than 3000 words in length. This must be submitted in an electronic form and of a format that is compatible with major word processor applications. Submissions in Microsoft Word in Word 1997-2003 format (.doc) is preferred, later versions (.docx) will not be accepted.

From 31 January 2010 all articles submitted for publication must be submitted electronically through the ***SFP Editorial Manager***, our online submission and peer-review system which can be accessed at www.editorialmanager.com/sfp/default.asp.

All instructions for registration and submission can be found at the webpage. Authors and reviewers can follow clearly the progress of the manuscript submission and review process by logging into the ***SFP Editorial Manager***. An online users' guide, authors' and reviewers' instructions are also located at the website in case of queries and difficulties. Any problems encountered logging in can be addressed to editorialoffice@cfps.org.sg.

### RECOMMENDED FORMAT FOR THE MANUSCRIPT

The submission should comprise of the following:

1. Title Page
2. Summary/ Abstract
3. Key Words
4. Text/ Manuscript (anonymised version)
5. Tables
6. Illustrations
7. Authors Agreement/ Copyright Assignment Form
8. Patient's Consent Form, if necessary (including consent for photograph or illustration taken of human subject)

and each one of these sections should start on a fresh page.

Authors are advised to ensure the anonymity of study subjects and patients by removing any and all information that could compromise their privacy from the submission.

The text should be typed in Arial font, 12 point size with a 1.5 line space.

#### The Title Page

- The title should be concise and highlight the key elements of the article.
- Include on the title page first name, qualifications, present appointments, type and place of practice of each contributor.
- Include name, address, handphone number and email address of the first author to whom correspondence should be sent.
- Insert at the bottom: name and address of institution or practice from which the work originated.

#### The Summary/ Abstract

- The summary should describe why the article was written and present the main argument or findings.
- Limit words as follows: 250 words for major articles; 200 words for case reports.

#### Key Words

- Add, at the end of summary in alphabetical listing, keywords of up to 5 in number which will be used for article indexing and retrieval under Medical Subject Headings or MeSH. MeSH is the NLM controlled vocabulary thesaurus used for indexing articles for WPRIM and PubMed. Please refer to www.nlm.nih.gov/mesh/ for details.

#### The Text/ Manuscript (full complete)

The text should have the following sequence:

- **Introduction:** State clearly the purpose of the article.

- **Methods:** Describe the selection of the subjects clearly. Give References to established methods, including statistical methods; provide references and brief descriptions of methods that have been published but are not well known. Describe new or substantially modified methods, giving reasons for using them and evaluate their limitations. Include numbers of observations and the statistical significance of the findings where appropriate.

  Drugs must be referred to generically; all the usual trade names may be included in parentheses.

  Dosages should be quoted in metric units.

  Laboratory values should be in SI units with traditional unit in parentheses.

  Do not use patients' names, initials or hospital numbers to ensure anonymity.

- **Results:** Present results in logical sequence in the text, table and illustrations.

- **Statistics:** Describe statistical methods which can be easily understood and verified by the reader. Use technical terms in its proper place, and where possible quantify readings and indicate errors of uncertainty and confidence intervals.

- **References:** The author(s) is/ are responsible for the accuracy and completeness of the references, which should be identified in the text by superscript Arabic numerals in the order of first citation and noted in numerical order at the end of the text.

  Digital Object Identifier (DOI) citation information must be included as a full DOI URL by prepending http://dx.doi.org/ to any DOI reference. To identify a DOI reference, please visit CrossRef at http://www.crossref.org/guestquery/ and enter in the reference information in the box provided to locate the DOI where available. Such DOI information will facilitate readers to trace referenced papers easily.

Where there are more than three authors, the first three should be named and then followed by et al.

*Example:*
Tan and Ho. Treat-to-target approach in managing modifiable risk factors of patients with coronary heart disease in primary care in Singapore:What are the issues? Asia Pacific Family Medicine, 2011;10:12. doi:10.1186/1447-056X-10-12.
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**Tables**
Tables should be submitted on a separate page. Label them in roman-numeric sequence [I,II,III etc] and ensure they are clear and with explanatory legends as required.

**Illustrations**
- Illustrations must be submitted in a separate page, and should be provided whenever appropriate. Illustrations should be cited in the text. When required, it is the author's responsibility to obtain permission to reproduce illustrations. Authors need to ensure that photographs, illustrations and figures do not contain any information that will reveal the identities of the patients and authors. From 1 January 2012, all photographs and illustrations taken from any human subject must be accompanied by the respective endorsed consent form. Clear captions to the figures should be provided.

**Anonymised Text**
As the original article will be subjected to a double-blinded peer review process, all identification of names and institutions have to be removed from this version to facilitate the peer review process.

**Author Contributorship for Original Article Submission**
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The SFP requires the author(s) to provide full and detailed declarations of any conflicts of interest. Where there are none, please use the following declaration: *"The author(s) declare(s) that he/she/they has/have no conflict of interest in relation to this article."*

**RECOMMENDED FORMAT FOR PRISM (Patients' Revelations as Insightful Studies of their Management) SECTION**

Authors planning to submit their case studies to the PRISM section should structure their article according to these headings:

**Title**
- The title should be framed into a question to define the key focus of the case study.

**Patient's revelation: What happened?**
- The author(s) will provide a concise description of the setting on which the subject raised his/her medical or psychosocial issue pertaining to their health or disease management. It should cover the background, encounter and interaction of patient with the healthcare professional (doctor, nurse or allied healthcare professional). Author(s) should conceal the identity of the subject and/or related or accompanying personnel: abbreviation should be used instead, if necessary.

**Gaining insight: What are the issues?**
- The issue(s) raised by the patient should be framed into question(s). The question(s) will constitute a problem list and will serve as a focus for the management of this subject.

**Study the management: How do we apply in our clinical practice?**
- This section covers the approach to the management of the subject by the author(s). The author(s) should provide a literature review of current evidence, if any, of the basis of the subject's management, or to highlight the gaps of knowledge if such evidence is lacking. The author(s) will suggest ways to apply the new knowledge in clinical practice or to highlight the limitations of its applications, if any.

**Conclusion**
- The author(s) will provide a concise summary of the lessons learnt from this case study.

The article submitted to the PRISM section should be written by not more than three authors. Each article should not exceed 2000 words. Photographs or charts may be included but should conform to the specific instructions for any other articles submitted to The Singapore Family Physician.

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Manuscripts may be returned to their respective authors for revision. This will be accompanied by an Editor's email for which comments and recommendations may be made. The authors are advised to read and to take note of these comments carefully and to revise their articles accordingly. The authors need to reply to the editor's email to outline their response before the resubmission of the revised manuscript. They should exclude the identity of the authors and their institutions, as the email may be redirected to the reviewers during the resubmission process. The resubmitted manuscripts should include the revised complete version, as well as the anonymised version as before.

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*"The course has been helpful, I have gained a lot of knowledge, and it has made me feel more confident in dealing with the more common mental conditions like anxiety, depression and even in the detection of early mental psychosis."*

*– Dr Peter Yeo.*

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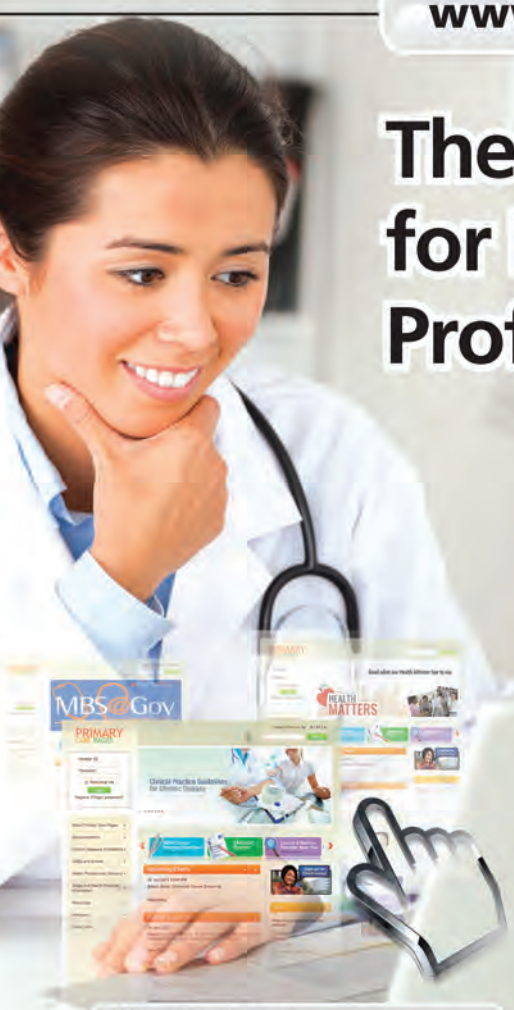

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