Alzheimer's Disease International

World Alzheimer Report 2010

THE GLOBAL ECONOMIC IMPACT OF DEMENTIA

Executive Summary

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The Global Economic Impact of Dementia

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Cover image
Ana de Jesus de Bido, a pastor and geriatrician, and her physician husband run a care facility in the Villa Francisca barrio in Santo Domingo, Dominican Republic. Here she was on a home visit with 82-year-old Ana Luisa Candelario, who cares for her 92-year-old husband. Ana Luisa takes little care of herself, often not eating, and Pastor Ana consoled her and explained the importance of caregivers taking care of themselves.

Foreword

In the World Alzheimer Report 2010, we build upon the findings detailed in the World Alzheimer Report 2009, to explore the cost of dementia to our societies. The Report contains an explanation of the methods used, detailed results for different economic and geographic regions, and we offer conclusions and recommendations in the final section.

As you will see, the figures are cause for great concern and we hope that this Report will act as a call to action for governments and policy makers across the world. It is vital that they recognize that the cost of dementia will continue to increase at an alarming rate and we must work to improve care and support services, treatment and research into dementia in all regions of the world. Lower income countries face a severe lack of recognition of dementia, placing a heavy burden on families and carers who often have no understanding of what is happening to their loved one. High income countries are struggling to cope with the demand for services, leaving many people with dementia and caregivers with little or no support. Consequently, we urge key decision makers to take notice of this very important document and to work with Alzheimer associations and with ADI to make dementia a national and global health priority.

We would like to thank a number of people for their hard work on the development of this Report. We are grateful to the Report's authors, Prof Anders Wimo and Prof Martin Prince, for their tireless efforts and dedication, and Niles Frantz and MaryKate Wilson from the Alzheimer's Association in the USA for their valuable input. Thank you also to the sponsors who made the Report possible and to those who took the time to review the contents: the Organisation for Economic Co-operation and Development (OECD) in Paris, the Alzheimer's Association in the USA and Glenn Rees at Alzheimer's Australia. Finally, we would like to thank Cathy Greenblat for her photographs.

Daisy Acosta
Chairman
Alzheimer's Disease International

Marc Wortmann
Executive Director
Alzheimer's Disease International

As Mandakini became more confused, it was clear that she could no longer live alone. Two of her sons indicated that they could not take care of her because they had young children. Her son Satish and his wife Neha, who also had young children, brought her to their home, where they take care of her with the assistance of a professional caregiver. Eight-year old Srushti has found ways to relate to her grandmother, and her two-year-old sister shows no fear. Though Mandakini speaks very little, Srushti has found that her grandmother enjoys the religious chants that have been important to her throughout her life. Now Srushti leads and they chant together.

Executive Summary

The total estimated worldwide costs of dementia are US$604 billion in 2010.

About 70% of the costs occur in Western Europe and North America.

Costs were attributed to informal care (unpaid care provided by family and others), direct costs of social care (provided by community care professionals, and in residential home settings) and the direct costs of medical care (the costs of treating dementia and other conditions in primary and secondary care).

Costs of informal care and the direct costs of social care generally contribute similar proportions of total costs, while the direct medical costs are much lower. However, in low and middle income countries informal care accounts for the majority of total costs and direct social care costs are negligible.

Background

- Dementia is a syndrome that can be caused by a number of progressive disorders that affect memory, thinking, behaviour and the ability to perform everyday activities. Alzheimer's disease is the most common type of dementia. Other types include vascular dementia, dementia with Lewy bodies and frontotemporal dementia.
- Dementia mainly affects older people, although there is a growing awareness of cases that start before the age of 65. After age 65, the likelihood of developing dementia roughly doubles every five years.
- In last year's World Alzheimer Report, Alzheimer's Disease International estimated that there are 35.6 million people living with dementia worldwide in 2010, increasing to 65.7 million by 2030 and 115.4 million by 2050. Nearly two-thirds live in low and middle income countries, where the sharpest increases in numbers are set to occur (figure 1).
- People with dementia, their families and friends are affected on personal, emotional, financial and social levels. Lack of awareness is a global problem. A proper understanding of the societal costs of dementia, and how these impact upon families, health and social care services and governments may help to address this problem.

Figure 1 **The growth in numbers of people with dementia in high income countries and low and middle income countries**

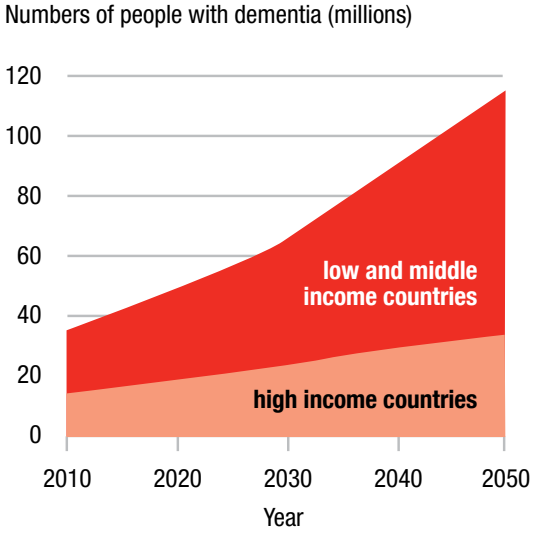
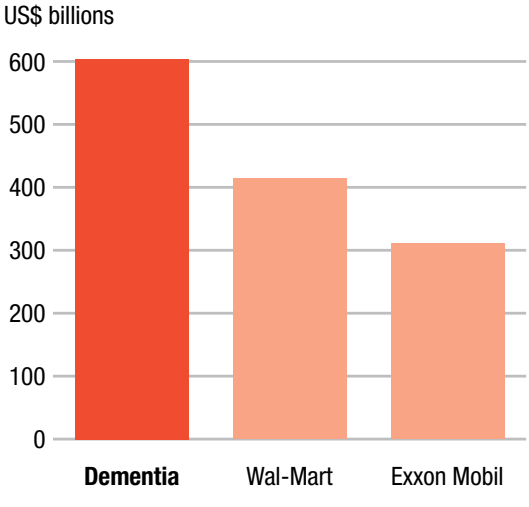


Figure 2 **Cost of dementia compared to company revenue**



- The societal cost of dementia is already enormous. Dementia is already significantly affecting every health and social care system in the world. The economic impact on families is insufficiently appreciated.
- In this World Alzheimer Report 2010, we merge the best available data and the most recent insights regarding the worldwide economic cost of dementia. We highlight these economic impacts by providing more detailed estimates than before, making use of recently available data that considerably strengthens the evidence base.
  - The World Alzheimer Report 2009 provides the most comprehensive, detailed and up-to-date data on the prevalence of dementia and the numbers of people affected in different world regions.
  - The 10/66 Dementia Research Group's studies in Latin America, India and China have provided detailed information on informal care arrangements for people with dementia in those regions.
  - For this Report, Alzheimer's Disease International has conducted a global survey of key informants regarding the extent of use of care homes in different world regions.

When a caregiver in a Kyoto group home embraced this resident everyone around smiled. Although it is widely held that touching is not appropriate in Japanese culture, Dr Yoshio Miyake explained that 'In Japan, training courses for professional caregivers of people with dementia take place in many and different settings, where non-verbal communication with them, including touch or physical contact, is emphasised very often.'

This document is the Executive Summary of the World Alzheimer Report 2010. The full Report, including detailed explanations of the methodology, results, conclusions and references to sources, is available free from www.alz.co.uk/worldreport.

Methods

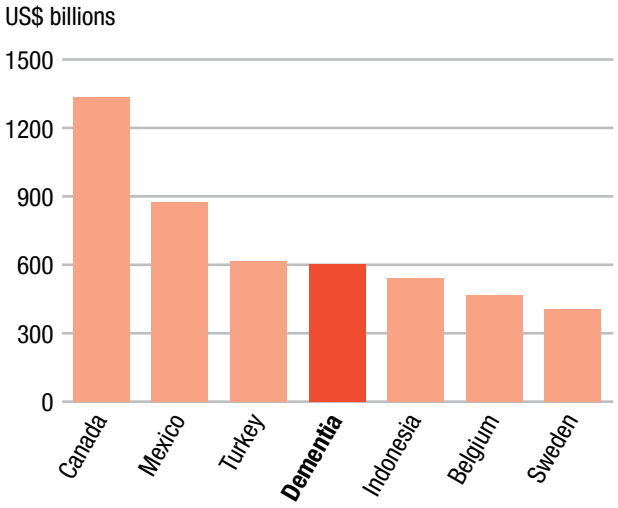
- Different methods can be used to estimate the cost of an illness. The base approach in this Report is a societal, prevalence-based gross cost of illness study. Annual costs per person with dementia for each country have been applied to the estimated number affected in that country, and then aggregated up to the level of World Health Organization regions, and World Bank income groupings.
- The costs considered include informal (family) care as well as direct medical and social care costs. Direct medical costs refer to the medical care system, such as costs of hospital care, medication and visits to clinics. Direct social care costs are for formal services provided outside of the medical care system, including community services such as home care, food supply and transport, and residential or nursing home care.
- For informal care, we estimated how much time family caregivers spend caring, including time spent with basic activities of daily living (such as eating, dressing, bathing, toileting and grooming) and with instrumental activities of daily living (such as shopping, preparing food, using transport and managing personal finances).
- The costs in this Report, as well as the prevalence of dementia, reflect estimates for 2010 and are expressed as US dollars. To permit aggregation across countries, and comparisons between countries and regions, costs were converted to US dollars from local currencies based on current exchange rates.
- Cost of illness studies depend on a set of sources and assumptions. We have conducted comprehensive sensitivity analyses in which we use different source data or vary assumptions to see how this would affect the results (available in the full Report at www.alz.co.uk/worldreport).

Muriel, in the foreground, has recently been diagnosed with early onset Alzheimer's. An emergency room nurse, she now finds herself, at 58, the recipient of a different form of care delivery. Muriel participates in a research and action programme run by the Centre for Memory Resources and Research (CMRR) in Nice, France. Here she is walking with Nathalie, a psychologist, during an excursion to a local park.

Results

- The total estimated worldwide costs of dementia are US$604 billion in 2010.
- These costs account for around 1% of the world's gross domestic product, varying from 0.24% in low income countries, to 0.35% in low middle income countries, 0.50% in high middle income countries, and 1.24% in high income countries.
- If dementia care were a country, it would be the world's 18th largest economy, ranking between Turkey and Indonesia (figure 3). If it were a company, it would be the world's largest by annual revenue exceeding Wal-Mart (US$414 billion) and Exxon Mobil (US$311 billion) (figure 2).

Figure 3 **Cost of dementia compared to national economies**



- Costs of informal care (unpaid care provided by families and others) and the direct costs of social care (provided by community care professionals and in residential home settings) contribute similar proportions (42%) of total costs worldwide, while direct medical care costs are much lower (16%).
- Low income countries accounted for just under 1% of total worldwide costs (but 14% of the prevalence), middle income countries for 10% of the costs (but 40% of the prevalence) and high income countries for 89% of the costs (but 46% of the prevalence). About 70% of the global costs occurred in just two regions: Western Europe and North America.
- These discrepancies are accounted for by the much lower costs per person in lower income countries – US$868 in low income countries, US$3,109 in lower middle income, US$6,827 in upper middle income and US$32,865 in high income countries (figure 4).
- In lower income countries, informal care costs predominate, accounting for 58% of all costs in low income and 65% of all costs in lower middle income countries, compared with 40% in high income countries. Conversely, in high income countries, the direct costs of social care (professional care in the community, and the costs of residential and nursing home care) account for the largest element of costs – nearly one half, compared with only one tenth in lower income countries.

Table 1 **Aggregated costs in different World Bank income groups (billions US$)**

	Number of people with dementia	Informal care (all ADL)	Direct costs		Total costs	Percent of GDP
			Medical	Non-medical		
Low income	5036979	2.52	1.23	0.62	4.37	0.24%
Lower middle income	9395204	18.90	6.74	3.57	29.21	0.35%
Upper middle income	4759025	13.70	10.44	8.35	32.49	0.50%
High income	16367508	216.77	78.00	243.14	537.91	1.24%
All	**35558717**	**251.89**	**96.41**	**255.69**	**603.99**	**1.01%**

Table 2 **Aggregated costs in each WHO region (billions US$)**

	Number of people with dementia	Informal care (all ADLs)	Direct costs		Total costs	Percent of GDP
			Medical	Social		
Australasia	311,327	4.30	0.70	5.07	10.08	0.97%
Asia Pacific High Income	2,826,388	34.60	5.23	42.29	82.13	1.31%
Oceania	16,553	0.07	0.02	0.01	0.10	0.46%
Asia Central	330,125	0.43	0.28	0.24	0.94	0.36%
Asia East	5,494,387	15.24	4.33	2.84	22.41	0.40%
Asia South	4,475,324	2.31	1.16	0.57	4.04	0.25%
Asia Southeast	2,482,076	1.77	1.48	0.73	3.97	0.28%
Europe Western	6,975,540	87.05	30.19	92.88	210.12	1.29%
Europe Central	1,100,759	8.59	2.67	2.94	14.19	1.10%
Europe Eastern	1,869,242	7.96	3.42	2.94	14.33	0.90%
North America High Income	4,383,057	78.76	36.83	97.45	213.04	1.30%
Caribbean	327,825	1.50	0.78	0.71	2.98	1.06%
Latin America Andean	254,925	0.35	0.31	0.28	0.93	0.43%
Latin America Central	1,185,559	1.58	2.61	2.37	6.56	0.37%
Latin America Southern	614,523	2.36	1.42	1.29	5.07	1.02%
Latin America Tropical	1,054,560	2.17	2.67	2.42	7.26	0.42%
North Africa / Middle East	1,145,633	1.90	2.05	0.54	4.50	0.16%
Sub-Saharan Africa Central	67,775	0.04	0.02	0.01	0.07	0.06%
Sub-Saharan Africa East	360,602	0.28	0.08	0.04	0.40	0.17%
Sub-Saharan Africa Southern	100,733	0.52	0.11	0.06	0.69	0.24%
Sub-Saharan Africa West	181,803	0.11	0.04	0.02	0.18	0.06%
Total	**35,558,717**	**251.89**	**96.41**	**255.69**	**603.99**	**1.01%**

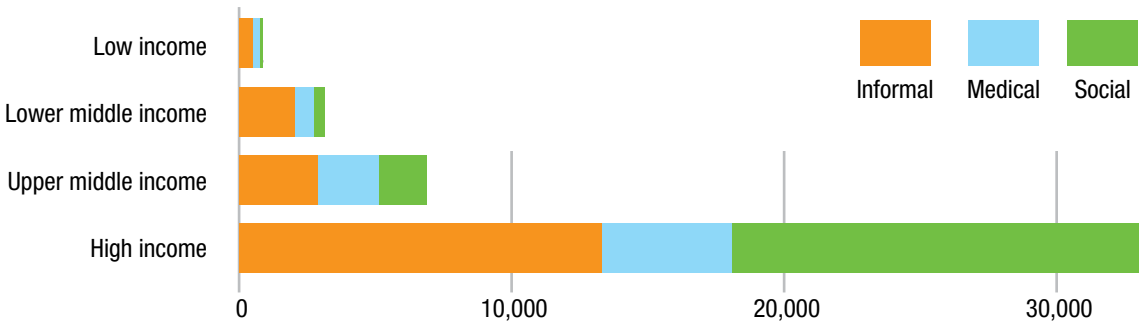
Table 3 **Cost per person with dementia in each WHO region (US$)**

	Informal care (all ADL)	Direct costs		Total costs	Total costs
		Medical	Non medical		
Australasia	13812	2262	16296	32370	
Asia Pacific High Income	12243	1852	14963	29057	
Oceania	4526	1026	508	6059	
Asia Central	1295	845	723	2862	
Asia East	2774	788	517	4078	
Asia South	515	259	128	903	
Asia Southeast	711	595	295	1601	
Europe Western	12479	4328	13315	30122	
Europe Central	7801	2423	2667	12891	
Europe Eastern	4261	1832	1573	7667	
North America High Income	17968	8403	22233	48605	
Caribbean	4570	2371	2151	9092	
Latin America Andean	1375	1200	1089	3663	
Latin America Central	1335	2202	1999	5536	
Latin America Southern	3838	2309	2095	8243	
Latin America Tropical	2057	2529	2295	6881	
North Africa / Middle East	1660	1794	472	3926	
Sub-Saharan Africa Central	648	289	143	1081	
Sub-Saharan Africa East	787	224	111	1122	
Sub-Saharan Africa Southern	5149	1127	558	6834	
Sub-Saharan Africa West	609	241	119	969	
All	**7084**	**2711**	**7191**	**16986**	

Conclusions

- The scale of the global cost of dementia is explainable when one considers that around 0.5% of the world's total population live with dementia.
  - A high proportion of people with dementia need some care, ranging from support with instrumental activities of daily living (such as cooking or shopping), to full personal care and round the clock supervision.
  - In some high income countries, between one third and one half of all people with dementia live in resource- and cost-intensive residential or nursing home care facilities.
  - Medical care costs also tend to be relatively high for people with dementia, particularly in high income countries with reasonable provision of specialist care services.
- Costs are lower in developing countries, both per person and societally (as a proportion of GDP). In these regions, there is a much greater reliance on the unpaid informal care provided by family and others.
  - While wage levels are low, these are increasing rapidly, and hence the opportunity cost or replacement cost of these informal inputs is set to rise.
  - In our key informant survey, we estimated that in low and middle income countries only 6% of people with dementia live in care homes. However, this sector is expanding rapidly, particularly in urban settings in middle income countries, boosted by demographic and social changes that reduce the availability of family members to provide care.
  - Medical help-seeking is relatively unusual in low and middle income countries, where dementia is often viewed as a normal part of ageing. Demand for medical care is likely to increase in the future, with improved awareness, better coverage of evidence-based interventions, and, possibly, more effective treatments.
- Worldwide, the costs of dementia are set to soar. We have tentatively estimated an 85% increase in costs to 2030, based only on predicted increases in the numbers of people with dementia. Costs in low and middle income countries are likely to rise faster than in high income countries, because, with economic development, per person costs will tend to increase towards levels seen in high income countries, and because increases in numbers of people with dementia will be much sharper in those regions.
- There is an urgent need to develop cost-effective packages of medical and social care that meet the needs of people with dementia and their caregivers across the course of the illness, and evidence-based prevention strategies. Only by investing now in research and cost-effective approaches to care can future societal costs be anticipated and managed. Governments and health and social care systems need to be adequately prepared for the future, and must seek ways now to improve the lives of people with dementia and their caregivers.

Figure 4 **Care costs per person with dementia in different World Bank income groups (US$)**



Recommendations

1 **Alzheimer's Disease International calls on governments to make dementia a health priority and develop national plans to deal with the disease.**

2 **Alzheimer's Disease International reminds governments of their obligations under the UN Convention on the Rights of People with Disabilities, and the Madrid International Plan for Action on Ageing to ensure access to healthcare. It calls on governments to fund and expand the implementation of the World Health Organization (WHO) Mental Health Gap Action Plan, including the packages of care for dementia, as one of the seven core disorders identified in the plan.**

3 **Alzheimer's Disease International requests that new investment in chronic disease care should always include attention to dementia. For example, the WHO Global Report on 'Innovative Care for Chronic Conditions' alerts policymakers, particularly those in low and middle income countries, to the implications of the decreases in communicable diseases and the rapid ageing of populations. Healthcare is currently organized around an acute, episodic model of care that no longer meets the needs of patients with chronic conditions. The WHO Innovative Care for Chronic Conditions framework provides a basis on which to redesign health systems that are fit for their purpose.**

4 **Alzheimer's Disease International calls on governments and other major research funders to act now to increase dementia research funding, including research into prevention, to a level more proportionate to the economic burden of the condition. Recently published data from the UK suggests that a 15-fold increase is required to reach parity with research into heart disease, and a 30-fold increase to achieve parity with cancer research. International coordination of research is needed to make the best use of resources.**

5 **Alzheimer's Disease International calls on governments worldwide to develop policies and plans for long-term care that anticipate and address social and demographic trends and have an explicit focus on supporting family caregivers and ensuring social protection of vulnerable people with dementia.**

6 **Alzheimer's Disease International supports HelpAge International's call for governments to introduce universal non-contributory social pension schemes (www.helpage.org/Researchandpolicy/Socialprotection).**

7 **Alzheimer's Disease International calls on governments to ensure that people with dementia are eligible to receive and do receive disability benefits, where such schemes are in operation.**

Jody Ross, a laughter yoga teacher in Minneapolis, USA, visited Lakeview Ranch to lead a session with residents, staff, and a few visitors. Elsie agreed to participate, but at first all her grimaces indicated that she knew she would not have a good time. Soon, however, she changed into an active and enthusiastic participant. The session ended with this hug. Everyone was delighted and Elsie and the other residents asked to have more such sessions.

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 73 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
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