Module 1:
Overview of dementia
# Module 1: Overview of dementia

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Module 1: Overview of dementia

Introduction
This module presents an overview of dementia and will assist you to understand dementia within the context of what is known of population statistics, normal age-related changes, definition, dementia type, accurate diagnosis and a discussion about how dementia is identified and diagnosed. The module also provides some insight into the impact of dementia on the individual with dementia, their family and carers, and the community as a whole.

Objectives
On successful completion of this module you will be able to:
- Differentiate between the effects of normal and pathological ageing on the brain
- Categorise dementia type based on aetiology
- Debate key issues related to diagnosis
- Highlight current controversies and issues relating to dementia

Module topics
- Dementia in Australia
- The brain cognition and normal age-related change
- Defining dementia
- Types of dementia
- Impact of dementia
- Current controversies and issues
- Summary
- References and resources

Suggested reading for this module

Deloitte Access Economics was commissioned by Alzheimer’s Australia to provide up-to-date estimates and projections of prevalence and incidence for people with dementia in Australia.


Module 1: Overview of dementia


Information relating to understanding dementia contained at the Alzheimer’s Australia website: http://www.fightdementia.org.au/understanding-dementia
Dementia in Australia

An estimate of people with dementia in Australia in 2014 was 330,000 (Alzheimer’s Australia, 2014), projected to increase to 553,285 people by 2030, and 942,624 people by 2050. (Deloitte Access Economics, 2011, p. 24)

Between 2011 and 2020, the number of Australians with dementia is projected to increase from 298,000 to 399,800. It is estimated that the decade to 2020 will see the largest growth in the number of people with dementia (a 39% increase). This is largely explained by the ‘baby boomers’ moving into older age groups, where the risk of dementia is higher. (AIHW, 2012, p. 20). By 2050, the number of people with dementia is projected to increase from 298,000 to an estimated 891,400, an increase of more than half a million people. Projections suggest that by 2050, women will continue to account for about 60% of all of those with dementia (AIHW, 2012, p. 20).

In 2012 the Australian Bureau of Statistics (ABS) released figures on leading causes of deaths in Australia (ABS, 2012), which identified dementia and Alzheimer's disease as the third leading cause of death. The number of deaths due to these causes has increased by 142.5% over the past decade from 4,275 in 2003 to 10,369 in 2012. This is largely due to an increase in deaths due to dementia, which increased from 2,663 in 2003 to 7,323 in 2012.

These statistics underpin the importance of dementia as a key consideration in projected healthcare planning. Ageing is the most notable factor in the development of dementia. The diagnosis of dementia is a life event which engenders fear and dread within communities that prize independent thought and action. However, by challenging this fear and understanding dementia as a process of slowly decreasing ability rather than absolute dependence, individuals, health professionals and family carers can be empowered to plan and contribute positively to health and emotional outcomes. The rising incidence of dementia as a result of our ageing population indicates that gains made in relation to care and management of dementia will prove beneficial for many of us now in the driving seat of healthcare decision-making.

Your awareness of the prevalence of dementia within the community will probably be coloured by your working environment and personal experience. If you work in an aged care institutional setting you may think everyone over the age of 75 years has dementia, and you may inadvertently dismiss other causes of memory loss. Conversely, you may work in the community and be less alert to behaviours that in fact do indicate early-stage dementia.

The Australian Institute of Health and Welfare (AIHW, 2012) produced an updated document on the demographics of people with dementia in Australia. This is AIHW’s second report on this topic. It differs from the first, Dementia in Australia: national data analysis and development (AIHW, 2007) as a number of new data sources have become available.
The report includes revised estimates of the prevalence of dementia, based on the most current and comprehensive rates available.

This document, listed as further reading for this module, has new and/or additional information on topics such as mortality due to dementia, the use of specialised mental health services, and hospitalisations for palliative care. Summary statistics and associated predictions for the incidence and prevalence of dementia in Australia are presented on page 11 of the report. The incidence and prevalence of dementia is and will continue to increase in Australia as the population ages. ‘The estimated number of women with dementia was higher than the estimated number of men in all but one of the age groups (under 60), and particularly so in the older age groups.’ (AIHW, 2012, p. 14). Disability, rather than premature death, contributes most of the ‘burden of disease’ of dementia, indicating a need for planners to consider long-term care and support. Many people with mild dementia are well-supported in the community, so strategies that can be incorporated into care planning when ongoing care is being considered already exist.

Age is strongly related to dementia prevalence, with the greatest number of people with dementia in the 85–89 years age bracket throughout the projection period, increasing from 65,471 in 2011 to 225,898 in 2050. (Deloitte Access Economics, 2011, p. 9) Although dementia prevalence rates are higher for people 90 years and older, mortality rates are also higher in this age group and therefore the net effect is a lower dementia prevalence for people 90 years and over (Deloitte Access Economics, 2011, p. 15).

Table 1 shows dementia prevalence estimates and projections nationally and broken down by state and territory. The results are broadly representative of the population, with New South Wales projected to have the greatest number of people with dementia now and in the future, followed by Victoria and Queensland (Deloitte Access Economics, 2011, p. 9).

Data related to incidence of dementia are insufficient. In general, there are problems with the diagnosing of dementia; the date of onset is generally difficult to determine because of the progressive nature of the disease.

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**Table 1 - Dementia prevalence estimates and projections by state and territory and nationally, 2011-2050**

<table>
<thead>
<tr>
<th>State</th>
<th>2011</th>
<th>2012</th>
<th>2015</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>91,038</td>
<td>95,028</td>
<td>107,037</td>
<td>128,238</td>
<td>182,331</td>
<td>248,139</td>
<td>303,673</td>
</tr>
<tr>
<td>VIC</td>
<td>68,397</td>
<td>71,544</td>
<td>81,117</td>
<td>98,123</td>
<td>141,161</td>
<td>195,459</td>
<td>245,813</td>
</tr>
<tr>
<td>QLD</td>
<td>48,674</td>
<td>51,005</td>
<td>58,509</td>
<td>73,470</td>
<td>114,800</td>
<td>166,032</td>
<td>215,272</td>
</tr>
<tr>
<td>SA</td>
<td>23,710</td>
<td>24,627</td>
<td>27,353</td>
<td>32,062</td>
<td>44,236</td>
<td>59,053</td>
<td>69,620</td>
</tr>
<tr>
<td>WA</td>
<td>23,931</td>
<td>25,177</td>
<td>29,041</td>
<td>36,500</td>
<td>46,332</td>
<td>57,781</td>
<td>68,708</td>
</tr>
<tr>
<td>TAS</td>
<td>6,732</td>
<td>7,003</td>
<td>7,818</td>
<td>9,362</td>
<td>13,544</td>
<td>18,043</td>
<td>20,653</td>
</tr>
<tr>
<td>NT*</td>
<td>838</td>
<td>878</td>
<td>1,049</td>
<td>1,473</td>
<td>2,700</td>
<td>3,992</td>
<td>4,916</td>
</tr>
<tr>
<td>ACT</td>
<td>3,254</td>
<td>3,445</td>
<td>4,040</td>
<td>5,167</td>
<td>8,181</td>
<td>11,632</td>
<td>13,970</td>
</tr>
<tr>
<td>AUST</td>
<td>266,574</td>
<td>278,707</td>
<td>315,963</td>
<td>384,396</td>
<td>553,285</td>
<td>760,131</td>
<td>942,624</td>
</tr>
</tbody>
</table>

Source: Deloitte Access Economics calculations 2011

* Note that NT figures are likely to significantly underestimate the true prevalence of dementia
Consequently, significant numbers of people with the onset of dementia may not be detected. Furthermore, screening instrument inaccuracies may mean stages of dementia are not easy to separate; that is, mild dementia with other cognitive conditions resulting in the possible overestimation in determining incidence rates (Deloitte Access Economics (2011), cited in AIHW, (2007, p. 12).

However, if the same assumptions made by AIHW in 2007 applied in 2011 (and the ratio of the number of incident cases to prevalence was the same), then the number of incident cases in 2011 was around 63,300. This suggests that each day across Australia in 2011, an estimated 173 Australians joined the group of people with dementia. As onset usually occurs with mild symptoms; these symptoms may not have been recognised initially as being due to dementia. However, since dementia is a terminal condition, these people will eventually become part of the recognisable prevalent population with the disease (unless they die from other causes first). In 2009, Access Economics (2009a) estimated there would be about 79,100 incident cases of dementia in 2011 (AIHW, 2012, p. 22).

According to 2009–2010 Aged Care Funding Instrument (ACFI) data, 70% of permanent residents with dementia in Australian Government-subsidised aged care facilities were women. As shown in Table 2, 44% of those with dementia who lived in residential aged care facilities were aged under 85, 30% were aged 85–89, 19% were aged 90–94, and 7% were aged 95 and over. The ACFI data also allow a calculation of the average age of permanent residents with dementia in residential aged care facilities. For women with dementia living in this setting, the average age was 86, compared with 82 for men (AIHW, 2012, p. 34).

<table>
<thead>
<tr>
<th>Age</th>
<th>Males</th>
<th>Females</th>
<th>Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 65</td>
<td>3.7</td>
<td>1.4</td>
<td>2.1</td>
</tr>
<tr>
<td>65–69</td>
<td>4</td>
<td>1.5</td>
<td>2.3</td>
</tr>
<tr>
<td>70–74</td>
<td>7.9</td>
<td>3.8</td>
<td>5.1</td>
</tr>
<tr>
<td>75–79</td>
<td>15.2</td>
<td>9.6</td>
<td>11.3</td>
</tr>
<tr>
<td>80–84</td>
<td>25.3</td>
<td>21.9</td>
<td>23</td>
</tr>
<tr>
<td>85–89</td>
<td>26.9</td>
<td>31.7</td>
<td>30.2</td>
</tr>
<tr>
<td>90–94</td>
<td>13.3</td>
<td>20.8</td>
<td>18.5</td>
</tr>
<tr>
<td>95+</td>
<td>3.7</td>
<td>9.1</td>
<td>7.5</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Average (mean) age</td>
<td>82.2</td>
<td>85.7</td>
<td>84.6</td>
</tr>
</tbody>
</table>

(a) Pertains to permanent residents living in Australian Government-subsidised aged care facilities.
Source: AIHW analysis of data collected with the Aged Care Funding Instrument.

An estimated one in four people with dementia will be admitted to hospital each year, meaning that health professionals in the acute care sector will also be required to provide care to people with dementia (Alzheimer’s Australia, 2014).
The brain, cognition and normal age-related change

Despite the high rates of dementia in older people and the common myth that dementia is a normal part of growing old, dementia actually results from pathological changes in the brain and not normal age-related changes. As with all other organs, however, a number of age-related structural changes which do occur in the brain must be recognised in order to differentiate between ‘normal’ and pathological change, although Whalley (2002) suggests there are not clear boundaries between the normal ageing brain and that of dementia.

Consider what these normal age-related changes might be.

These normal age-related changes to the brain include:
- Reduced volume
- Some neuronal cell death
- Deterioration of myelin sheath
- Greater symmetrical activation of regional areas of the brain
- Dysregulation of neurotransmitter levels, hormones and other substances.

(Peters, 2006)

It must be noted that none of these changes impact significantly on cognitive ability. However, there are some normal age-related changes to cognition that can be distinguished from pathological ones.

Ageing and the brain, the article by Ruth Peters listed as suggested reading, provides a succinct overview of the effects of normal ageing on the brain and offers an overview of some of the limiting factors in current knowledge.

Unsworth (1999) defined cognition as:

The abilities that enable us to think, which includes the ability to concentrate (pay attention), remember and learn and includes executive functions such as the ability to plan, manipulate information, initiate and terminate activities and recognise errors. (p.6)

Although there is no evidence to substantiate normal age-related deterioration in cognitive function, a general perception exists that declining cognition is inevitable as we age (Ebersole & Hess, 1998). Indeed, commonly used terminology refers to episodes of forgetfulness as ‘senior moments’. Normal age-related changes to cognition do not significantly impact on social or occupational functioning.
Normal changes to cognition include:

- A generalised decline in speed of processing of information but accuracy of response is not affected.
- Slower and more cue-dependent memory performance – a need to make lists.
- A decrease in learning speed and recall, but if given extra time to complete the task, intellectual functioning is adequate.

However, there is no:

- Alteration to insight.
- Change to language and praxis.
- Impairment to learning capacity; contrary to popular belief you can teach an old dog new tricks.

**Dementia explained**

In 2013 the American Psychiatric Association (APA) released the fifth edition of its Diagnostic and Statistical Manual of Mental Disorders (DSM-5) in which the term “dementia” has been replaced with major neurocognitive disorder and minor neurocognitive disorder (DSM-5). It is said this is an attempt to reduce the stigma associated with the word “dementia”, which has its roots in the Latin words for mad or insane. Despite this new terminology it is accepted that the word “dementia” will remain in common use except perhaps by specialist health professionals (APA, 2013).

Dementia is a clinical diagnosis of a syndrome that is based on a collection of symptoms affecting the brain. Dementia causes functional decline that interferes with daily activities and causes loss of intellectual abilities. See Module 3: *Diagnosing Dementia* for more information regarding diagnostic criteria.

Dementia is a term used to label cognitive impairment based on the above criteria. There are many sub-types of dementia, each with its own aetiology and risk factors. There are around 100 different conditions or diseases that cause dementia, of which Alzheimer’s is just one.

The major sub-types of dementia include:

1. Alzheimer’s Disease (AD), which accounts for 50–70% of all types of dementias. Approximately 50% of these are ‘pure’ Alzheimer’s Disease.
2. Vascular Dementia (VaD), which accounts for 18% of all types of dementias, 20% of which are ‘pure’ vascular dementia.
3. Dementia with Lewy Bodies (DLB) accounts for 15% of all dementia cases.
4. Mixed Dementia – co-existence of AD and VaD (prevalence and incidence data unavailable).
Other sub-types of dementia that are likely to require specialist input include:

- Parkinson’s-related dementia (accounting for 3–4% of all dementia cases)
- Fronto-temporal dementia (accounting for 5% of all dementia cases).

(Pridmore, 2009; DoHA, 2007)

These sub-types make up a small but important proportion of dementia. It is essential that these specific diagnoses are made, as treatment options vary according to the type of dementia and because significant harm may occur if people with these sub-types are treated in the same way as those with Alzheimer’s disease.

Differential diagnosis of the type of dementia is important so as to:

- Explain to the person with dementia and their family
- Understand the biological basis of the disease in relationship to behavioural change
- Appreciate the range of therapeutic interventions possible
- Formulate a differential diagnosis
- Understand settings where diagnosis can be made; that is, limitations of making diagnosis in general practice
- Contribute to demographic and research data.
Alzheimer's Disease
Alzheimer's disease was first described in 1907 by Dr Aloysius Alzheimer and is the most common form of dementia. The changes in the brain resulting from this disease were identified by post-mortem examination of 51-year-old Augusta Deiter. Changes identified in Augusta's brain were:
- Thinning of the cerebral cortex (atrophy)
- A cellular protein (amyloid) in the brain is handled in an abnormal fashion leading to
  - Extracellular neuritic plaques
  - Intracellular neurofibrillary tangles
- Synaptic and neuronal loss, especially
  - cholinergic neurons
  - hippocampus and basal nuclei

Diagnostic features of probable Alzheimer's disease include:
- History
- Insidious onset with progressive memory decline, initially impaired new learning and short-term memory
- Gradual progression involving long-term memory and other functions, such as language, praxis, perception and executive function
- Cognitive loss documented by neuropsychological tests (rapid forgetting)
- No physical signs/laboratory evidence of other causes of dementia
- Reduced functioning on ADLs.
Alzheimer’s disease is categorised into three relatively distinct stages, ranging from mild through to severe dementia.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild or early</td>
<td>Deficits are evident in a number of areas (such as memory and personal care) but the person can still function with minimal assistance. Symptoms include: moderate memory loss especially for recent events, some disorientation in time, moderate difficulties with problem solving, reduced interest in hobbies, and the need for prompting regarding personal care tasks.</td>
</tr>
<tr>
<td>Moderate or middle</td>
<td>Deficits become more obvious and severe, and increasing levels of assistance are required to help the person maintain their functioning in the home and community. Symptoms include: severe memory loss, considerable difficulty orienting to time and place, obvious difficulties in finding words, severe impairment of judgement and problem solving, need for assistance with personal care tasks, and emergence of behavioural difficulties (for example, wandering, aggression, sleep disturbance and disinhibited behaviour).</td>
</tr>
<tr>
<td>Severe or late</td>
<td>Characterised by almost total dependence on the care and supervision by others. Symptoms include: very severe memory loss, very limited language skills, unable to make judgements or solve problems, regularly not recognising familiar people, frequent incontinence, requires substantial assistance with personal care, and increased behavioural difficulties. By this stage the majority of people with dementia are in residential care.</td>
</tr>
</tbody>
</table>

The information in the above table should be regarded as a general guide only as the course of the condition may vary in individual people. A three-stage model of Alzheimer’s disease is often used because it is generally easier to understand. Even proponents of the seven-stage model refer to early, mid- and late stage Alzheimer’s disease. 


Research knowledge is constantly evolving and aetiology is still being elucidated. Changes in understanding can be expected in the near future. See the Alzheimer’s Association of Australia’s Help Sheet on Alzheimer’s disease, including progression of dementia at:

Alzheimer’s Disease general presentation

The presenting features of Alzheimer’s disease are:

**Memory**
- Progressive decline
- Inability to recall recently presented material or events, appointments etc.
- Misplace objects, forget to do things
- Repetitious, need constant reminding
- Recent and remote memory loss becomes more pervasive as disease progresses

**Language**
- Word finding and naming difficulties initially
- Receptive problems may also occur, usually later
- Language disorders may dominate clinical picture

**Spatial problems and dyspraxia**
- Become lost in familiar surroundings, including own home
- Unable to carry out well-learned tasks initially complex (driving) then progressively more basic (dressing)
- Reduced ability to attend to aspects of self-care as the disease progresses
- Executive functioning is increasingly impaired and evidenced by deficits in:
  - Goal-directed, motivating behaviours
  - Difficulty planning and organising tasks
  - Altered judgement
  - Verbal reasoning affected by involvement of pre-frontal structures
  - Reduction in performance of tasks requiring higher cognitive abilities; for example, numeracy and literacy skills, managing finances or declining work performance in younger onset AD

**Behavioural and psychological symptoms of dementia (BPSD)**
- Lack of initiative or impulsivity (abulia) also common
- Behaviour may be worse in the evening, “sun downing” with disorientation and agitation
- May become resistive to care, aggressive, wandering - purposefully or aimlessly, become intrusive, or disinhibited
- Sleep–wake cycle disturbance (not easily treated)

**Other behaviours**
- Depression: up to 40% of people with Alzheimer’s disease develop symptoms of depression that can be difficult to distinguish from frontal behaviours
- Psychotic features, delusions: belief that objects are stolen (up to 50%), hallucinations - usually visual (up to 25%)
**Personality**
- Profound changes – exaggeration or general decay

**Vascular Dementia**

**Aetiology**
Vascular dementia (VaD) is due to any damage or disease process that involves the cerebral vasculature. Dementia occurs across a broad spectrum of disorders, from major strokes leading to neuronal loss and disruption of neural transmission to cerebral hypo-perfusion from any cause.

Vascular dementia has the following sub-types
- Multiple sub-cortical infarctions
- Single/multiple cortical infarctions
- Strategically placed infarction
-Binswanger type (white matter lesions)
- Multiple haemorrhagic lesions

Dementia may often consist of elements of both vascular sub-types and Alzheimer’s disease. The traditional view that diagnosis of vascular dementia results only from step-wise progression or a distinct vascular event has been broadened to include gradual onset with subclinical progression, such as cerebral hypo-perfusion with widespread white matter ischaemia. The absence of step-wise decline does not exclude a diagnosis of VaD.

**Importance of diagnosis**
- Vascular disease is a common cause of morbidity and mortality
- Early treatment of vascular disease and the associated factors that lead to vascular disease such as diabetes and hypertension will reduce the risk of end organ damage, which includes dementia
- Primary and secondary prevention strategies can be put in place
- Vascular dementia is under-appreciated; attention is usually focused on Alzheimer’s disease and or on the physical deficits related to strokes
- May be a sentinel marker of familial risk; for example, a person with vascular dementia may have an underlying familial dyslipidemia that requires family screening

See also the Alzheimer’s Association of Australia’s information on vascular dementia (16. Vascular Dementia).

Vascular dementia clinical features
- Early deficits involve attention, executive function, though insight often preserved
- Memory often only mildly affected
- Often early disturbance of gait
- Over-active bladder (OAB): a common and early symptom
- Some patients have a vascular cognitive syndrome but not VaD
- The Mini-mental state examination (MMSE) is a poor screening tool for VaD

Normal pressure hydrocephalus is an important differential diagnosis to consider

Vascular Dementia diagnosis
- Cognitive loss (memory and two other domains)
- Presence of cerebrovascular lesions on imaging (or focal neurological signs)
- Onset of dementia within three months of a symptomatic stroke (classically a history of step-wise decline)

Vascular Dementia prevention
Prevention of vascular dementia involves treating the risk factors and using the same preventative measures as for the avoidance of heart attacks and strokes.
- Modify cardiovascular risk factors:
  - Cease smoking
  - Anti-platelet therapy
  - Correct hypertension
- Improve diabetes management

Although other treatments for vascular dementia seem promising, currently they remain unproven (Kirschner, 2009).

Vascular Dementia treatment
Cholinesterase inhibitors and memantine produce small benefits in cognition of uncertain clinical significance in patients with mild to moderate vascular dementia. Data are insufficient to support widespread use of these drugs in vascular dementia. Individual patient analyses are needed to identify sub-groups of patients with vascular dementia who might benefit (Kavirajan et al., 2007)
Fronto-temporal Dementia

Aetiology

Fronto-temporal dementia is a diverse group of dementias with no single underlying pathological factor. The group includes:

- Semantic dementia
  - Impaired object identity and/or word meaning
- Primary progressive aphasia
  - Disorder of expressive language

Importance of diagnosis

- The second most common cause, after AD, of dementia in people under 65
- Approximately 30% of people diagnosed have a family history
- Some association with Motor Neurone Disease

See also Alzheimer’s Australia’s information on fronto-temporal dementia

(17. Fronto-temporal dementia)


Fronto-temporal Dementia clinical features

- Personality and social conduct impaired
- Impairment of drive, motivation, attention and planning
- Memory often relatively preserved
- May be disinhibited/over-active or passive/withdrawn

Dementia with Lewy bodies (DLB)

Aetiology

Like Alzheimer's Disease this form of dementia has a myloid protein but much fewer neurofibrillary tangles. The key difference is the presence of Lewy bodies.

- Lewy bodies are intra-neuronal eosinophilic spherical inclusions (stain for ubiquitin)
- These are located in the brainstem, subcortex and cortex with relative preservation of medial temporal lobes
- In DLB there are some cases of clear genetic inheritance and a suggestion that genetic factors may account for a significant percentage of cases. It is still to be determined if DLB may be a single disease entity or several with the Lewy body marker.

See the National Institute of Neurological Disorders and Stroke for information on DLB.

Importance of diagnosis

- This form of dementia accounts for 15% of all dementias
- It should be considered as a diagnosis
- Criteria for diagnosis have high specificity (80%) but low/variable sensitivity (25–80%). See Module 3: Diagnosing dementia for further information regarding diagnostic criteria
- It is critical to know this dementia exists because specific treatment options are available
- This dementia can be worsened substantially with neuroleptic medications; therefore these should not be prescribed
- This is a rapidly progressive disease (Barker et al., 2002)


Dementia with Lewy bodies (DLB) – diagnostic criteria

- Progressive cognitive impairment
- Impaired memory
- Deficits in attention, executive function, visio-spatial ability

Core features include:

- Fluctuating cognition, attention, alertness
- Recurrent visual hallucinations
- Spontaneous motor parkinsonism

Supportive features include:

- Recurrent falls
- Syncope
- Transient loss of consciousness
- Neuroleptic sensitivity
- Systematised delusions
List six key points from the sections What is dementia and Types of dementia.

1. 
2. 
3. 
4. 
5. 
6.

Manifestation of dementia

The diagram below shows the areas within the brain which control functional activities.

**Frontal Lobe**

The so-called executive lobe, and site of self
- Judgment
- Inhibition and emotional response
- Initiation
- Personality and sense of self
- Memory of motor habits or plans
Damage to the frontal lobe causes:
- Impaired planning and problem-solving
- Distractibility with inability to task focus
- Behaviour disorders
- Difficulty in learning new information
- Lack of inhibition
- Contralateral hemiplegia, hemiparesis
- Expressive difficulties/motor aphasia

Parietal Lobe

- Visual and tactile perception
- Processing and integration of sensory input
- Body orientation

Damage to the parietal lobe causes:
- Difficulties with writing, reading and naming objects
- Inability to discriminate between sensory stimuli
- Inability to locate and recognise parts of the body (neglect)
- Reduced awareness of environment space

Occipital Lobe

- Visual perception
  - Primary visual perception and association areas
Damage to the occipital lobe causes:
- Visual defects - reduction in opposite visual field
- Loss of ability to recognise objects in opposite field

Temporal Lobe

- Primary organisation of sensory input (auditory perception)
- Language - receptive speech
- Memory - short- and long-term information retrieval

Damage to the temporal lobe causes:
- Memory – difficulties in retrieval of information
- Receptive/sensory aphasia (e.g. Wernicke's)
- Impaired concentration
- Aggression, agitation and irritability including altered sexual interest

Limbic system and hippocampus

Limbic system
- Above the brainstem and within the cerebrum
- Connects areas responsible for high and low functions
- Group of structures controlling
  - Emotions
  - Memories
  - Arousal (stimulation)

Hippocampus
- Part of the limbic system
- Storage and retrieval of memories

Damage to the limbic system causes:
- Memory impairment
- Emotional disturbances
- Behavioural disturbances
Impact of dementia on the person with dementia

Impact of Dementia
The impact of dementia on the person concerned involves gradually progressing changes in:

- **Memory** – memory loss; short then long term
- **Emotions** – emotional disturbance
- **Language** – difficulty finding words
- **Insight and motivation** – gradual deterioration
- **Planning** – impact on abstract thought and judgement
- **Orientation** – confusion of time, place, person
- **Function** – impact on washing, dressing, planning and recognition
- **Behaviour** – aggression, withdrawal, wandering, sleep disturbance
- **Incontinence** – loss of bladder and bowel control
- **Malnutrition** – through poor oral intake
- **Immobility and loss of function**
- **Death**

Impact on carers

Although it is important to note that carers find the experience rewarding in many ways, carers of people with dementia often shoulder a physical, social, emotional, psychological and financial burden of caring (Carers Victoria). The impact of caring for a person with dementia is discussed further in Module 10: Carer health.

Impact on the community

According to the Alzheimer’s Australia’s summary of statistics on dementia (http://www.fightdementia.org.au/understanding-dementia/statistics.aspx) the impact of dementia in Australia is significant.

- Australia faces a shortage of more than 150,000 paid and unpaid carers for people with dementia by 2029
- Total direct health and aged care system expenditure on people with dementia was at least $4.9 billion in 2009–10
- More than 50% of residents in Australian Government-subsidised aged care facilities have dementia (85,227 out of 164,116 permanent residents with an ACFI assessment at 30 June, 2011)
- Almost half (44%) of permanent residents with dementia also had a diagnosis of a mental illness.
A report prepared for Alzheimer’s Australia by Access Economics’ *Front of Mind* stated that by the 2060s, spending on dementia is set to outstrip that of any other health condition. It is projected to be $83 billion (in 2006–2007 dollars), and will represent around 11% of the entire health and residential aged care sector spending (Access Economics, August 2009).

The report also highlighted the social costs of dementia in stating that:

- There are currently around 245,000 people with dementia in Australia
- By mid-century, we will have over 1.13 million Australians with dementia
- Dementia is the leading single cause of disability in older Australians (aged 65 years or older) and is responsible for one year in every six years of disability burden for this group
- It is one of the fastest growing sources of major disease burden, overtaking coronary heart disease in its total wellbeing cost by 2023
- Dementia will become the third greatest source of health and residential aged care spending within about two decades. These costs alone will be around 1% of GDP (Access Economics, August 2009).

Thus, the impact on the community is extensive in terms of financial burden and social costs.

**Summary**

Dementia is an increasingly common cause of disability in our ageing community.

This module has provided an overview of dementia and has identified a number of important facts in relation to dementia. These include:

- Dementia is a progressive clinical syndrome of which there are many sub-types; the most common being Alzheimer’s disease
- Accurate diagnosis is vital
- Early diagnosis is possible and controversial
- Dementia must be differentiated from Mild Cognitive Impairment, delirium and depression
- Diagnosis is a complex and multifaceted process
- Dementia impacts on social and occupational functioning
- Dementia impacts on the individual and their family and carers.

Evidence supports the fact that early diagnosis with appropriate person-specific management and support has potential to reduce the disability and burden to both the person and their carer.
References


