香港老年痴呆症協會
對提高公眾認識「認知障礙症」及法律保障患者的意見

2011 年 9 月 21 日國際認知障礙症協會（ADI）發佈最新的認知障礙症研究報告：「早期診斷及介入之益處」(見附件)，提出及早診斷及治療認知障礙症，對病人、家屬，甚至是整個社會均有益處。

據 ADI 估計，全球約有 3,600 萬認知障礙症患者，當中有四分之三仍未有得到專業醫生的診斷，因而無法獲得治療、相關資訊及照顧。發達國家中，只有 20 至 50%的患者得到確診及基層照顧，而發展中國家更低至 10%或以下。香港的獲診治數字，正等同發展中國家！

本地就診治認知障礙症發展不理想，主要是政府漠視認知障礙症的深遠影响，未有作出任何相關政策。另外病人及家人對於及早發現病情欠缺知識及求醫的意識不高。原因是病人及家屬誤以為記憶力轉差，是正常的老化過程；以及無任何辦法可醫治這些症狀。同時，病人亦害怕確診認知障礙症後被標籤化，或受到他人岐視而延誤求醫，令病情進一步惡化。

大部份病情惡化至中、後期的認知障礙症患者，大多喪失了自理能力，需家人、社區長時間照顧，構成沉重的經濟壓力。認知障礙症屬長期病患，除了長期服用藥物外，人力照顧也需高昂的成本。據 ADI 報告估計高收入國家中，及早診斷及治療病人，可為每一名患者省下約$10,000 美元。及早確診的好處是病人經用藥可改善病情及自理能力，提升病人的生活質素，延遲他們需入住安老院舍的時間。本地長期照顧長者的成本不斷上漲，政府應未雨綢繆，制定關顧認知障礙症的長遠策略。

策略目標: 將認知障礙症 (老年痴呆症)定位為優先的長者健康重要項目

策略行動：香港政府正式將認知障礙症定位成優先的人口高齡化社會政策項目。

方案：

由政務司司長統籌並制訂跨部門的認知障礙症行動方案。

香港政府提供資助並貫徹執行行動方案。

策略目標: 加強公眾人士認識認知障礙症

策略行動：推動公眾教育讓市民認識認知障礙症以消除對認知障礙症的負面標籤。

方案：

- 以尊重、尊嚴及共為主題，透過公眾教育活動加強市民認識認知障礙症。
- 促使政府確立「認知障礙症」為老年痴呆症的官方名稱，正面推廣有關訊息。
- 設立熱線讓公眾查詢有關認知障礙症的資訊。
- 加強與傳媒溝通，讓傳媒更深入認識認知障礙症，向公眾發放正面及正確的訊息。
- 推動認知障礙症照顧者的嘉許行動及發放照顧者津貼，以肯定其對照顧認知障礙症患者的付出。

- 針對性向常有機會接觸公眾的職業，如警察、銀行職員、車長、大廈管理員等，提供認知障礙症的資訊。
- 透過不同的公眾教育活動，讓市民認識不同階段的認知障礙症徵狀，及其患者、照顧者及家庭的支援服務，以確保有而需要人士及其家庭及早識別，並盡早尋求協助，以減低不必要的恐懼及延誤病情。
- 加強醫生訓練，令更多前線醫生可以作出及早診斷

**一項由理工大學負責的調查報告，成功收回 414 份問卷，研究本地醫生對認知障礙症的認知度及治療取向。調查發現，只有 3 成受訪醫生有信心確診及治療認知障礙症，香港醫學會會長蔡堅醫生分析有三大原因，其一是確診老年痴呆症，需要較長時間評估病情，而前線醫生應診時間卻較短；其次是前線醫生在老人科及精神科方面，未必有足夠的培訓，加上他們認為認知障礙症病人，應該轉介給具有專科資格的醫生診斷。

負責機構: 食物及衞生局, 勞工及福利局, 教育局, 衞生署, 醫院管理局, 傳媒, 非政府機構, 其他專職人士

政策目標: 確保認知障礙症患者失去自理能力時，他們的權利得到監管和保護。

策略行動：透過各種措施保護認知障礙症者，保障他們的權利。

方案：

- 檢討現時監護委員會的組成及授予監護人的6 項權力，增加委任認知障礙症照顧者成為委員，確保各委員對認知障礙症有足夠的認識及加強監護委員會的認受性。
- 檢視持久授權書(Enduring power of attorney)的使用現況並作出檢討以鼓勵更多人士使用
- 教育公眾及專職人士如何保障認知障礙症患者的權利，保障其權利免被侵犯。

策略行動：加強公眾認識各種保護認知障礙症患者權利的措施。

方案：

- 透過各項活動，加強公眾認識有關保護認知障礙症患者權利的措施，包括監護令、持久授權書及預設醫療指示(Advance directives)等。
- 加強宣傳教導公眾如何識別懷疑患者被侵犯(包括生理、心理、精神、經濟及照顧)的徵狀及舉報有關罪行。

負責機構: 食物及衞生局, 勞工及福利局, 監護委員會, 醫院管理局, 香港法律改革委員會

附件

Alzheimer's Disease International

World Alzheimer Report 2011
The benefits of early diagnosis and intervention

Executive Summary

Alzheimer's Disease International
World Alzheimer Report 2011
The benefits of early diagnosis and intervention
Executive Summary

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The people with dementia and carers whose words are featured in this report.

Cover and chapter heading photos: Cathy Greenblat – www.cathygreenblat.com

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This project was funded with an educational grant from Bayer HealthCare. ADI is fully responsible for the content.

Cathy Greenblat's photos in the Report are taken from her forthcoming book 'Love, Loss, and Laughter: Seeing Alzheimer's Differently' which will be released in March 2012.

This is the Executive Summary of the World Alzheimer Report 2011. The full version can be accessed free at www.alz.co.uk/worldreport2011

The Executive Summary highlights the main findings, and briefly describes the evidence that supports them. The full Report documents the review process and the sources in greater detail, and includes a careful critique of the quality, the relevance and the strength of the available evidence.

Cover photo: Facunda and Esther arrived early for the drum circle at Baycrest, in Toronto, Canada, knowing from prior experience that they would love the activity. It was clear that in addition to enjoying the music itself, they were happy to have this shared experience of participation.

Contents

Summary *2*
Key findings *4*
Recommendations *5*

CHAPTER 1
Background *6*
Why early diagnosis? *7*
The right to a diagnosis *7*
The impact of a diagnosis *7*
Underdiagnosis – the 'treatment gap' *7*
What is meant by early diagnosis? *7*
What is the purpose of earlier diagnosis? *8*
In conclusion *8*

CHAPTER 2
How might it be possible to promote earlier diagnosis? *9*
Service provision for dementia diagnosis and early stage care – a global perspective *10*
Is diagnosis feasible in primary care? *10*
Practice-based educational interventions to promote earlier dementia diagnosis *11*
Memory clinic services *12*
In conclusion *12*

CHAPTER 3
Does early diagnosis benefit people with dementia and their carers? *13*
Literature search for research evidence *14*
Consensus guidelines *15*
Stakeholder and other statements advocating early diagnosis *15*
In conclusion *16*

CHAPTER 4
Which interventions are effective for people in the early stages of dementia? *17*
Scope of the systematic reviews *18*
Evidence supporting the effectiveness of interventions in early dementia *18*
Evidence of a lack of efficacy of interventions in mild/early stage dementia, or insufficient evidence to make a recommendation *19*
In conclusion *20*

CHAPTER 5
Do some interventions work better when applied earlier in the disease course? *21*
Antidementia drugs *22*
Caregiver interventions *22*
In conclusion *22*

CHAPTER 6
Spending to save – the economic case for earlier diagnosis and intervention *23*
The methodologies for economic analysis *24*
The evidence *24*
In conclusion *25*

CHAPTER 7
Conclusions and recommendations – a call for action *26*

REFERENCES *30*

Summary

Alzheimer's disease and other dementias can be devastating not only for people who have dementia, but also their families and carers. Alzheimer's Disease International (ADI) works for an improved quality of life for people with dementia and their carers around the world, believing that policy and practice should be based on the best available evidence.

Our earlier reports

ADI's evidence-based advocacy is beginning to bear fruit

Our first two World Alzheimer Reports have helped to reset health and social care policy worldwide, increasing awareness of the burden of Alzheimer's disease and dementia to society. In the World Alzheimer Report 2009, ADI estimated that 36 million people worldwide are living with dementia, with numbers doubling every 20 years to 66 million by 2030, and 115 million by 2050. Much of this increase was found to be in low and middle income countries; 58% of those with dementia currently live in low and middle income countries, rising to 71% by 2050. The worldwide costs of dementia (US$604 billion in 2010) amount to more than 1% of global GDP, according to the World Alzheimer Report 2010. If dementia care were a country, it would be the world's 18th largest economy.

Together, these reports clearly demonstrate that Alzheimer's disease is among the most significant social, health and economic crises of the 21st century. Yet, if governments act urgently to develop research and care strategies, the impact of this disease can be managed.

ADI's evidence-based advocacy, supported by our national member societies, is beginning to bear fruit. There is welcome evidence of increased attention and priority being given to dementia. Australia, England, France, Norway and South Korea have recently launched comprehensive national Alzheimer strategies, and in January 2011 the National Alzheimer's Project Act was signed into law in the United States. The World Health Organization (WHO) made dementia one of the seven mental and neurological disorder priorities in its Mental Health Gap Action Plan (mhGAP), seeking to reduce the treatment gap in resource poor countries.

The treatment gap

Most people currently living with dementia have not received a formal diagnosis

Research shows that most people currently living with dementia have not received a formal diagnosis. In high income countries, only 20-50% of dementia cases are recognised and documented in primary care. This 'treatment gap' is certainly much greater in low and middle income countries, with one study in India suggesting 90% remain unidentified. If these statistics are extrapolated to other countries worldwide, it suggests that approximately 28 million of the 36 million people with dementia have not received a diagnosis, and therefore do not have access to treatment, care and organised support that getting a formal diagnosis can provide.

This is clearly a major concern, given that the world's population is growing older, new cases of dementia and Alzheimer's disease are increasing relentlessly, and – as this Report shows – earlier diagnosis and early intervention are important mechanisms by which the treatment gap can be closed.

Research review

For this year's World Alzheimer Report 2011, we have commissioned an independent research group to collate and review, for the first time, all of the available evidence relating to early diagnosis and early intervention. Key questions include:

- Is it possible to promote earlier diagnosis of dementia, and how might this be achieved?

- What are the overall benefits or disadvantages of earlier diagnosis and intervention for people with dementia and their carers?
- What treatments or interventions are effective in the early stages of dementia?
- Is there evidence that some interventions are more effective when applied early in the disease course?
- Can earlier diagnosis and intervention reduce health and social care costs?

These are all questions of great consequence for policymakers and planners, and we anticipate that the insights provided here will give additional stimulus to existing national programs while encouraging other countries to give much more attention to closing the treatment gap.

Pathway through the dementia crisis

The World Alzheimer Report 2011 signposts a pathway through the dementia crisis.

Lack of detection is a significant barrier

We have identified that lack of detection is a significant barrier to improving lives of people with Alzheimer's disease and other dementias, their families and carers. Medical treatments and other beneficial interventions are only available for those that have sought and received a diagnosis. For example, the systematic reviews carried out for this Report provide evidence that currently available drug treatments, psychological and psychosocial interventions can be effective in ameliorating symptoms for people with dementia and for reducing strain among their carers during the early stages of the disease. Interventions for carers may be more effective in allowing them to continue to provide care at home (avoiding or delaying institutionalisation of the person with dementia) when applied earlier in the disease course.

Scientists are developing and testing new drugs that may slow or stop the relentless progression of the disease. Scaling up the coverage of existing evidence-based treatments, particularly for those in the early stages of the disease, will make health systems better prepared to provide new, more effective treatments and diagnostic technologies, as they become available.

Significant savings

Costs of early detection are more than likely offset by projected future savings

In high income countries, according to the World Alzheimer Report 2010, the average annual societal costs are US$32,865 per person with dementia. Set against this, the one off costs of a high quality dementia diagnosis are around US$5,000 per person. Even taking this and the additional costs of early intervention into account, we find that these costs are more than likely offset by projected future savings from delayed institutionalisation, with net savings of around US$10,000 per person with dementia across the disease course. Improved health and quality of life of carers and people with dementia would make this an even more cost-effective investment. Though the evidence comes from a limited number of studies, there are indications that a significant amount could be saved at a time where governments are rightly concerned about increasing health and social care costs.

Lifting dementia out of the shadows

The false belief that nothing can be done for people with dementia is too prevalent

Earlier diagnosis has the potential to change the way societies view and approach Alzheimer's disease and other dementias. Unfortunately, the main barriers to access to care – the stigma of dementia that prevents open discussion, the false belief that memory problems are a normal part of ageing, and the false belief that nothing can be done for people with dementia and their families – are too prevalent even in well-resourced, well-informed, high income countries. Nonetheless, the evidence and detailed recommendations presented in this Report, if heeded, have the potential to lift dementia out of the shadows and prepare the way for greatly enhanced treatment and care. At the very least, everyone

with dementia is entitled to a 'timely' diagnosis at the moment when they and their families first express concerns and have a need for advice, treatment or support.

Those closely involved in the Alzheimer's and dementia movement have long promoted earlier detection as a way to empower people with dementia to participate as fully as possible in planning their own lives following diagnosis, and in making important decisions about future treatment and care. In that spirit, people from various parts of the world have sent statements to ADI about their diagnosis, which are showcased in this Report. They give an impression of how painful this process can be, but they also show that the diagnosis can mark a new start to the rest of their lives. We must heed the voices of those most affected.

Key findings

- Dementia diagnosis provides access to a pathway of evidence-based treatment, care, and support across the disease course.
- Perhaps as many as 28 million of the world's 36 million people with dementia have yet to receive a diagnosis, and therefore do not have access to treatment, information, and care.
- The impact of a dementia diagnosis depends greatly upon how it is made and imparted. Evidence suggests that when people with dementia and their families are well prepared and supported, initial feelings of shock, anger and grief are balanced by a sense of reassurance and empowerment.
- Earlier diagnosis allows people with dementia to plan ahead while they still have the capacity to make important decisions about their future care. In addition, they and their families can receive timely practical information, advice and support. Only through receiving a diagnosis can they get access to available drug and non-drug therapies that may improve their cognition and enhance their quality of life. And, they can, if they choose, participate in research for the benefit of future generations.
- Most people with early stage dementia would wish to be told of their diagnosis.
- Improving the likelihood of earlier diagnosis can be enhanced through: a) medical practice-based educational programs in primary care, b) the introduction of accessible diagnostic and early stage dementia care services (for example, memory clinics), and c) promoting effective interaction between different components of the health system.

Norm McNamara, who has dementia, UK

I have never had any trouble telling anyone in my family I love them, but telling them that I had Alzheimer's was a totally different thing, but once done it was one of the best decisions I have ever made. Within a week of ... being diagnosed, I had sat all my family down and explained all about my diagnosis and the implications of what might happen in the future. Their reaction? After the tears, hugging and many questions about this awful disease, it was a case of "Right! That's that then. So, what are we going to do about it?"

I expected nothing else from my family and the knowledge that they had accepted and cleared another hurdle thrown in front of them made me feel so relieved and also so hopeful for the future. I knew with their support and understanding I would continue to live a life as full as I have always been used to and for as long as possible.

Since then my wonderful wife and I have discussed end of life plans, my wishes and all my "House" (business) has now been put in order, if you know what I mean. Why? I hear you ask. Because I can now live my life along with my family and friends to the best of my ability without any additional worry, and also, in the future, when I do some things that probably make no sense to anybody else, at least I know my family will understand my actions.

- Early therapeutic interventions can be effective in improving cognitive function, treating depression, improving caregiver mood, and delaying institutionalisation. It is simply not true that there is 'no point in early diagnosis' or that 'nothing can be done'. Some of these interventions may be more effective when started earlier in the disease course.
- Available evidence suggests that governments should 'spend to save' – in other words, invest now to save in the future. Economic models suggest that the costs associated with an earlier dementia diagnosis are more than offset by the cost savings from the benefits of anti-dementia drugs and caregiver interventions. These benefits include delayed institutionalisation and enhanced quality of life of people with dementia and their carers.

Recommendations

- Every country should have a national dementia strategy. National dementia strategies should promote early diagnosis and intervention through awareness raising, training of the health and social care workforce, and health system strengthening.
- All primary care services should have basic competency in early detection of dementia, making and imparting a provisional dementia diagnosis, and initial management of dementia.
- Where feasible, networks of specialist diagnostic centres should be established to confirm early stage dementia diagnoses and formulate care management plans.
- In resource-poor settings with limited or no access to specialist dementia services, earlier dementia diagnosis can still be achieved, for example through scaling up the WHO mhGAP evidence-based intervention guide across primary care services.
- The availability of effective drug and non-drug interventions for people with dementia and their carers should be publicised to health and social care professionals through initial training and ongoing professional development, and to the public through population health promotion, and health and social care facilities.
- Purchasers and providers of dementia care services should ensure that evidence-based interventions are made available to people in the early stage of dementia, and audit this process.
- More research should be commissioned and funded, including investigation of:
  - The efficacy of drug and non-drug interventions specifically designed to meet the needs of people in the early stages of dementia.
  - The real-world costs and benefits of scaling up earlier diagnosis and early-stage dementia care services, specific to the settings in which the economic evidence is to be applied.
  - The effect of earlier diagnosis on outcomes (overall health, cognitive functioning, quality of life, etc.) for people with dementia and their carers.
  - The progress towards closing the 'treatment gap'.

CHAPTER 1

Background

This is the third World Alzheimer Report that Alzheimer's Disease International (ADI) has commissioned. The first two, the World Alzheimer Reports 2009 and 2010, focused on the global prevalence and economic impact of the disease, respectively. These reports have helped to reset health and social care policy worldwide, increasing awareness of the burden of Alzheimer's disease and dementia to society. We believe they have made governments more aware of the impact of dementia on their health systems; clarifying the contribution made by dementia to escalating health care costs and the need to better manage these costs.

People with dementia actively participated in the 2011 Alzheimer's Disease International meeting in Canada. We see them here in an animated private session on ways to decrease the stigma of dementia. They participated in a number of capacities, sometimes as speakers or chairs of panels. Back row: Jan Philips, Lynn Jackson, Debbie Browne (accompanying her husband Graham) and Richard Taylor. Front row: Lynda Hogg, Christine Bryden, Graham Browne, Agnes Houston and Helga Rohra.

Why early diagnosis?

Skills and technology are advancing and we are at a stage where diagnosis can be made increasingly early in the disease process. ADI and its member organisations seek to raise awareness, encourage early help-seeking by those affected, and lobby for improved coverage of better, more effective and more responsive services to meet the needs of the world's estimated 36 million people with dementia, and their families and carers. Early diagnosis and early intervention have been made policy priorities in national dementia strategies, for example those from England and France and the national program being developed now in the USA.

ADI is also fully committed to the principle that policy and practice should be based on the best available evidence. Accordingly, ADI commissioned a study for the 2011 World Alzheimer Report, to answer the following key questions on early diagnosis and early intervention:

- What are the benefits or disadvantages of early diagnosis and intervention for people with dementia and their carers?
- Can early diagnosis and intervention reduce health and social care costs?
- What are the best evidence-based practices in early intervention around the world?

The right to a diagnosis

From the early 1990s, attention began to focus on the right of people with dementia to have the condition diagnosed, and to be informed of the diagnosis. In the past many physicians would routinely withhold a diagnosis from people with dementia, carers or both[1], Recent research suggests that people with mild dementia would wish to be told the diagnosis[2]. Growing numbers of family members and carers wish the person with dementia to be told of the diagnosis, particularly if they are in the early stages of the disease[2,3].

The impact of a diagnosis

Dementia is a profoundly life-changing condition and formal disclosure of the diagnosis is often experienced as a severe shock with feelings of disbelief, anger, loss and grief[4,5,6]. At the same time, receipt of the diagnosis is often reported by those with the disease and family members as a positive event, particularly when the initial shock has worn off; it may confirm suspicions, provide an explanation for symptoms and signs, and help the person concerned and carers to plan[4,5]. The response to a diagnosis will depend critically on how the news is imparted – 'making a diagnosis well'[7,8].

Underdiagnosis – the 'treatment gap'

Studies in high income countries show that only one-fifth to one-half of cases of dementia are routinely recognised and documented in primary care[9-13]. This 'treatment gap' is much greater in low and middle income countries, with one study in India suggesting 90% remain unidentified[14].

The National Dementia Strategy in England[8,15] highlights three factors that result in inactivity in seeking and offering help: the stigma of dementia preventing open discussion, the false belief that changes were a normal part of ageing, and the false belief that nothing could be done.

What is meant by early diagnosis?

Evidence suggests that, currently, a diagnosis of dementia tends to be made relatively late in the disease process.

- Early diagnosis could be the time when the person first meets all of the current diagnostic criteria for dementia (essentially significant deterioration in cognitive function, sufficient to cause problems with important everyday activities). Given delayed help-seeking, this might require systematic screening for signs of the disease.

- Some have suggested that we should aim instead for a 'timely' diagnosis – avoiding general screening and waiting for the moment when people with dementia and families first express a concern.
- Brain pathologies that lead to dementia all start well in advance of the onset of clinical signs and symptoms. Early indicators include subjective memory impairment (SMI – noticing memory problems) and mild cognitive impairment (MCI – subjective and objective changes in cognitive function, but without significant disability). 'Biomarkers' (physical characteristics that are used to indicate the effects of a condition) of underlying degeneration of brain cells are also being intensively researched. As yet, none of these approaches can provide an adequately accurate early prediction of those who will go on to develop dementia.

What is the purpose of earlier diagnosis?

National dementia strategies emphasise that the primary purpose of early diagnosis is timely access to information, advice, and support and access to a pathway of effective treatment and care from the time of diagnosis to end of life care.

The clinical indication for an earlier diagnosis would be that a critical period for some interventions may lie between the earliest point at which the diagnosis can be made and the time at which diagnosis is currently made. That is, that the intervention only works, or works better, when applied earlier than is usually the case.

Currently available drug therapies treat symptoms; they do not fundamentally alter the course of the disease. Cholinesterase inhibitors (donepezil, rivastigmine and galantamine) are licensed for mild to moderate Alzheimer's disease, and memantine for moderate to severe dementia. They do not appear to benefit people with mild cognitive impairment[16]. However, compounds with the potential to slow the progress of the disease may be developed in the future. Such compounds are likely to work best when applied before extensive and permanent damage has occurred, therefore in the earliest stages of dementia, or even before the disease is clinically evident.

Non-pharmacological interventions (therapies which do not involve drugs, including psychological and psychosocial interventions) have the potential to improve cognitive function, delay institutionalisation, reduce carer strain and psychological illness and improve the quality of life. Information regarding the critical period, if any, for the effectiveness of these interventions is not readily available.

Little attention has been paid to the specific needs of people with dementia and their family members in the early stages of the disease. In a needs assessment carried out in the USA, there was an expressed need for practical information, financial and legal counselling, emotional support (particularly provided by other people with dementia and carers), and an interest in research, including clinical trials for the disease[17].

In conclusion

These key questions are addressed in this report:

- How might it be possible to promote earlier diagnosis? (Chapter 2)
- Does early diagnosis benefit people with dementia and their carers? (Chapter 3)
- Which interventions are effective for people in the early stages of dementia? (Chapter 4)
- Are there some interventions that work better in the earlier, compared with the later, stages of dementia? (Chapter 5)
- Spending to save – does early diagnosis and intervention reduce the societal cost of dementia? (Chapter 6)

CHAPTER 2

How might it be possible to promote earlier diagnosis?

The effectiveness of health systems in identifying people with dementia depends upon the potential consumers, as well as the providers of health and social care. Encouraging help-seeking by raising awareness of dementia is an essential component of any comprehensive strategy to close the treatment gap. However, increased demand needs to be met by adequately prepared and resourced services, trained and able to make accurate diagnoses in a timely and efficient manner, and to ensure that the diagnosis leads seamlessly to the provision of evidence-based care. While acknowledging the importance of promoting demand for services, the focus for this chapter is upon service responses.

Six women at this Silverado Senior Living residential Alzheimer's community in Texas, USA, were taken by staff members to a flea market to select and purchase a hat. The next day a special table was set for them in the dining room. Each woman arrived, sporting her new hat or was helped to put it on. They all had a good time.

Service provision for dementia diagnosis and early stage care – a global perspective

High income countries benefit from well developed primary care services, supported by national networks of specialist centres with access to diagnostic technologies. Diagnosis in the early stages of dementia should therefore be achievable. Primary care services are the natural first port of call, and play an important role in initial diagnosis and referral. Effective coordination between primary and secondary specialist care services is then necessary to confirm a diagnosis of early stage dementia and for access to early stage and continuing dementia care. Specialist services for people with dementia often comprise two streams – 'early intervention' (mainly outpatient memory clinics, focussing on diagnosis and early stage intervention) and 'serious mental illness' (co-ordinating community care in the more advanced stages of the disease).

In many low and middle income countries, barriers to diagnosis (lack of awareness, stigma, poor provider skills) are more pronounced than in high income countries. Dementia is often (and incorrectly) considered a normal part of ageing, and remains a hidden problem. Family members rarely seek help, and primary care doctors rarely come across cases. Due to resource limitations, particularly lack of specialists to confirm early stage dementia, earlier diagnosis would initially involve *any* diagnosis, realistically the identification of established, moderate to severe cases by non-specialists. The World Health Organization has recently prepared evidence-based guidelines for diagnosis and management of dementia by non-specialists in low and middle income countries with a view to scaling up treatment, with its Mental Health Global Action Plan (mhGAP)[18]. Identification and management of unequivocal cases should be a core competency for non-specialists; in this way, they could make considerable inroads into the enormous treatment gap.

Is diagnosis feasible in primary care?

Evidence from high income countries suggests that primary care physicians and nurses can, if specifically prompted to do so, make a dementia diagnosis with reasonable accuracy, using their knowledge of the patient, available case note information, and their own routine assessments, in the limited time available during a typical consultation[19,20]. In India and Brazil, community healthcare workers could, with a few hours training, identify dementia in the community, based solely upon their prior knowledge of older people from their routine outreach work[21,22].

Dr Myrna Blake, who has dementia, Singapore

Since the diagnosis of my condition (Alzheimer's disease), I have learnt to accept and manage it. I have come to deal with it when things happen. Over the years, I have lost some of my independence and have moved on to engage two domestic helpers to assist in my daily living.

Population screening for dementia is generally not considered to be cost-effective in high income countries[23,24]. However, using screening tools when dementia is suspected could promote case detection. Experts suggest that screening tools would need to be administered in five minutes or less, given short consultation times. Brief tools with reasonable validity include the General Practitioner Assessment of Cognition (GPCOG), the Memory Impairment Screen (MIS) and the Mini Cog[25]. A brief version of the Community Screening Instrument for Dementia (brief CSI-D), including a cognitive test and informant questions has been shown to be valid in low and middle income country settings where low education and illiteracy preclude the use of other recommended tests[26].

Practice-based educational interventions to promote earlier dementia diagnosis

Wider use of screening tools will not address the fundamental problems of limited knowledge, limited skills and negative perceptions among some health practitioners. Multi-faceted educational interventions go beyond simply providing knowledge and skills regarding dementia diagnosis. Health professionals may need to be motivated through awareness of the importance of dementia, the extent of the unmet need, and the potential for interventions to make a difference. Given that diagnosis is a 'means to an end', they also need to be able to provide information and support, and plan and deliver basic management strategies.

A systematic review of practice-based educational interventions identified six studies of which two randomised controlled trials* were particularly relevant[27]. Evidence from a cluster randomised controlled trial† in the UK showed that the yield of newly identified cases was significantly greater after the intervention for practices that received practice-based workshops and those that used decision support software to support dementia diagnosis, while outcomes for those using a CD-ROM tutorial were no better than the control group practices that received no training intervention[28]. In France, a two hour group educational meeting supporting the use of brief neuropsychological tools was associated with greater confidence in dementia diagnosis among clinicians, but no overall increase in newly identified cases of dementia[29].

The studies that we reviewed highlighted problems and limitations. First, health practitioners' participation in educational activities was patchy. Practice-based workshops and facilitation visits seemed more popular than off-site seminars and continuing medical education (CME) events. Uptake of e-learning programs was particularly poor. Barriers to participation may be overcome by modifying the interventions, and providing incentives. Second, educational interventions have not, to date, proven successful at improving the quality of dementia care. Increased detection is of limited value unless the diagnoses are appropriately and sensitively shared with those directly affected, accompanied by support, timely intervention and access to continuing care.

Two new ongoing trials seek to address these problems, while building on successful components of the earlier UK intervention trial[30,31]. They both focus on education and training to build skills and confidence to manage dementia across the course of the illness, and will use practice-based workshops coupled with computerised decision support software integrated into the computerised medical record system. Innovative aspects

* A randomised controlled trial (RCT) is a study in which people are allocated at random (by chance alone) to receive one of several clinical interventions. One of these interventions is the standard of comparison or control, which may be standard practice or no intervention at all. The advantage of randomisation is that it minimises bias, balancing both known and unknown factors, in the assignment of interventions. RCTs are an effective way of measuring the effect of an intervention.

† A cluster randomised controlled trial is one in which groups of people (for example those attending a particular primary care centre), rather than individuals, are assigned to an intervention at random. This is an appropriate design when the intervention is applied at health service or system level.

include the use of interdisciplinary primary care teams, including primary care nurses, and in one of the trials, a plan to develop individualised training programs with each practice completing its own review of training needs. It will be interesting to see if these second generation interventions result in improvements in the quality of dementia care, as well as the number of diagnoses.

Memory clinic services

In high income countries, the growth of memory clinics may be one important factor contributing to earlier dementia diagnosis. This process has been monitored over the last 10 years in the Netherlands, where there has been a five-fold increase in clinics, an eight-fold increase in new clients and where the estimated proportion of all new cases of dementia diagnosed by the memory clinics has risen from 5% to 27%[32]. In the UK, the introduction of a new community-based memory service saw an estimated 63% increase in diagnoses by specialist services over a two year period, with 77% of referrals to the new memory service comprising those in the early stages of dementia, or with subjective impairment only[33]. The French and English national dementia strategies propose national networks of memory clinic services as a core component of the plan to realise early diagnosis and early intervention for all.

In conclusion

- The underdetection (and hence undertreatment) of dementia is a complex problem, and there are no simple solutions. Progress will require attention to whole systems rather than single elements.
- The role of primary care will vary among health systems according to their resource level. Initial identification of likely cases should be an important function of primary care. Many would suggest that formal diagnosis should be the preserve of specialist services. However, in many low and middle income countries there will be insufficient specialists to diagnose and treat all those affected. Indeed, even in well-resourced high income countries it may be challenging to maintain this policy while closing the diagnosis and treatment gap.
- There is potential for educational interventions to improve primary care practice by increasing attention towards and identification of probable dementia cases, although the evidence base is limited to just two trials.
- Detection might be further boosted if primary care professionals were better skilled and more involved in effective, rewarding aspects of the care of people with dementia.
- Research in this area is in its infancy. Primary care studies are mainly confined to the most affluent European countries.
- WHO mhGAP guidelines need to be implemented and evaluated in low and middle income countries. However, access to guidelines alone is insufficient, and must be accompanied by attention to training, facilitation, and continuous quality assurance.
- Increased demand for earlier dementia diagnosis will play a major part in closing the treatment gap. Increased demand for care (specifically anti-dementia drugs) has been one of the factors stimulating a growth in the numbers of memory clinics, and accessible memory clinic services boost demand for the diagnostic service that they provide.
- Those who plan and commission services for people with dementia will need to pay careful attention to the respective roles of primary care, memory clinics and specialist community care services and how they can work together efficiently. These relationships may vary between health systems and across the disease course.

CHAPTER 3

Does early diagnosis benefit people with dementia and their carers?

A clear demonstration of benefits associated with an early diagnosis would help to counter negative attitudes among the general population, families affected by Alzheimer's and dementia, medical professionals and service providers, in particular the false beliefs that 'dementia is a normal part of ageing' and that 'nothing can be done'.

Altagracia Nuris, 93, Arcelis, 76, Mercedes, 97, Elsa, 82, and Luz Candida, 80, live in the same house in the Dominican Republic and help each other with all aspects of life. One key responsibility is caring for Elsa as her Alzheimer's advances.

It is likely that the primary benefits of early diagnosis would arise from the earlier application of effective interventions. The effectiveness of specific interventions when applied in mild or early stage dementia is the focus of Chapter 4. However, 'early diagnosis' can act as a proxy for the full range of potentially beneficial interventions, none of which is likely to be used without diagnosis and subsequent service contact.

It is ethically and practically complex to conduct randomised controlled trials into the effects of early versus late diagnosis. However, observational studies* of people receiving help from clinical services could make use of the natural variation in the stage of the disease at the time of diagnosis (duration of symptoms before diagnosis or any appropriate marker of disease severity) and relate this to clinical, social and quality of life outcomes for people with dementia and their carers. This would necessitate a longitudinal study in which individuals were followed up over time.

We conducted a comprehensive search of the scientific literature for any such studies, seeking quantitative findings from observational epidemiological or clinical research. We also looked for expert consensus statements and guidelines recommending early diagnosis. Many important stakeholder groups have advocated earlier diagnosis, and we therefore conducted a thematic review of the rationales provided, regardless of whether these were supported by evidence.

Literature search for research evidence

In the literature search, 8,039 papers (abstracts and titles) were identified and assessed. Only three papers provided relevant quantitative evidence, one relating years since first symptoms at diagnosis to subsequent mortality, and two relating dementia stage at diagnosis to subsequent cognitive decline/disease progression. We also identified five consensus statements or practice guidelines that referred specifically to early diagnosis, and numerous narratives attesting to its benefits.

In a large observational study conducted in a memory clinic in France[34], those with a shorter duration of dementia symptoms before first assessment (hence an earlier diagnosis) had a lower subsequent mortality after controlling for age, sex, education, other illnesses and baseline cognition. More research needs to be conducted to confirm, or refute, this

* An observational study draws conclusions about the possible effect of a treatment, where the assignment of subjects into a treated group as compared to a control group is outside the control of the investigator. This is in contrast with controlled experiments, such as randomised controlled trials where each subject is randomly assigned to a treated group or a control group before the start of the study.

Francis Mavalan, who has Alzheimer's disease, India

After his behaviour confused his family more and more, Francis Mavalan was diagnosed with Alzheimer's disease seven years ago. Now for the last seven years, he has been attending the Alzheimer's and Related Disorders Society of India's day care centre in Cochin. Since then, he has been maintaining a stable condition although his memory is failing. Every morning, he religiously leaves his house for 'work'. Since 2004, the day care centre has been his 'office'. The nurses and caregivers are all good people for this epitome of optimism.

potentially interesting finding that survival may be enhanced by diagnosis and service engagement earlier in the disease course.

The two other relevant studies did not find any association between severity of dementia at enrolment to a memory clinic and subsequent rates of cognitive decline[35,36].

Consensus guidelines

- The United Kingdom National Institute for Health and Clinical Excellence (NICE) and Social Care Institute for Excellence (SCIE) joint guideline on 'Dementia: Supporting people with dementia and their carers in health and social care' and the Quality Standards Subcommittee of the American Academy of Neurology 'Practice parameter' on the early detection of dementia both make specific recommendations that people with mild cognitive impairment (MCI) should be identified and monitored because of their high risk of conversion to dementia, to aid early identification.
- The European Dementia Consensus Network (EDCON) issued a consensus statement expressing a conviction "that early access to diagnosis and treatment is beneficial for patients with dementia, for their families, and for society". They recommended public awareness campaigns and provider education regarding the benefits of early recognition and treatment, development of practice guidelines and monitoring of their implementation.
- The INTERDEM group (a pan-European network of experts) differed from the earlier EDCON group consensus by recommending 'timely' as opposed to 'early' diagnosis. "Timely diagnosis is defined as the time when the patient or caregiver and the primary care physician recognize that a dementia syndrome may be developing. The preference for timely diagnosis implies that methodologies should concentrate not on population screening, but on a speedy response to the first reported signs of changed behaviour and functioning in the patient."
- The Dementia Study Group of the Italian Neurological Society recommends early diagnosis on the grounds that it allows timely intervention against the causes of reversible dementias, the start of therapies that can slow disease progression, attention to medical co-morbidity (other illnesses the person has), and support to people with dementia and families.

Stakeholder and other statements advocating early diagnosis

Several of the papers that we reviewed in the course of our systematic review contained statements regarding the benefits of early diagnosis. Many were unreferenced, and where references were provided these were generally to other papers making similar, non-evidence-based assertions. These statements should therefore be considered, at best, to represent expert opinion. The importance of early dementia diagnosis has also been highlighted and supported by many stakeholders including, importantly, Alzheimer's associations representing and advocating for the interests of people with dementia and their carers.

We did a thematic analysis of this material, and categorised the justifications and arguments under nine broad themes:

1 Optimising current medical management – attention to treatable causes, exacerbating factors, and medication review

2 Relief gained from better understanding – validation of concerns, and a framework for understanding the origin and nature of symptoms

3 Maximising decision-making autonomy – the chance to make important decisions about the future while still retaining mental capacity

4 Access to services – timely access to medical care, advice and support, all of which require a diagnosis

5 Risk reduction – safety at home, driving assessments, anticipating and avoiding adverse effects of medication

6 Planning for the future – early retirement, financial planning, safety and security issues

7 Improving clinical outcomes – slowing or stabilising cognitive and functional decline

8 Avoiding or reducing future costs – chiefly through delaying or avoiding transition into a care home

9 Diagnosis as a human right – both to have access to an accurate diagnosis, and to be informed of it, or not, according to preference

In conclusion

- We found a surprising lack of research conducted into the effect of the timing of dementia diagnosis upon subsequent disease course and outcomes for the person with dementia and their carers.
- This is a case of 'absence of evidence' rather than 'evidence of absence' of an effect of early diagnosis upon important outcomes for the person with dementia and their carers. That is, we do not know if early diagnosis, in itself, leads to better outcomes, because the relevant research has not been conducted. There are methodological difficulties in conducting such research, but these could be largely overcome by attending to control of confounding factors.
- Despite the lack of evidence, it is clear that informed and expert opinion is generally of the view that early dementia diagnosis is beneficial to patients, carers and society, and should therefore be promoted.
- Of the nine rationales advanced for early diagnosis, most are amenable to being tested in research studies. These should perhaps best be viewed as informing hypotheses for future research.

CHAPTER 4

Which interventions are effective for people in the early stages of dementia?

Many trials have been conducted to look at the effectiveness of interventions for people with dementia. However, until comparatively recently, much less evidence has been available on the benefits of these interventions in the earliest stages of the disease. The aim of this chapter is to review the available literature on randomised controlled trials of interventions targeting people with early stage or mild dementia.

Ovidio and Antonia have been married for 51 years. The portraits of them at ages 29 and 27, now displayed in their home in the Dominican Republic, are family treasures. They also treasure each other.

Scope of the systematic reviews

We considered:

- Pharmacological interventions, both symptomatic treatments mainly targeting cognition (acetylcholinesterase inhibitors and memantine) and depression, and other treatments, targeting underlying disease mechanisms that may in principle modify disease course – for example micronutrients, drugs that treat underlying cardiovascular risk factors, hormone replacement therapy (for women) and non-steroidal anti-inflammatory drugs.
- Non-pharmacological interventions, including strategies to support and enhance cognitive abilities in the person with dementia, psychosocial interventions for the person with dementia, and psychosocial interventions that target the carer but which often also involve the person with dementia.

Outcomes considered most relevant were:

- For the person with dementia: cognitive function, functional status, quality of life, psychological wellbeing, and social participation (social, employment, education, leisure).
- For carers: quality of life, psychological wellbeing, and strain.

We first identified relevant systematic reviews (Cochrane Reviews website, UK National Institute for Health and Clinical Excellence (NICE) and the Alzheimer's Association (USA) systematic reviews on non-pharmacological interventions specifically for early stage Alzheimer's disease (2007). We conducted a new search looking for more recent randomised controlled trials (2005-2011) focusing on early stage dementia. We also contacted relevant specialists to check for completeness.

We were mainly interested in trials that recruited only people with mild or early stage dementia. However, mindful that in many cases trials might include people with mild/early stage disease as well as those with more advanced dementia (moderate or severe), we also included such trials in our narrative review, in which case we sought to ascertain the proportion of participants that had mild/early stage dementia, and to clarify if the effectiveness of the intervention had been analysed according to disease severity.

Evidence supporting the effectiveness of interventions in early dementia

The large number of references for this section may be found in the full version of the report, available for free download at www.alz.co.uk/worldreport2011

We found evidence from meta-analyses of multiple randomised controlled trials to support the efficacy of acetylcholinesterase inhibitors for the treatment of cognitive impairment in Alzheimer's disease of mild severity. Effect sizes (the size of the treatment effect comparing active treatment and placebo control groups) were consistent and clinically relevant, with additional benefits on functional impairment.

We found evidence from meta-analyses of multiple randomised controlled trials to support the efficacy of Gingko Biloba for the treatment of cognitive impairment in dementia of mild to moderate severity. However, the effect sizes were modest, and clinical relevance is uncertain. The effectiveness specifically for mild dementia has not been assessed.

We found evidence from multiple randomised controlled trials to support the efficacy of cognitive stimulation for the treatment of cognitive impairment in mild to moderate dementia. The effect sizes associated with the intervention, for the cognitive outcomes, are similar to those seen for anticholinesterase drugs. Global clinical benefit and benefit on functional impairment have not been demonstrated. Results from two trials suggest that effect sizes are similar for those with mild as for moderate or mild-to-moderate dementia.

We found evidence from one randomised controlled trial that cognitive rehabilitation is effective in improving goal performance, satisfaction and subjective memory impairment in people with early-stage dementia.

We found evidence from one randomised controlled trial that behavioural therapies applied by carers acting as co-therapists are efficacious in the treatment of depression in mild to moderate dementia.

We found evidence from one randomised controlled trial that support groups for people with early-stage dementia are efficacious in improving their quality of life and reducing depressive symptoms.

We found suggestive but inconsistent evidence from meta-analyses of multiple randomised controlled trials that physical activity interventions may be beneficial in improving physical function and limiting impairment in activities of daily living in people with dementia. The evidence applicable to those with mild dementia was very limited and equivocal.

We found evidence from meta-analyses of multiple randomised controlled trials to support the efficacy of multi-component caregiver interventions for improving caregiver mood, caregiver quality of life and delayed institutionalisation of care recipient, and for caregiver education interventions that included problem solving or coping skills for improving caregiver mood. That said, most trial participants had moderate to severe dementia. The efficacy of multi-component caregiver interventions for delayed institutionalisation was specifically demonstrated in one trial for care recipients with mild dementia.

Evidence of a lack of efficacy of interventions in mild/early stage dementia, or insufficient evidence to make a recommendation

We found evidence from meta-analyses of multiple randomised controlled trials and one large definitive trial that antidepressants are not efficacious in the treatment of depression in mild to moderate dementia, with no apparent differences in effect sizes according to dementia severity. However, the effectiveness of these treatments has not been assessed specifically in those with mild dementia.

The large number of references for this section may be found in the full version of the report, available for free download at www.alz.co.uk/worldreport2011

We found evidence from meta-analyses of multiple randomised controlled trials that statins (a class of drugs primarily used to lower cholesterol levels) lack efficacy in the treatment of cognitive impairment in mild to moderate dementia. We also found evidence from one relatively small trial that a 'vascular care' secondary preventive intervention (optimising management of hypertension and high cholesterol, with attention to behavioural cardiovascular risk factors) had no impact on subsequent disability, cognitive decline, institutionalisation or costs in people with mild Alzheimer's disease and some evidence from neuroimaging of accompanying cerebrovascular disease. Attention to cardiovascular risk factors and optimising management of underlying cardiovascular disease remains part of good practice guidelines for dementia and should still be used to improve cardiovascular outcomes.

We found no evidence to support the use of micronutrient supplementation in mild dementia. There was evidence from multiple randomised controlled trials that vitamin B12 and folate supplementation were not effective in the treatment of cognitive impairment in mild to moderate dementia. There was evidence from one randomised controlled trial that vitamin E supplementation might reduce the risk of progression to one of four endpoints – death, institutionalisation, progression to severe dementia (3.0 on the Clinical Dementia Rating (CDR)) or change in loss of activities of daily living – among people with moderately severe Alzheimer's disease. However, this was accompanied by a threefold increase in the risk of falls. There was evidence from one pilot trial that use of a 'medical food' comprising essential fatty acids, phospholipids, vitamins E, C, B6 and B12, selenium and folic acid may improve memory recall in people with mild Alzheimer's disease. However, the clinical significance of this effect is unclear with no change and no significant difference in other relevant clinical or functional outcomes. Screening for, and correction of, vitamin B12 and folate deficiencies remains part of good practice guidelines for dementia care, and is

justified to prevent anaemia, reduce risk of cardiovascular disease and to avoid potentially serious neurological complications.

We found no evidence to support the efficacy of hormone replacement therapy (HRT) for the treatment of cognitive impairment in mild to moderate dementia, with some evidence that its use may be associated with faster progression to more severe dementia. Given concerns about increased risk of breast cancer and cardiovascular disease, general guidelines for these products suggest that HRT should only be used for short-term control of menopausal symptoms.

We found no evidence to support the use of non-steroidal anti-inflammatory drugs in mild dementia. There is evidence from one trial that ibuprofen lacks efficacy in the treatment of cognitive impairment in mild dementia, with no benefits noted for other clinical or functional outcomes. A small trial of indomethacin in people with mild to moderate dementia suggested possible benefits on cognitive outcomes, of uncertain clinical significance, but with a higher incidence of serious side effects in the indomethacin treatment group.

We found evidence from meta-analysis of multiple randomised controlled trials that cognitive training is not effective for the treatment of cognitive impairment, subjective memory impairment or carer rated impairment in people with mild to moderate dementia.

We found insufficient evidence for the use of reminiscence therapy in people with mild dementia. Only one very small trial had recruited people exclusively with mild to moderate dementia suggesting possible cognitive benefits. All of the four trials included in a systematic review were small and of poor methodological quality.

We found no trials of individual counselling for people with mild or early stage dementia.

In conclusion

The large number of references for this section may be found in the full version of the report, available for free download at www.alz.co.uk/worldreport2011

- We found strong evidence (multiple RCTs) that acetylcholinesterase inhibitors (for cognitive function, functional impairment), and cognitive stimulation (for cognitive function) are effective interventions in mild dementia. We found strong evidence (multiple RCTs) that gingko biloba (for cognitive function) and caregiver education, training and support interventions (for carer mood and institutionalisation of the person with dementia) are effective interventions in mild to moderate dementia although their value for people with mild dementia, and their carers, has not been specifically quantified. We found some evidence (single RCTs only) that support groups for people with dementia (for quality of life and depression), behavioural treatment (for depression) and cognitive rehabilitation (for goal performance, satisfaction and subjective memory impairment) may be helpful in early-stage dementia. We found suggestive evidence from multiple RCTs that physical activity interventions may improve physical function and limit impairment in activities of daily living in people with dementia; however, the evidence is limited and equivocal for people with mild dementia.
- We found no evidence to support the use of micronutrient supplementation, statins or comprehensive vascular care in mild dementia, for dementia related outcomes. However, good practice guidelines advocate testing for and correcting B12 and folate deficiency, and attending to cardiovascular risk factors and optimising medical management of cardiovascular disease, and these recommendations are warranted to prevent other serious adverse health outcomes.
- Much more clinical research is required, particularly good quality randomised controlled trials into the effectiveness of social, psychological and disease modifying treatments with specific relevance to the needs of people in early stage dementia.

CHAPTER 5

Do some interventions work better when applied earlier in the disease course?

In the previous two chapters, we have reviewed evidence of benefits associated with early diagnosis (Chapter 3) and evidence for effective interventions for those with early stage dementia (Chapter 4). A related question is whether, for some interventions and some outcomes, there may be a critical period of intervention in the early stage of the disease. That is, whether the intervention is only effective in early stage dementia, or is more effective when administered earlier rather than later in the disease course.

Despite an age difference of more than 90 years, Marie-Therèse and Frederica had a good time painting a kite together. AMPA, the Monegasque Association for Research on Alzheimer's Disease, and the Speranza – Albert II day care centre for Alzheimer's patients in Monaco, have organised intergenerational paint workshops. The children and their older partners were free to express their artistic talents to decorate one hundred kites. The project promotes intergenerational health care, support work and public awareness.

We identified four studies relevant to this question, two about the effect of anti-dementia drugs and two relating to carer intervention and support.

Antidementia drugs

In a large naturalistic open label Phase IV trial* of donepezil, conducted in Spain and funded by the manufacturers of the drug, those with mild dementia at study baseline showed a trend over six months follow-up towards improved cognitive function, with deterioration apparent among those with moderate dementia[37]. Differences in the change scores between the two groups were statistically significant in favour of the mild dementia group for tests of memory, language and orientation. Functional deterioration occurred for both groups, but to a lesser extent for mild compared with moderate dementia. In another observational cohort study in a US specialist dementia care facility, after controlling for baseline disease severity, those who had been on anti-dementia drugs for a greater proportion of time since onset of symptoms (higher 'persistency index') showed lesser decline in cognitive function, clinical and functional status[38], and a lower mortality[39]. This was particularly compelling evidence, since the mean follow-up period was three years (range 1-13 years), much longer than the six month to one year follow-up typically observed in randomised controlled trials. One would presume that the persistency index would tend to be higher for those patients who started anti-dementia drugs earlier in the disease course, but the effect of earlier versus later initiation of anti-dementia drugs was not specifically tested.

Caregiver interventions

In one large randomised controlled trial[40] and an observational cohort analysis from the USA[41], there is evidence to suggest that early intervention and support for carers may be particularly beneficial in delaying or preventing institutionalisation. In the cohort analysis the beneficial effects of in-home help were greater where the carer had more recently taken on a caregiving role, and for people with less advanced dementia at recruitment. Mittelman's trial, conducted in New York, was unusual both in the long-term continuous emotional and instrumental support provided to spouse carers, and the long-follow-up period of up to 8 years. In that trial the beneficial effect of the relatively intensive multi-component carer counselling and support intervention was much more prominent for those with mild or moderate compared with severe dementia at entry into the trial[40].

In conclusion

- There is tentative evidence, in particular from one large US long-term naturalistic study of people with dementia receiving treatment and care, that using anti-dementia drugs for a greater proportion of the time since first onset of symptoms (hence starting early or staying on the drug) may be associated with less cognitive decline and a longer survival.
- Two studies with longer term follow-up also suggest that earlier implementation of assistance for carers (homecare and counselling and support interventions) may be more effective in preventing or delaying transition into institutional care.
- Research suggests that the period when a carer begins to assume a caring role, and the circumstances surrounding that transition, may have critical importance for long-term outcomes. Carer support, when accessed earlier, may allow carers to acclimatise more gradually and effectively to increasing care demands. They may, thereby, have more opportunity to make and implement plans and routines that may be helpful later in the disease course.

* Open label trials do not have a comparison placebo control group, and clinicians, researchers and patients are not 'blinded' to who is receiving the active treatment. These trials can provide useful information on the longer-term benefits and risks associated with a treatment, after the basic efficacy has been established in a randomised controlled trial.

CHAPTER 6

Spending to save – the economic case for earlier diagnosis and intervention

The economic costs of dementia are enormous. In last year's World Alzheimer Report, we estimated that worldwide costs were US$604 billion per year in 2010[42]. These 'societal' costs included the costs of unpaid care provided by family members and others (sometimes referred to as indirect costs), the direct costs of medical care and the direct costs of social care provided by community services, residential care homes and nursing homes.

Since there are only nine residents in most of the Japanese group homes, there is no institutional cooking. Preparation of meals is done by the staff, with assistance from some of the residents who are able to help and wish to do so. At this group home in Kyoto, everyone did something to participate, whether it was laying out the plates and chopsticks or checking on all the dishes to be served, as was the case of the man here, a former chef.

Globally, the number of people with dementia is set to double every twenty years, from 36 million in 2010 to 115 million in 2050[43]. Given patterns of demographic ageing, it is likely that the largest increases will be among frail, older people with more severe dementia, who for those reasons, and because they are more likely to be widowed, are most likely to require residential or nursing home care[44]. Governments are already beginning to focus upon the need to manage, and if possible contain, these costs.

The methodologies for economic analysis

While randomised controlled trials provide the strongest evidence of cost-effectiveness, there have been no trials of early versus late diagnosis and intervention. Trials have been conducted into the effectiveness of intervention in early dementia, but these tend to have been of individual treatments, rather than packages of care.

Given these limitations, health economists have applied sophisticated modelling techniques to integrate the best available information on:

- The potential for bringing forward the time at which diagnosis is made.
- The effectiveness of pharmacological and psychosocial interventions on long term disease course, and institutionalisation.
- The likely impact of these interventions on costs.

As with all economic modelling exercises, the outcome is critically dependent upon the assumptions, which should be made explicit. Certain key parameters are varied across a range of plausible values in 'sensitivity analyses' in order to quantify the likely degree of uncertainty in the estimates.

The evidence

We identified three economic analyses that had attempted to model the impact of implementing earlier diagnosis on future costs to health and social care systems or societal costs.

Researchers from the University of Wisconsin concluded that the early identification and treatment of Alzheimer's disease have the potential to result in large, positive net social benefits as well as positive net savings for states and the US federal government[45]. The cost of early identification of one patient with Alzheimer's disease was estimated at approximately US$4,000. Benefits were presumed to arise from two interventions acting synergistically to delay institutionalisation: acetylcholinesterase inhibitors and a carer education, training and support intervention. The model also took into account the greater benefits of the carer intervention associated with earlier as opposed to later uptake (see Chapter 5), the possible increased use of services among those receiving the carer intervention, and reduced carer depression. In the model, anticholinesterase drugs were assumed to reduce rates of institutionalisation by reducing cognitive decline. In this modelling exercise, the net benefit was positive (that is, the benefits of early identification and intervention exceeded costs) under most assumptions and for each of the interventions. However, the net benefits were highest when cases were identified at earlier stages (for example, an MMSE* score of 28), and when drug therapy was combined with a carer intervention program.

The second economic analysis was commissioned by Eisai Ltd, the manufacturers of donepezil[46]. The scenario tested in this case was the early diagnosis of dementia by screening all those presenting in primary care with subjective memory impairment, and commencing treatment with donepezil for those with an MMSE score of between 10 and 26. Assumptions regarding the long-term cognitive benefits of the anti-dementia drug were more conservative than those applied in the University of Wisconsin model, above. The incremental cost of the screening program was estimated at £4,803 (US$7,700) per patient diagnosed. The model considered the impact of the intervention upon direct costs (the cost of the intervention, other

* The mini-mental state examination (MMSE) is a 30-point questionnaire test that is used to screen for cognitive impairment. A lower score (out of a maximum 30) indicates greater impairment.

health care costs, community social care and institutionalisation) indirect costs (informal caregiver time) and carer and patient health utilities, conditioned upon MMSE score, behavioural symptoms and institutionalisation status. In this modelling exercise, the net benefit was again positive (that is, the benefits of early identification and intervention with donepezil exceeded costs) under most assumptions. In the base case model, the net benefit in direct costs was £3,593 (US$5,750) per person with dementia, and in indirect costs was £4,148 (US$6,650), giving a total net benefit of £7,741 (US$12,400).

The third economic analysis assessed the possible cost-effectiveness of nationwide introduction, in England, of the community-based Croydon Memory Service model for early diagnosis and intervention in dementia[47]. As described in Chapter 2, the introduction of this easily accessible community-based assessment service led to an estimated 63% increase in diagnoses by specialist services over a two year period[33]. The costs that were calculated included those relating to the diagnostic process (other than investigations), communicating the diagnosis to the family, and care and the support following diagnosis. Costs of drug treatments were not considered. Allowance was made, however, for induced downstream service needs from existing community health and social care services for people with dementia. The only benefit considered was reduced institutionalisation. Total additional costs were estimated at £220 million (US$350 million) per year nationally (£95 million (US$150 million) for the memory service, £70 million (US$110 million) for health service and £55 million (US$90 million) for social care downstream costs). If a 10% reduction in transitions into care homes was achieved 10 years after introduction of the new service, then costs and saving to society would be roughly balanced. The authors point out that very modest QALY (quality-adjusted life year – a measure of disease burden, including both the quality and the quantity of life lived) savings associated with early diagnosis and intervention could result in a net benefit associated with the nationwide introduction of the service.

In conclusion

- The economic arguments in favour of early diagnosis and early intervention are promising, but not yet completely unassailable.
- The evidence, partly of necessity, is somewhat indirect and circumstantial, and several untested assumptions are critical to the case for there being a net benefit.
- On the other hand, the failure of most trials to include adequate assessment of the impact of interventions on quality of life of people with dementia and their carers may have led to an underestimate of the net benefits, were these to have been measured and weighed in the balance with the fiscal costs and benefits.

Implementation research is required to assess the effectiveness of different approaches to reduce the treatment gap. This will involve some individuals being assigned experimentally to different pathways that make it more likely that they will receive early diagnosis and intervention than others, hence providing a pragmatic opportunity to assess the potential cost-benefit ratio of earlier diagnosis and intervention in a framework that is more realistically representative of routine practice.

John du Preez, who has dementia, South Africa

I went through a denial phase at first and then I decided to read up more about this sickness. The more I read, the more I despaired at first. Then I decided to fight the disease and try to stay healthy until a drug is found to delay the sickness from going over to the second phase. I strongly recommend that all persons who start to suspect that they may have Alzheimer's and persons whose parent is showing tendencies of severe short-term memory loss to undergo diagnosis.

CHAPTER 7

Conclusions and recommendations – a call for action

Assuming that 60% of people with dementia living in high income countries, and 90% of those living in low and middle income countries have yet to receive a diagnosis, it is possible that up to 28 million of the world's 36 million people with dementia do not receive evidence-based treatment and care. The new evidence collated and presented in this World Alzheimer Report 2011 exposes this as a gross neglect, and a tragic missed opportunity to secure better outcomes for people with dementia, their families, and society.

Claudia Beyer-Feldman, formerly Director of the Munich Alzheimer's Association, loves this photograph of a couple going home after a Memory Clinic session in Nice, France. She comments: "An umbrella protects us from the rain. It's important that we create an virtual umbrella for those who receive an Alzheimer's diagnosis – an umbrella made of confirmation, love, care and true friendship."

We have shown that it is possible to promote earlier diagnosis, that there are many effective interventions for people in the early stages of dementia, that some interventions may be more effective when applied earlier in the disease course, and that, at least in high income country settings such as the US and UK, early diagnosis coupled with early intervention is cost-effective – governments could and should invest to save.

1 **There is evidence that earlier diagnosis can be achieved through a) practice-based educational programs in primary care, b) the introduction of accessible diagnostic and early stage dementia care services (memory clinics) and c) promoting effective interaction between different components of the health system.**

Recommendations

- All primary care services should have basic competency in indicated screening for dementia, making and imparting a provisional dementia diagnosis (including exclusion of reversible causes), initial management (providing information and support, optimising medical care) and referral.
- Practice based registers should be maintained in order to audit diagnostic activity, and to promote shared care with specialist services.
- In resource-poor settings with limited or no access to specialist dementia diagnostic and care services, the WHO mhGAP evidence-based intervention guide should be scaled up across primary care services.
- Where feasible, national networks of specialist diagnostic centres should be established, to which primary care centres could then refer all those identified with probable dementia for diagnostic confirmation.
- In complex health systems, explicit recommendations should be made regarding the roles of primary care, memory clinics and community care services in dementia diagnosis, early stage and continuing care.

2 **There is, as yet, no unequivocal evidence that earlier diagnosis is associated with better outcomes for people with dementia and their carers, but there is a marked lack of observational research data from population studies and clinical cohorts from which to draw conclusions.**

Recommendations

- More observational research should urgently be commissioned and conducted, in particular making use of data routinely collected by clinical services at the time of diagnosis and in subsequent follow-ups.
- Population-based surveys of dementia prevalence should routinely ascertain where and when a formal diagnosis has been made, and what dementia-specific services have been received.

3 **It is a myth that there is no point in early diagnosis, since 'nothing can be done'. In fact, there are a range of evidence-based early interventions that are effective in improving cognitive function, treating depression, improving caregiver mood, and delaying institutionalisation.**

– **Acetylcholinesterase inhibitors and cognitive stimulation may enhance cognitive function in people with mild Alzheimer's disease, and these interventions should therefore be routinely offered.**

- **Gingko biloba cannot be recommended as a first line treatment for Alzheimer's disease, but could be considered for non-responders to acetylcholinesterase inhibitors, and for those with other subtypes of dementia. Cognitive stimulation may also be effective across dementia subtypes.**
- **People with early stage dementia may benefit from participation in peer support groups, and individual behavioural therapy programs should be considered to treat depression.**
- **Consideration should be given to developing physical activity programs although the benefits for people with mild dementia are uncertain.**
- **High quality caregiver education, training and support interventions should be offered to carers in a timely fashion as care demands increase; their use is associated with improved carer mood, and delayed institutionalisation of the person with dementia.**

Recommendations

- The availability of effective interventions should be actively publicised to health and social care professionals through training, and to the public through population health promotion and primary and secondary healthcare and social care facilities.
- Purchasers and providers of dementia care services should ensure that these evidence-based interventions are made available, as indicated, to people in the early stage of dementia. This will involve commissioning early stage dementia services, securing appropriate financing, and providing training and support to staff.
- Implementation and uptake should be monitored through regular service audits.
- More randomised controlled trials are required to promote evidence-based intervention in early stage dementia. Priorities include:
  - Testing drug interventions earlier in the course of dementia, over longer periods of time, and in larger and more diverse populations
  - The efficacy, and optimal targeting, duration and type of psychological intervention or support for those who have recently received a diagnosis of dementia
  - The efficacy of psychological interventions (cognitive behavioural therapy, behavioural therapy, supportive psychotherapy) for depression and anxiety in early stage dementia
  - The efficacy, including longer-term benefits, of sustained physical activity programs for people with early stage dementia
  - The efficacy, including longer-term benefits, of sustained comprehensive micronutrient and essential fatty acid supplementation for people with early stage dementia
  - The optimal timing of effective caregiver intervention, including more nuanced stepped care models for introducing and escalating provision of information, education, training and support from the time of diagnosis through early- to mid-stage dementia

4 There is evidence from economic modelling that the cost of an earlier dementia diagnosis and the downstream costs of providing evidence-based treatment may be more than offset by the cost savings accrued from the benefits of a) anti-dementia drugs and caregiver interventions, and b) delayed institutionalisation and enhanced quality of life for people with dementia and their carers.

Recommendations

- Current economic models are to some extent specific to the health system context (UK and US) for which they were generated. Policymakers need evidence of the real-world costs and benefits of scaling up earlier diagnosis and early-stage dementia care services, specific to the setting in which the economic evidence is to be applied.
- Commissioning of such studies, whether based on observational data or cluster-randomised controlled trials, should be prioritised by stakeholders committed to evidence-based advocacy, and by governments for evidence-based policymaking.

István Kappéter, who has Lewy Body dementia, Budapest, Hungary

The best known Hungarian dementia specialist advised (in a TV program made by the Hungarian Academy of Sciences) everyone who notices memory problems in themselves or their loved-ones to keep it quiet, not to tell anyone, so they don't become socially stigmatized. Those in Hungary who probably have Lewy Body or Alzheimer's type of dementia rarely get cholinesterase inhibitors. Most Hungarian doctors, psychiatrists and even neurologists I know, when asked to examine someone for thinking disorders, say they don't see serious problems. According to Professor Konrad Beyreuther, they had the same troubles in Germany 20 years ago, but it has gotten a lot better since.

The most important factor in getting over these prejudices and getting people to be open about their condition is to find ways to promote reasonably optimistic approaches to dementia.

People whose cognitive impairment started in their adulthood, especially if they have Lewy Body or Alzheimer's dementia are still able to work – they can still be worth their salary to the employers, if they get work that is easy and not humiliating – in the first stage of their disease. This would be good for everyone – for them, their families, and all humankind.

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Francisco Antonio Guerrero Andújar, who has dementia, and his wife Ana Sylvia Frias de Guerrero, Dominican Republic

After his diagnosis five years ago, I really could not understand the magnitude of what was ahead of us – I never imagined how things would change.

My husband's mother and many of his family members suffered from dementia, but our relationship was not close enough for me to realize how this diagnosis would impact our lives.

I like to know a lot about things I have to deal with and I felt lost because I didn't know about this, until somebody told about the Dominican Alzheimer's Association. I joined them and I started to understand how this illness was going to change our lives, our plans.

What I miss the most is my independence and I know that if he could understand how dependent he is on me it would be the very same thing he would miss as he was also quite independent. Only my faith in God and my constant prayers to have the patience, the humility and wisdom to handle this is what has permitted me to care for him with all the love and respect that he deserves.

Alzheimer's Disease International

Alzheimer's Disease International

Alzheimer's Disease International (ADI) is the international federation of Alzheimer associations throughout the world. Each of our 76 members is a non-profit Alzheimer association supporting people with dementia and their families.

ADI's vision is an improved quality of life for people with dementia and their families throughout the world. ADI aims to build and strengthen Alzheimer associations and raise awareness about dementia worldwide. Stronger Alzheimer associations are better able to meet the needs of people with dementia and their carers.

What we do

- Support the development and activities of our member associations around the world.
- Encourage the creation of new Alzheimer associations in countries where there is no organization.
- Bring Alzheimer organizations together to share and learn from each other.
- Raise public and political awareness of dementia.
- Stimulate research into the prevalence and impact of Alzheimer's disease and dementia around the world.

Key activities

- Raising global awareness through World Alzheimer's Day™ (21 September every year).
- Providing Alzheimer associations with training in running a non-profit organization through our Alzheimer University programme.
- Hosting an international conference where staff and volunteers from Alzheimer associations meet each other as well as medical and care professionals, researchers, people with dementia and their carers.
- Disseminating reliable and accurate information through our website and publications.
- Supporting the 10/66 Dementia Research Group's work on the prevalence and impact of dementia in developing countries.

ADI is based in London and is registered as a non-profit organization in the USA. ADI was founded in 1984 and has been in official relations with the World Health Organization since 1996. You can find out more about ADI at www.alz.co.uk.

Alzheimer's Disease International:
The International Federation
of Alzheimer's Disease and
Related Disorders Societies, Inc.
is incorporated in Illinois, USA,
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