



Alzheimer's Disease
International

DEMENTIA IN THE AMERICAS

CURRENT AND FUTURE COST AND PREVALENCE OF ALZHEIMER'S DISEASE AND OTHER DEMENTIAS

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ACKNOWLEDGEMENTS

Alzheimer's Disease International (ADI) and Bupa would like to thank **Professor Martin Prince** from King's College London, United Kingdom, and the wider 10/66 Dementia Research Group for their drafting of this report and contributions to both the 2009 and 2010 World Alzheimer Reports, on which the data in this report is based.

We would like to thank **Professor Anders Wimo**, who led the cost research, as well as **Professor Bengt Winblad** (Karolinska Institutet, Stockholm, Sweden) and **Dr Linus Jönsson** (i3 innovus and Karolinska institutet, Stockholm, Sweden) who contributed significantly to the methodological development in the cost estimates that were first published in the 2010 World Alzheimer Report found here: alz.co.uk/research/world-report.

Publication

When referenced, this report should be cited as: "ADI/Bupa report, 'Dementia in the Americas: Current and future cost and prevalence of Alzheimer's disease and other dementias', October 2013".

FOREWORD

Dementia, including Alzheimer's disease, is one of our biggest public health challenges. Today, over 35 million people worldwide currently live with the condition and this number is expected to double by 2030 and more than triple by 2050 to 115 million.

The increase in the number of people living with dementia will be most stark in low and middle income countries which will account for more than two thirds of cases by 2050. The Americas – specifically Latin America – is a region that will be most impacted by the shift, where cases will rise from more than 7.8 million people today to over 27 million by 2050. We estimate that dementia cost the Americas US\$235.8 billion dollars in 2010 for informal care, direct medical care and social care, and that these costs will spiral as numbers increase.

Bupa, the largest international provider of specialist dementia care, and Alzheimer's Disease International (ADI), the global federation of Alzheimer's associations, are urging governments across the region to plan adequately for the years ahead. Governments must make sure that health and social care systems are adequately funded and structured to provide high quality care and support to people living with dementia, and provide proper support to families and friends.

We have joined forces to publish, for the first time, dementia prevalence and predicted costs for the Americas – both for the region as a whole and for each individual country. We hope this analysis provides a new evidence base on which governments can develop rigorous dementia policies and plans.

We know that the single most powerful way to improve national dementia care and support is for governments to develop National Dementia Plans. Currently, 11 countries around the world have developed and implemented such plans. We are delighted to learn, and would like to congratulate, the governments of Mexico and Peru who recently announced their intention to develop national plans, and we urge other governments in the region to follow their lead.

We hope that this report will inform their thinking and we stand ready – with our global insights, learnings and expertise – to help.



Iñaki Ereño

Managing Director, Spain & Latin America Domestic Bupa



Marc Wortmann

Executive Director
Alzheimer's Disease International

ABOUT DEMENTIA



THE CONDITION

Dementia is a broad term for a syndrome that describes a set of symptoms that develop as a result of damage to the brain. Symptoms typically include memory loss, difficulty communicating and changes in mood. Dementia is a progressive condition, which means it gets worse over time.

There are over 100 forms of dementia, but Alzheimer's disease, vascular dementia, frontotemporal dementia and dementia with Lewy bodies are the most common underlying pathologies. Dementia is more likely to affect people over 60, but can affect younger people too. In the later stages, people with dementia become unable to do everyday things and will need increasing amounts of support.

There is as yet no cure for the condition or treatments that alter its course, but there are many helpful interventions to ease symptoms, maintain personhood, and support care-givers, with the potential to improve the quality of life of those affected.

GLOBAL PREVALENCE

Based on the latest available ADI data, we estimate that there were 35.6 million people living with dementia worldwide in 2010, with this number expected to nearly double every 20 years, to 65.7 million in 2030 and to 115.4 million by 2050.

Currently, 58% of all people with dementia live in low and middle income countries. This is expected to rise to 71% by 2050. Over the next 20 years, we forecast that there will be a 40% increase in the number of people with dementia in Europe, a 63% increase in North America, a 77% increase in the southern Latin American cone (e.g. Argentina and Chile) and an 89% increase in the developed Asia Pacific countries. These figures are to be compared with 117% growth in East Asia, 107% increase in South Asia, a 134 to 146% increase in the rest of Latin America, and a 125% in North Africa and the Middle East.



“Dementia is one of the biggest health and social challenges facing the Latin American and the Caribbean region, yet it is very much neglected by governments and policy-makers. Alzheimer associations in these regions stand ready to support their governments to give them data and information to draft National Dementia Plans. A Plan will ensure that high quality dementia care is available and will make sure that support is in place when people and their carers need it.”

Dr Daisy Acosta, Dominican Republic

Scientific Advisor, Dominican
Alzheimer Association

Honorary Vice President, Alzheimer's
Disease International

GLOBAL COST

A ‘cost of illness’ study was carried out by ADI in 2010. It showed that the global societal cost of dementia in 2010 was US\$604 billion. This amounts to roughly 1% of the world’s gross domestic product (GDP) – if dementia was a country in 2010, it would rank as the world’s 18th largest economy. Approximately 70% of these costs are incurred in high income countries in North America and Western Europe.

The \$604 billion global cost can be broken down into the ‘informal’ costs of care (unpaid care inputs by family, friends and neighbours, estimated in terms of hours of support for core activities of daily living), and ‘direct’ costs for which charges are incurred. The direct costs can be further subdivided into direct medical care costs (for the use of healthcare services) and direct social care costs (for paid homecare, and the costs of residential care). Medical care costs were modest in all world regions, especially in low and middle income countries. The direct costs of social care were also modest in low and middle income countries, because options for paid care to substitute or complement the inputs of family care-givers are limited. In high income countries the costs of informal and direct social care are more evenly balanced.

Table 1
Global societal costs of dementia, by cost category

COST CATEGORIES	US\$ (BILLIONS)
Informal care costs (all Activities of Daily Living, also known as ADLs)	251.89
Medical costs	96.41
Social costs	255.69
TOTAL	603.99



“The prevalence of dementia and related conditions represents a huge challenge to our health system in Puerto Rico. There is a great need for the development of public policy to manage this condition in an integrated, multidisciplinary way, offering education to the general population, focusing on health professionals and care-givers, with the goal of ensuring optimum quality of medical care, as well as equal access to services.”

Ivonne Z. Jiménez Velázquez, Puerto Rico
Professor and Chair, Internal Medicine Department, University of Puerto Rico School of Medicine



“On 20 September 2013, Mexico’s National Institutes of Geriatrics,

Neurology and Psychiatry signed an agreement that is leading to the development of the world’s first National Dementia Plan in a Spanish-speaking country. This is an exciting time for Mexico and the rest of Latin America. We hope that other governments look to us for guidance and inspiration.”

Dr Luis Miguel Gutierrez-Robledo, Mexico

Director General, National Institute of Geriatrics, National Institutes of Health, Mexico

DEMENTIA IN THE AMERICAS





INTRODUCTION

The Pan American Health Organization (PAHO) is the world's oldest international public health agency. Founded in 1902, it serves as the Regional Office for the Americas of the World Health Organization (WHO).

According to PAHO, life expectancy increased in the Americas by more than 20 years in just the last half-century. By 2020, the Americas will have 200 million older people, with more than half living in Latin American and the Caribbean. Population ageing is the major driver of the coming epidemic of chronic non-communicable diseases, concentrated in low and middle income countries.

Cancer, cardiovascular disease and diabetes have been accorded priority, in recognition of their major contribution to mortality, morbidity and disability. However, the Political Declaration of the High-level Meeting of the UN General Assembly on the Prevention and Control of Non-communicable Diseases also recognises mental and neurological disorders, including Alzheimer's disease.

The Political Declaration notes the following: "Mental and neurological disorders, including Alzheimer's disease, are an important cause of morbidity and contribute to the global non-communicable disease burden, for which there is a need to provide equitable access to effective programmes and health-care interventions".



"It's staggering how many people will have dementia by 2050, in Peru, but also across the rest of the region. Governments must work with us to plan for the years ahead by developing national plans."

Dr Mariella S Guerra, Peru

President, Scientific Committee, Peruvian Association of Alzheimer's and other Dementias
Assistant Professor, Psychiatry Department, Cayetano Heredia University

Regional prevalence

A key finding from the systematic reviews and analyses carried out for the 2009 World Alzheimer Report was that the age-specific prevalence of dementia showed relatively little variation between world regions. The estimated prevalence by age for the USA, Latin America and the Caribbean countries is summarised in Table 2 (see below). However, the prevalence of dementia was strongly age dependent, doubling with every 5.5 year increment in age in North America and Latin America. Population ageing is therefore a key driver in the coming global epidemic of dementia.

Table 2
Age-specific prevalence of dementia (displayed as %) in the USA, Latin America and the Caribbean (2009 World Alzheimer Report)

REGION	NO. OF STUDIES	60-64	65-69	70-74	75-79	80-84	85-89	90+	All ages (60+)
USA	8	1.1	1.9	3.4	6.3	11.9	21.7	47.5	6.5
Latin America	11	1.3	2.4	4.5	8.4	15.4	28.6	63.9	8.5
Caribbean	2	1.3	2.6	4.9	8.5	16.0	33.2		8.1

Standardised for age



These age-specific prevalence proportions were applied to the numbers of older people within each of these age groups (in 2010, with projections for 2030 and 2050).

We used the same country classification used by PAHO in previous health indicator reports. These are as follows:

- The **Americas**: comprises countries in North America, non-Latin Caribbean, Latin Caribbean, Central American Isthmus, Andean Area, Southern Cone, and Brazil and Mexico (shown separately because of their population size)
- **Latin America**: includes Brazil, Mexico, Central American Isthmus, Latin Caribbean, Andean Area, and Southern Cone
- **Latin America and the Caribbean**: composed of Latin America and non-Latin Caribbean countries

We estimate there were a total of 7.8 million people with dementia in the Americas in 2010, 4.3 million of whom were living in North America, and 3.4 million in Latin America or the Caribbean (Table 3). This represents 22% of the total global prevalence.

The number of people with dementia in the Americas will nearly double every 20 years, increasing to 14.8 million in 2030, and 27.1 million by 2050. However, rates of increase through to 2050 will be much more rapid for Latin America and the Caribbean, than for North America. Thus, by 2030 numbers of people with dementia in Latin America and the Caribbean (7.6 million) would have overtaken those in North America (7.1 million), while by 2050 there would be 16.0 million people with dementia in Latin America and the Caribbean compared with 11.0 million in North America.

From 2010 to 2050, numbers of people with dementia will increase by 151% in North America, by 210% in the Southern Cone, by 214% in the Latin Caribbean countries, by 237% in the non-Latin Caribbean, by 414% in Mexico, by 422% in Brazil, by 445% in the Andean area, and by 449% in the Central American Isthmus. These different rates of increase in numbers of people with dementia reflect the different pace of population ageing in these regions.



“Population ageing is a cause for celebration. At the same time, large increases in the numbers of care

dependent older people are predictable and largely inevitable. Dementia is the single largest contributor to needs for care among older people. We must give much more priority to this condition; research into prevention and treatment; accessible clinical services; and support to long-term carers. This is a particularly urgent challenge for the Latin American region, where numbers affected are set to grow more rapidly than in any other part of the world.”

Professor Martin Prince, United Kingdom
Director, Centre for Global Mental Health,
King's College London

Table 3

Numbers of people with dementia in the Americas, by region, in 2010 with projections for 2030 and 2050.

COUNTRY/AREA*	2010	2030	2050	% INCREASE 2010-2050
NORTH AMERICA	4,385,000	7,129,000	11,023,000	151
United States of America**	3,912,000	6,308,000	9,764,000	150
Canada	471,000	817,000	1,251,000	166
Bahamas	2,000	4,000	8,000	300
NON-LATIN CARIBBEAN	41,000	71,000	138,000	237
Barbados	3,000	4,000	8,000	167
Guyana	3,000	6,000	13,000	333
Jamaica	19,000	31,000	65,000	242
Netherlands Antilles***	2,000	4,000	6,000	200
Saint Lucia	1,000	1,000	3,000	200
Saint Vincent and the Grenadines	1,000	1,000	2,000	100
Suriname	2,000	3,000	8,000	300
Trinidad and Tobago	9,000	18,000	30,000	233
United States Virgin Islands	1,000	3,000	3,000	200
LATIN CARIBBEAN	280,000	530,000	878,000	214
Cuba	150,000	273,000	421,000	181
Dominican Republic	54,000	125,000	241,000	346
French Guyana	1,000	2,000	5,000	400
Guadeloupe	5,000	9,000	16,000	220
Haiti	22,000	42,000	86,000	291
Puerto Rico	48,000	79,000	109,000	127
CENTRAL AMERICAN ISTHMUS	178,000	413,000	978,000	449
Belize	1,000	2,000	5,000	400
Costa Rica	30,000	71,000	160,000	433
El Salvador	38,000	78,000	170,000	347
Guatemala	43,000	99,000	253,000	488
Honduras	28,000	69,000	163,000	482
Nicaragua	18,000	47,000	124,000	589
Panama	20,000	47,000	103,000	415
BRAZIL	1,033,000	2,526,000	5,396,000	422
MEXICO	621,000	1,437,000	3,195,000	414
ANDEAN AREA	641,000	1,531,000	3,491,000	445
Bolivia	34,000	80,000	186,000	447
Colombia	256,000	597,000	1,433,000	460
Ecuador	74,000	166,000	356,000	381
Peru	147,000	346,000	748,000	409
Venezuela	130,000	342,000	768,000	491
SOUTHERN CONE	635,000	1,132,000	1,966,000	210
Argentina	418,000	703,000	1,164,000	178
Chile	142,000	296,000	550,000	287
Paraguay	21,000	56,000	140,000	567
Uruguay	54,000	77,000	112,000	107
TOTAL (LATIN AMERICA)	3,388,000	7,569,000	15,904,000	369
TOTAL (LATIN AMERICA AND THE CARIBBEAN)	3,429,000	7,640,000	16,042,000	368
TOTAL (CARIBBEAN)	321,000	601,000	1,016,000	217
GRAND TOTAL (AMERICAS)	7,800,000	14,800,000	27,100,000	247



* Some Caribbean island states with particularly small populations were not included in the original 2009 prevalence exercise, owing to lack of relevant available information at that time. Given the very small relative size of these populations, the consequent underestimation of total numbers of people with dementia in the region as a whole or in the Caribbean sub-region, will be negligible.

** Many organisations in the USA, including the Alzheimer's Association, use a higher number of 5.3 million. This estimate was derived from a prevalence study and includes younger onset dementia as well.

*** The constitution of the Netherlands and Netherlands Antilles changed in October 2010 and the Antilles do not exist anymore. Aruba, Curacao and Saint Maarten are now relatively independent countries within a Commonwealth structure with the Netherlands.



"We should celebrate that people in Latin American countries are living longer. But the rapid increase in the number of people over 60 years of age means that there are social and economic pressures to meet their care needs. In Venezuela, there is a shortage of services and support for the increasing number of people with dementia and their families.

We urge the government to develop a National Dementia Action Plan based on all the information, data and experience collected by professionals and non-government organisations over the last 20 years, to make high quality dementia care available to all those who need it."

Dr Aquiles Salas J, Venezuela

Director and Scientific Advisor,
Alzheimer's Foundation of Venezuela

Professor, Faculty of Medicine,
Central University of Venezuela

Regional costs

It was estimated that dementia cost the Americas approximately US\$235.8 billion in 2010 (Table 4). The societal costs of dementia in each country are driven by the costs per person with dementia (per capita costs) and the numbers of people affected. Per capita costs were much higher in high income countries (\$46,533 per person), than in upper middle income countries (\$6,347), lower middle income countries (\$2,453), and low income countries (\$784). This reflects

- a. The higher average wages, used to estimate the costs of unpaid informal care
- b. The higher cost of items of healthcare
- c. The more extensive use of costly paid social care (homecare and residential care in care homes)

Naturally, the societal costs in the USA (\$217 billion) dominate those for the region as a whole, given the high per capita cost, and the large number of people with dementia. When expressed as a proportion of national GDP, costs range from 0.2% (Haiti) to 1.3% (USA). However, from a standpoint of purchasing power parity (what goods or services could be purchased with \$1 in each country), an annual per capita cost of \$784 represents 70% of gross national income (GNI) per capita in Haiti, while \$51,427 represents 109% of GNI per capita in the USA. This indicates the high individual and societal cost burden of dementia across the region, in countries at different stages of economic development.

In high income countries, the proportion of the total cost accounted for by the direct costs of social care (45%) exceeds that of informal care (37%). However, in low middle and low income countries the reverse is true, with nearly half of the costs arising from informal care, and just over a quarter accounted for by the direct costs of social care.

In urban settings in some Latin American countries the use of paid live in or daytime care assistants is becoming increasingly common. However, there are as yet few residential care facilities. In a worldwide survey of key informants conducted by ADI for the 2010 World Alzheimer Report, it was estimated that 34% of people with dementia in high income countries, but only 6% of people with dementia in low and middle income countries, lived in care homes. Estimates from Latin American countries (with the exception of Puerto Rico and Argentina) were generally less than 10% even for urban settings.

Both cultural norms for long-term care arrangements for older people, and the availability, or non-availability of alternatives to family care explain these striking differences in distribution of costs between less and more economically developed nations in the region.

Aggregated costs are likely to increase at least in line with the projected increases in numbers of people with dementia. In addition, per capita costs are likely to increase because of

- a. Earlier diagnosis
- a. Increasing demand for health care, including diagnostic services and continuing care, and the possibility of new and relatively costly investigations and treatments with the capacity to alter the course of the illness

In low and middle income countries, there is also likely to be a progressive shift away from informal family care to direct costs incurred from paid home care and care in care homes. Declining fertility, migration, and the increasing work force participation of women will all tend to reduce the availability of informal carers, and increase demand for paid care.



“As prevalence rates across the region increase, so too will the costs associated with providing dementia care and support. So it’s critical we work together to plan for future demand.”

Carlos Cano, Colombia
Director, Institute on Ageing, Pontificia Universidad Javeriana, Bogotá



“An ageing global population has been one of the main events and defining

elements of the 20th century. As a consequence of this ageing process, there are a considerable number of people with dementia worldwide and it will continue to grow, mainly in low and middle income countries (LMIC), leading to an enormous increase in the burden associated to the disability and dependence caused for this devastating illness. In LMIC, there are limited resources devoted to people with dementia and families play a key role caring for their loved ones. Dementia must be a national public health and social care priority worldwide and urgent actions are required to improve the quality of life of people with dementia and their families.”

Dr Ana Luisa Sosa Ortiz, Mexico

National Institute of Geriatrics,
National Institutes of Health, Mexico

Table 4

Aggregated and per capita societal costs (2010 US\$), and % distribution of costs between cost categories by country and region

COUNTRY*	NUMBERS WITH DEMENTIA	INFORMAL CARE (%)	DIRECT MEDICAL (%)	SOCIAL CARE (%)	TOTAL COSTS (US\$ M)	PER CAPITA TOTAL COST (US\$)
HIGH INCOME COUNTRIES	4,654,559	37	17	45	216,591	46,533
United States of America	3,912,260	37	18	45	201,195	51,427
Puerto Rico	48,460	52	25	23	1,224	25,258
Canada	470,796	45	1	54	11,842	25,153
Guadeloupe	4,744	48	27	25	117	24,599
Bahamas	1,803	45	29	26	39	21,464
Martinique	5,257	50	26	24	109	20,734
Trinidad and Tobago	8,708	44	29	27	161	18,431
French Guiana	633	65	18	16	12	18,325
United States Virgin Islands	1,045	43	30	27	17	16,555
Netherlands Antilles	1,736	61	21	19	26	15,150
Barbados	2,615	44	29	26	34	12,887
Chile	142,466	48	27	25	1,395	9,790
Uruguay	54,036	29	37	34	421	7,787
UPPER MIDDLE INCOME COUNTRIES	2,957,780	32	35	32	18,772	6,347
Jamaica	19,310	75	13	12	192	9,917
Venezuela (Bolivarian Republic of)	130,195	18	43	39	1,126	8,645
Argentina	418,021	48	27	25	3,250	7,774
Brazil	1,033,294	30	37	33	7,209	6,977
Mexico	621,494	22	41	37	3,823	6,157
Panama	20,188	28	38	34	116	5,721
Saint Lucia	772	44	29	27	5	5,829
Costa Rica	30,246	33	35	32	160.8	5,316
Cuba	150,150	48	27	25	783	5,213
Suriname	1,985	30	36	33	10	4,987
Saint Vincent and the Grenadines	665	33	36	30	3	4,962
Colombia	256,143	34	35	31	1,046	4,084
Dominican Republic	53,800	33	35	32	219	4,061
Ecuador	73,729	42	31	28	289	3,921
Peru	146,734	29	37	34	539	3,672
Belize	1,054	31	36	33	4	3,416
LOWER MIDDLE INCOME COUNTRIES	186,297	46	28	26	457	2,453
Guyana	3,277	75	10	12	12	3,540
Bolivia	34,462	67	17	15	106	3,073
El Salvador	38,120	27	38	35	113	2,951
Guatemala	42,582	44	29	27	106	2,492
Paraguay	21,266	45	29	26	47	2,219
Honduras	28,396	36	33	30	49	1,708
Nicaragua	18,194	61	21	19	25	1,374
LOW INCOME COUNTRY	21,811	44	29	27	17	784
Haiti	21,811	44	29	27	17	784
GRAND TOTAL	7,820,447	37	19	44	235,837	30,156

* Some Caribbean island states with particularly small populations were not included in the original 2009 prevalence exercise, owing to lack of relevant available information at that time. It was therefore not possible to include them in the costing exercise, completed in 2010, so are excluded from the Table 4.



“The estimated total costs of dementia in the Americas are US\$236 billion. However, only 11% of these costs (\$23 billion) are in Latin America and the Caribbean, despite 44% of people living with dementia in the region living there. More resources must be invested across the region to ensure people with dementia and their families are properly cared for and supported. Dementia should be a global, national and regional priority.”

Professor Juan J. Llibre Rodríguez, Cuba

President, Cuban Section of Alzheimer's Disease
University of Medical Sciences of Havana

ABOUT BUPA AND ADI



ABOUT BUPA

- Bupa's purpose is longer, healthier, happier lives.
- A leading international healthcare group, we serve over 14 million customers in more than 190 countries.
- We offer personal and company-financed health insurance and medical subscription products, run hospitals, provide workplace health services, home healthcare, health assessments and chronic disease management services. We are also a major international provider of nursing and residential care for elderly people.
- With no shareholders, we invest our profits to provide more and better healthcare and fulfil our purpose.
- Bupa employs more than 62,000 people, principally in the UK, Australia, Spain, Poland, New Zealand and the USA, as well as Saudi Arabia, Hong Kong, India, Thailand, China and across Latin America.

For more information, visit bupa.com

About Bupa's social care services around the world

- Bupa cares for more than 30,000 people in more than 460 care homes and retirement villages in the UK, Spain, Australia, New Zealand and Poland.
- Bupa is the largest international provider of specialist dementia care, caring for more than 19,000 residents with dementia.
- In the UK, Bupa Care Services looks after more than 17,900 residents in almost 300 care homes.
- In Australia, Bupa Care Services Australia currently operates 60 care homes caring for 5,300 residents.
- In New Zealand, Bupa Care Services New Zealand cares for more than 4,600 people in 48 homes, 21 care villages and seven rehabilitation sites and also provides telecare services via a personal alarm network.
- In Spain, Bupa (Sanitas Residencial) cares for around 4,400 residents in 40 care homes.
- In Poland, Bupa (LUXMED) has a large care home in Warsaw.

For more information, visit bupa.com/dementia

ABOUT ADI

- ADI is the international federation of 79 Alzheimer associations around the world.
- It is in official relations with the World Health Organization and has consultative status with the United Nations.
- ADI's vision is an improved quality of life for people with dementia and their families throughout the world.
- ADI believes that the key to winning the fight against dementia lies in a unique combination of global solutions and local knowledge. As such, it works locally, by empowering Alzheimer associations to promote and offer care and support for people with dementia and their carers, while working globally to focus attention on dementia and campaign for policy change from governments.
- Alzheimer's Disease International: The International Federation of Alzheimer's Disease and Related Disorders Societies, Inc. is incorporated in Illinois, USA, and is a 501(c)(3) not-for-profit organisation.

For more information, visit alz.co.uk

