

# Dementia: to screen or not to screen

With an increasingly ageing population, there is a need to be particularly vigilant for symptoms of dementia and to be familiar with the tools available for screening for this condition. The questions of who and when to screen for dementia will become more relevant.

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Over the past century, the average life expectancy in Australia has increased by about 23 years.<sup>1</sup> Although this undoubtedly is of benefit to many people, there is also an increase in the number of people reaching the age at which dementia becomes increasingly prevalent. By 2050 it has been estimated that the number of Australians diagnosed with dementia will exceed 730,000 (2.8% of the projected population) – a fourfold increase in cases of dementia since 2000.<sup>2</sup> As increasing numbers of patients present to their GPs with memory problems and other cognitive symptoms, GPs will need to be familiar with methods for determining the cause of these symptoms. The question of whether to screen for dementia will, therefore, become more relevant.

## What is dementia?

Dementia can be considered a sustained decline in memory plus a decline in at least one other area of cognition, such as abstract thinking, reasoning or learning, accompanied by impairment in social and/or occupational functioning.<sup>3</sup> The causes of

dementia are myriad, with a definitive diagnosis only possible by postmortem examination of the brain. The most common cause of dementia in Australia is Alzheimer's disease, although vascular dementia and Lewy body dementia are also common. Other causes include frontotemporal dementia, alcohol-induced dementia and dementia associated with Parkinson's disease.

## Why screen for dementia?

Patients with dementia usually present to their GP because family or close friends have noticed a deterioration of memory or a change in personality. Less frequently, patients present because they are concerned about their own memory loss. The issue for the GP is whether to investigate these non-specific symptoms further. A common belief, held by the general public and indeed some doctors, is that dementia is an expected part of ageing or that forgetfulness is common in the elderly and does not require further exploration. Other arguments previously given against testing for dementia in general practice include that:

## IN SUMMARY

- Screening for dementia in symptomatic elderly patients is necessary for the initiation of medication to slow the progression of Alzheimer's disease and allows patients and their families to plan for the future.
- Brief (less than five minutes) cognitive screening tests are available.
- A positive screening test is not equivalent to a diagnosis of dementia. Exclusion of other causes of cognitive impairment is necessary.
- The Royal Australian College of General Practice has produced guidelines on the management of dementia in primary practice.

- the diagnosis of dementia is likely to cause distress and might trigger depression or even suicide
- there are no treatments for dementia available
- if the patient is not expressing concern about memory loss the GP should not test for dementia.

Several of these beliefs can be challenged. Dementia is not a normal part of ageing; in fact, only 10% of 80 to 84 year olds have moderate to severe dementia.<sup>4</sup> Although patients and their families often express distress at the diagnosis of dementia, they also commonly experience relief that there is an explanation for the memory loss or change in behaviour. There are currently no treatments available to reverse or halt intellectual decline, but there are therapies available for Alzheimer's disease that may decelerate intellectual deterioration.

Although memory complaints in the absence of other cognitive impairments are not uncommon in older people, there is a subgroup of complainants who will be found to be experiencing mild cognitive impairment, which may progress to dementia.<sup>5</sup> Cognitive impairment may result from causes other than dementia, and reversal of these cognitive deficits may occur after prompt treatment of the underlying cause. Memory impairments may also affect medication adherence, so vigilance and strategies to enhance compliance will improve the patient's general health. Early diagnosis of dementia allows patients and their families to plan for the future. Legal, medical, support and lifestyle issues can be discussed and planned while the patient is still capable of making decisions, some of which may be complex.

The issue of whether to routinely screen all elderly people for dementia, even in the absence of memory impairment, is more controversial.<sup>6</sup> Ideally, routine screening would improve the current low identification rate. There is a compelling argument to increase the rate of diagnosis: one study found that between 50 and 66% of primary care patients with dementia had not received this diagnosis.<sup>7</sup> However, the low sensitivity and specificity of commonly used screening tests limit their accuracy in diagnosing mild cases of dementia. A study of routine use of the Mini-Cog (a brief screening tool for dementia) in older adults found that, although the rate of diagnosis was increased,

**Dementia: to screen or not to screen**

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The issue of dementia screening is a challenging one for GPs. The results of a dementia screening test will usually only offer one piece of information in solving the dementia puzzle.

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physicians were only likely to act in relation to dementia when intellectual impairment was severe.<sup>8</sup> In other words, having identified dementia, many doctors do nothing further, unless the dementia is severe.

Moreover, the very low prevalence of dementia in cohorts of the 'young-old' (i.e. those under 70 years) makes it likely that limiting the target group to those over 75 years<sup>6</sup> or those already presenting with symptoms of impairment<sup>9</sup> would yield more accurate diagnostic rates. The Medicare-funded health care assessment and care plan items for people over the age of 75 years (item 700) and those of Aboriginal or Torres Strait Islander

continued

**Table 1. Causes of cognitive impairment other than dementia in elderly people**

Depression
Anxiety
Late-onset psychosis
Delirium (due to systemic disorders, including infection, drugs and hypoxia)
Medications
Endocrine disorders (e.g. hypothyroidism)
Nutritional deficiencies (e.g. vitamin B <sub>12</sub> , thiamine and niacin deficiencies)
Encephalopathies
Intracranial space-occupying lesions
Normal pressure hydrocephalus
Cerebral infarct
Epilepsy (partial seizures)
Giant cell arteritis
Systemic lupus erythematosus
Neurosyphilis
HIV infection
Chronic meningitis
Obstructive sleep apnoea

background over 55 years (items 704 and 706) facilitate screening. Moreover, efforts are needed to help GPs appropriately follow up patients with positive screening results.<sup>8</sup>

### Symptoms of early dementia

Warning signs of possible dementia include:

- problems that affect day-to-day living, such as difficulty performing familiar tasks like making a familiar meal
- language difficulties such as forgetting words
- poor judgement
- changes in personality or behaviour
- loss of initiative.<sup>10</sup>

### Assessment of patients for dementia

The diagnosis of dementia is essentially a clinical one, and a history and directed physical examination should be conducted. The aim of history taking is primarily to unearth any cognitive difficulties and the extent of the impact on the patient's life. Patients can be asked if they misplace objects more often, if they increasingly require lists or if others have commented on their poor memory. Difficulties with driving – such as being involved in car accidents or getting lost in a familiar suburb – are common and may lead to a requirement for a driving assessment. People may notice that they have become repetitive or forgetful, and are not performing as well as they used to, particularly in card games such as bridge or crosswords.

Patients with frontal lobe problems may appear to have lost all common sense and do some very odd things. They may present as disinhibited and socially gauche, or their family may describe a new apathy in which they may start to neglect their self care and appear unmotivated and socially withdrawn (this may be difficult to differentiate from depression). Some patients become more anxious and may have catastrophic reactions to situations that they previously managed with ease.

Although most patients affected with poor memory may be unable to give accurate answers to these types of questions, it is generally advisable to see the patient alone. Family or friends can be seen at a separate time to express their concerns. Patients may purposely give less accurate histories if they do not want their families to be aware of the extent of their disabilities or if conflict has already arisen as a result of the patients' perceived cognitive impairment. Similarly, any cognitive tests should be administered with only the patient in the room to prevent prompting by relatives and minimise anxiety associated with multiple observers. The use of relatives or friends as interpreters for those

who do not speak English is best avoided to prevent prompting of answers.

It is important to obtain a history from either a relative or close friend when assessing memory complaints. Anosognosia (lack of insight into one's disability or deficit) and confabulation are common in dementia, necessitating collateral information about the patient's functioning. The Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE) is a structured screening tool for dementia which relies on an informant's history.<sup>11</sup> It can be completed by the informant while the patient is being examined.

A further aim of the consultation is to exclude conditions that mimic dementia, such as depression or anxiety. A quick depression screening tool such as the 15-item Geriatric Depression Scale (GDS)<sup>12,13</sup> can be easily downloaded from the internet and takes about 5 to 10 minutes to administer. However, for patients with more advanced dementia or prominent language disturbance, the GDS can be misleading and other clinical indicators such as the history, duration of functional change or loss of sleep and appetite, and the presence of features such as sadness and psychomotor retardation can be more helpful diagnostically than the GDS.

Many reversible causes of dementia can be detected by physical examination and laboratory tests (Table 1).

### Screening tools

The features of the ideal screening tool include that it:

- can be conducted in a GP surgery
- takes only a few minutes to administer
- is robust in diagnosing dementia in a primary care setting, while excluding cases that are not dementia
- has high sensitivity and specificity
- maintains accuracy regardless of gender, education and cultural background.

Unfortunately, given the complex nature of dementia, tests of cognition that can be performed within a reasonable

time frame in the GP clinic generally tend to be screening rather than diagnostic tests – that is, they indicate cognitive dysfunction which may be due to a number of causes rather than being diagnostic for dementia. That there are so many cognitive screening tests available indicates that the ideal tool has not been attained.

### Mini-Mental State Examination

A survey of psychogeriatricians around the world showed that the Mini-Mental State Examination (MMSE)<sup>14</sup> and clock drawing test were the most commonly used brief cognitive screening instruments.<sup>15</sup> The MMSE is also likely to be the tool most commonly used by Australian GPs, because a MMSE score is a prerequisite for initiating and continuing dementia treatment on the PBS and it is also conveniently available through Medical Director software.

The MMSE has been criticised for showing educational<sup>16</sup> and cultural bias.<sup>17</sup> It is affected by age, is insensitive to frontal executive impairments (commonly seen in vascular and frontal lobe dementias)<sup>18</sup> and has lower sensitivity for mild dementia.<sup>19</sup> A formula to correct for these factors in Australian populations has been calculated.<sup>20</sup> The MMSE takes about 10 minutes to administer, which is considerable bearing in mind that taking a history from the patient and a carer generally occurs during the same consultation. However, the assessment may be made using the Health Assessment item for patients over 75 years of age.

### Other brief screening tests

Other than the MMSE, brief screening tests that have been validated in primary care or community samples are the:

- Clock drawing test
  - GP assessment of cognition (GPCOG)
  - Mini-Cog
  - Memory Impairment Screen (MIS)
  - Rowland Universal Dementia Assessment Scale (RUDAS).
- A number of reviews of dementia

## Case study highlighting the use of screening tools

Mary is 90 years old. She lives alone, but has a helpful neighbour and a daughter who lives interstate. She has hypertension, and her neighbour takes her to the GP every three months for a repeat prescription of her blood pressure medication.

Everything seemed to be fine up until the past six months, when Mary has seemed to be a bit confused and anxious about things, such as her daughter's next visit, and has been repetitive on the telephone. When the daughter visited her mother, she found the house to be neglected and was worried about her. When she went to buy her mother a new washing machine, she found that her mother's bank account was inexplicably depleted. They visit the GP.

The GP initially needs to exclude causes of cognitive impairment other than dementia. Delirium, depression and drug interactions are common causes of confusion in the elderly, and a relevant examination can be performed and investigations ordered. A brief screening tool such as the GPCOG should be administered to determine Mary's cognitive functioning. Specialist referral is likely to be necessary as there is a question as to whether Mary is capable of looking after her own finances, and the issue of depletion of finances may be a warning flag for elder abuse.

screening tools have been conducted.<sup>21-23</sup> These reviews have compared instruments on the basis of:

- time taken to complete the test
- validation in primary care or community samples
- measures of statistical robustness, such as sensitivity and specificity.

Cullen and others examined tools to find out if they assessed six key neuropsychological domains – attention/working memory, verbal recall, expressive language, verbal fluency, visual construction and reasoning/judgement.<sup>23</sup> They particularly recommended the modified MMSE (3MS) and the Cognitive Abilities Screening Instrument (CASI) as these tests have been validated in community samples; however, they require about 15 minutes to administer.<sup>23</sup> Two other reviews recommended the GPCOG, MIS and Mini-Cog as most suitable for dementia screening in primary care.<sup>21,22</sup> The RUDAS is a useful tool that has been developed to eliminate cultural bias, and is more appropriate than the MMSE for assessing people from a non-English speaking background. It also takes about 10 minutes to administer.<sup>24</sup>

The advantages of GPCOG, MIS and Mini-Cog include:

- they were all validated in primary care or community populations
- they take between two and five minutes to administer
- they have equal or better sensitivity and specificity than the MMSE
- they are relatively free of education and cultural bias.

The GPCOG is less accurate in people over the age of 80 years<sup>25</sup> (as is the MMSE<sup>20</sup>) and requires an informant who may not be available at the time of consultation. It has been validated as acceptable to GPs and is included in the appendix of the RACGP guidelines for the care of patients with dementia.<sup>26</sup>

Ideally, one or two of these screening tools would be incorporated into future versions of medical reference software, so GPs could access the tests easily. Alternatively, it is possible to train a practice nurse to administer both the GDS and the cognitive screening tools. In fact, some practice nurses perform health assessment checks which include the MMSE.

An example of the use of screening tools is given in the case study above.

continued

**Table 2. Laboratory investigations****Blood**

Urea, creatinine and electrolytes  
 Blood sugar levels  
 Full blood count and differential white cell count  
 Vitamin B<sub>12</sub> and red cell folate levels  
 Liver function tests  
 Calcium and phosphate levels  
 C-reactive protein level  
 Syphilis serology, if indicated

**Urine**

Microscopy, culture and sensitivity

**Imaging**

CT brain (noncontrast)

**What to do with an abnormal test result**

An abnormal result on a screening tool does not equate to a diagnosis of disease. It is a prompt for further assessment and investigations. The result should be interpreted in light of the informant history and after consideration of other conditions that can present with cognitive impairment, such as depression, drug reactions, delirium and other systemic physical illnesses. At this point referral to a specialist may be required, particularly if:

- use of an acetylcholinesterase inhibitor is being considered
- the pattern of the dementia is atypical
- the rate of decline is rapid
- the patient is young
- there are behaviours or psychological symptoms of concern (such as hallucinations, other psychotic features, depressive symptoms or fluctuating levels of cognition).

The patient can be informed that the results of the cognitive screen indicate that further examination is necessary (Table 2). The flowchart on page 21 shows the

pattern of dementia diagnosis in general practice.

**Counselling**

Patients will usually require some form of counselling when told that they have screened positive for cognitive problems. It is important to explain that the tests are screening tools only, and that further testing is required to determine why the patient is performing at that cognitive level. Enumerating a few of the many causes of cognitive abnormalities can reassure patients that their problems may be due to anxiety or a reversible cause, such as abnormal thyroid activity, while engaging them in follow up.

At this stage there will be some patients who do not wish to have further screening tests or investigations into possible causes of their cognitive problems. In one study, almost half the patients who tested positive for dementia on a brief screening tool refused further assessment.<sup>27</sup> In these cases it is advisable to track the patient's cognition using a tool such as the MMSE on a six- to 12-monthly basis while considering the need for specialist opinion, where accessible, and raising this with the patient at an appropriate time. If, during this time, the GP has concerns about the patient's understanding or ability to consent to other aspects of his or her medical care, or if there are more general concerns about the patient's ability to make decisions, it is advisable to refer for a specialist opinion.

Once a definitive diagnosis of dementia has been made, patient counselling should include educating patients about the nature of dementia and addressing any fears or misconceptions about the disease, informing patients of support services such as Alzheimer's Australia and suggesting that they make their wishes regarding legal and financial matters known. Patients should be advised to consider whom they wish to manage their affairs and to make provision for an enduring power of attorney or enduring guardianship. GPs may wish to delegate

patient and family counselling to the practice nurse, or use dementia counsellors from local area health services, if available, or from Alzheimer's Australia.

It is important to note that coming to terms with a diagnosis of dementia and all its connotations takes some time and rarely can be achieved after one visit to the doctor. This applies to both patients and their families. The RACGP guidelines for the care of patients with dementia in general practice gives a thorough overview of the management of patients diagnosed with dementia.<sup>26</sup>

**Dementia in the rural setting**

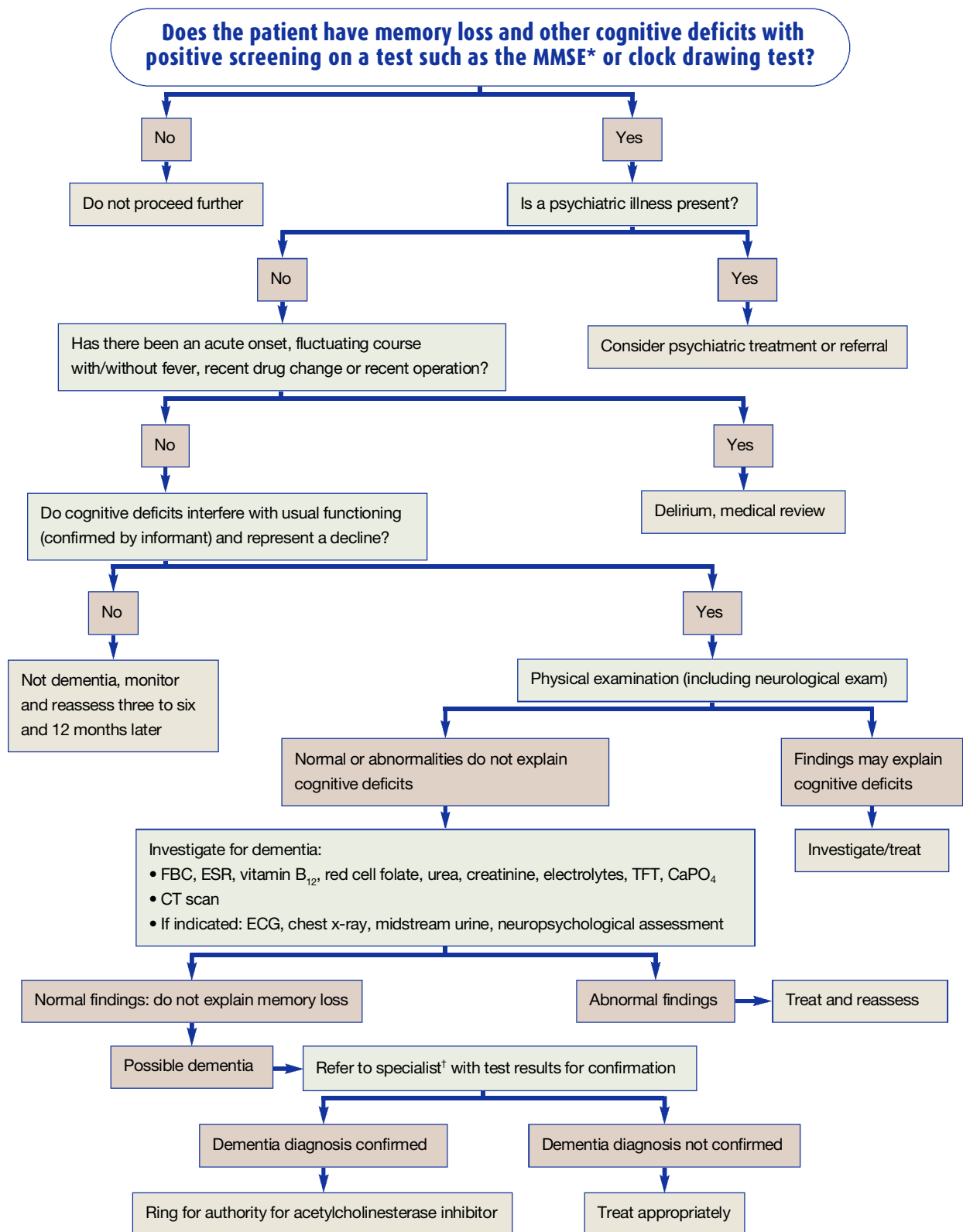
Given the limited availability of specialist physicians and psychiatrists in rural and remote areas, the rural GP may consider following an abnormal brief screening tool result with the MMSE. Some of the indications for specialist referral – or discussion with a specialist where face-to-face consultations are difficult to access – have been discussed earlier in this article. It is worthwhile noting that item numbers exist for conferencing with a physician or psychiatrist. Face-to-face specialist assessment of patients may not be required, with telehealth consultations shown to be effective in the assessment of cognitive decline.<sup>28</sup>

The recently validated Kimberley Indigenous Cognitive Assessment<sup>29</sup> is a more culturally relevant tool for the assessment of Indigenous Australians in the Kimberley in Western Australia, Northern Queensland and the Northern Territory. This tool has not been validated in Indigenous groups from other areas of Australia and, therefore, given the diversity of Indigenous groups in Australia, may not be directly applicable to those from other areas.

**Treatment options**

To date, there is no cure for dementia. The aim of currently available medications for dementia is to delay the patient's progression in cognitive decline.

## Early diagnosis and management of dementia in general practice



\* If MMSE is >24, patient will need Alzheimer's disease assessment scale for cognition for PBS authority for acetylcholinesterase inhibitor.

† Appropriate specialists: geriatrician, psychogeriatrician, neurologist, neuropsychiatrist, psychiatrist (with interest in aged care).

ABBREVIATIONS: MMSE = Mini-Mental State Examination; FBC = full blood count; ESR = erythrocyte sedimentation rate; TFT = thyroid function test; CaPO<sub>4</sub> = calcium phosphate.

continued

There are two classes of medication for Alzheimer's disease currently approved in Australia. Acetylcholinesterase inhibitors – donepezil (Aricept), galantamine (Reminyl) and rivastigmine (Exelon, Exelon Patch) – aim to compensate for the cholinergic deficit in Alzheimer's disease by inhibiting the breakdown of acetylcholine, therefore increasing the amount of transmitter in the synapse. In order to qualify for the PBS subsidy, a patient must have a diagnosis of mild to moderate Alzheimer's disease confirmed by a specialist physician or psychiatrist and an MMSE score of at least 10.

Memantine (Ebixa) is a noncompetitive N-methyl-D-aspartate (NMDA) antagonist which is indicated for moderately severe to severe Alzheimer's disease. PBS subsidisation is available for memantine as a monotherapy for patients with Alzheimer's disease and MMSE scores between 10 and 14.

Strategies to reduce the progression of vascular dementia include modifying and improving vascular risk factors such as hypertension and diabetes. Community supports are valuable for patients and carers. Alzheimer's Australia has branches throughout Australia and provides support and education for patients and carers. The organisation's website has fact-sheets about various aspects of all forms of dementia, not just Alzheimer's disease, and help sheets for difficult behaviours.<sup>30</sup> The local aged care assessment team (ACAT) is another valuable resource for accessing community supports, home help and residential care.

### Conclusion

The ageing of the Australian population and increasing community awareness of dementia and its symptoms means that patients are increasingly presenting to GPs with memory and other cognitive complaints. As the 'baby boomers' move into older age they will be more strident in wanting answers and solutions. Questions will most often arise from those who support and care for the person with demen-

tia but sometimes it will come from the patients themselves. There will also be many older people who do not complain about symptoms but whose cognitive faculties are declining.

Screening is worthwhile for those with symptoms and those at higher risk of having a dementing disorder, such as those over the age of 75 years. Importantly, there is much that can be done to help those with dementia. There are explanations, support systems and medications that can slow the disease progression. These are good reasons to screen for dementia. **MT**

### References

*A list of references is available on request to the editorial office.*

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### Online CPD Journal Program

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