

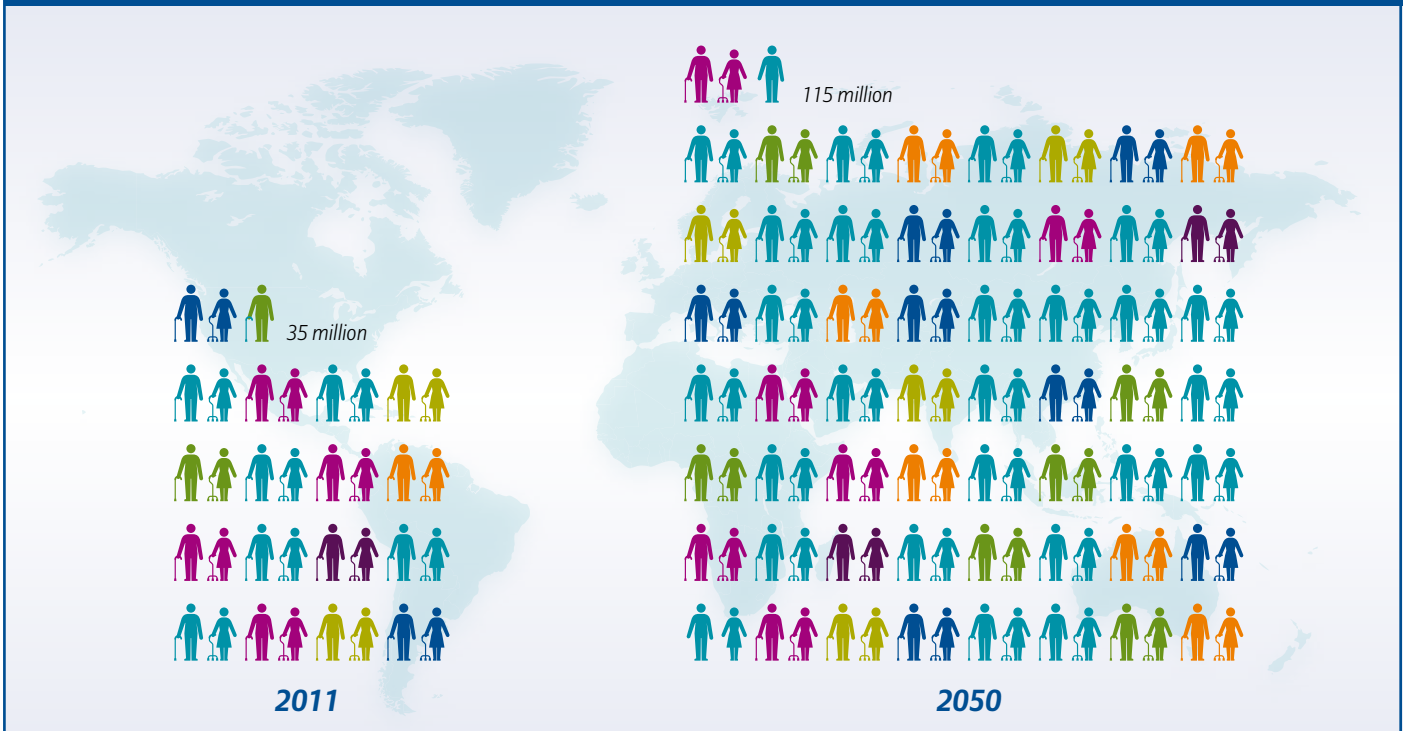


Allianz Demographic Pulse

Life without memories – the challenge of dementia

If no cure is found for dementia in the next few years, the number of people affected will continue to grow as a result of rising life expectancy. Alzheimer’s Disease International predicts that the number of dementia patients will more than treble by 2050 and reach over 115 million worldwide, equivalent to the combined populations of Spain and France today.

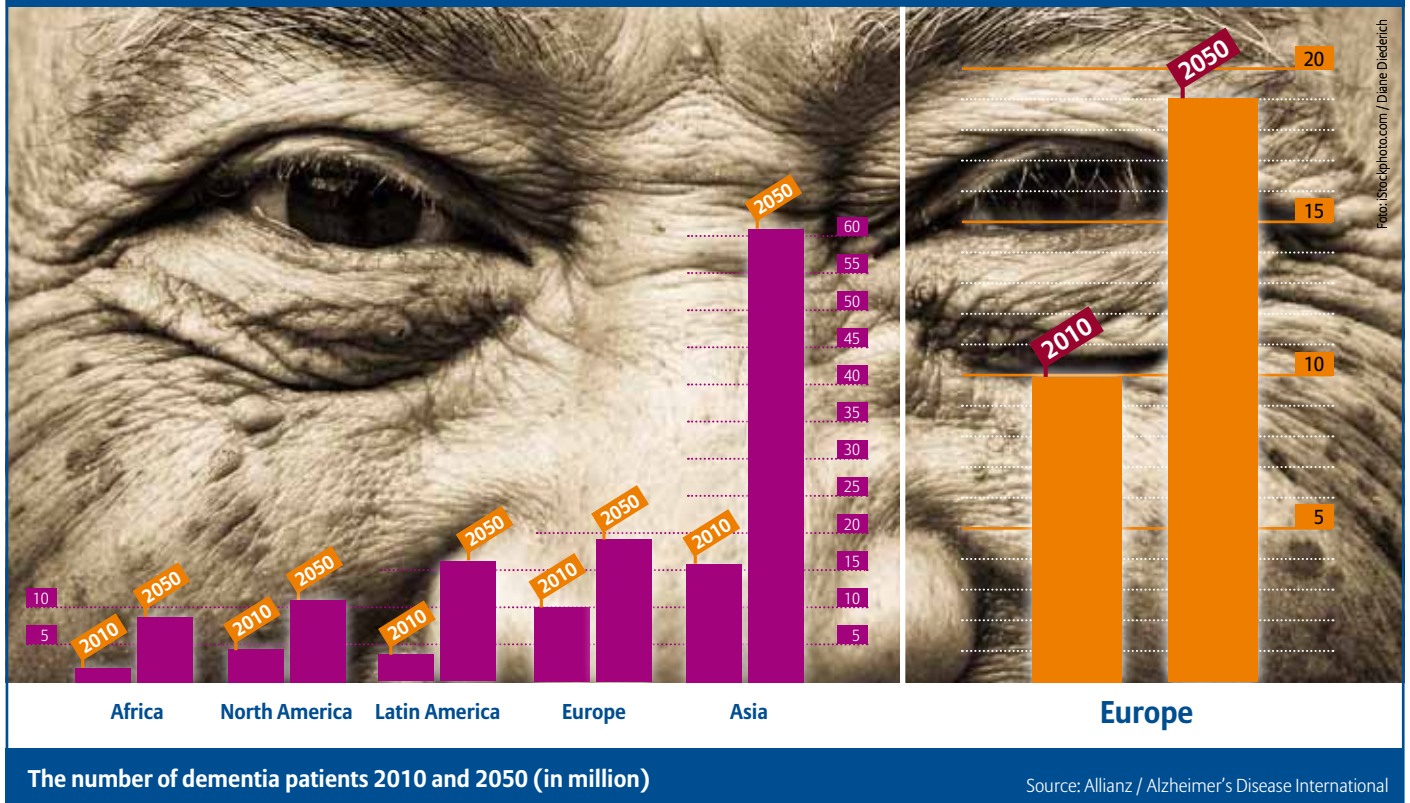
Number of dementia patients worldwide



Today and predicted for 2050

Sources: Allianz / UN Population Division, Alzheimer’s Disease International

Dementia – a global challenge



Most dementia cases occur in developing and emerging markets

According to estimates by Alzheimer's Disease International, around 36 million people worldwide suffer from dementia. Most of them live in developing and emerging countries. By the middle of the century their number is expected to more than triple. In Asia alone nearly 61 million people will be affected by dementia by 2050; and in China more people will suffer from dementia than in all industrialized countries put together.¹ In Europe the number of cases will nearly double from around 10 million today to just under 19 million.² Some 15 million of those affected will be living in the European Union. In Germany the number of cases is expected to rise from around 1.3 million today to 2.6 million.³

Dementia already places a huge burden on the economy: Alzheimer's Disease International estimates the total cost in 2010 at 450 billion euros.⁴ This figure includes not only the costs for formal care but also, in the case of informal care by relatives, lost-opportunity costs based on the average income in each country.⁵ Globally, around 42% of the costs are accounted for by formal and informal care each; only 16% of all costs are for purely medical services, even though the large majority of dementia patients, more than 70%, are usually cared for at home by relatives.⁶

¹ Cf. Qiu (2007), p. 582.

² Cf. Alzheimer's Disease International (2010): World Alzheimer Report 2010. The Global Economic Impact of Dementia, p. 15.

³ Own extrapolation based on UN data, assuming that the prevalence of dementia patients in an age group remains constant and no cure is discovered. Cf. UN Population Division, World Population Prospects, 2010 Revision and Alzheimer Europe.

⁴ Cf. ADI (2011), p. 5.

⁵ Cf. ADI (2011), p. 19.

⁶ Cf. ADI (2011), p. 18. The Alzheimer's Association estimates that in 2010 around 15 million relatives, volunteers and unpaid assistants, spent a total of 17 billion hours caring for dementia patients.

High care costs for relatives

In the Western industrialized countries the costs for caring for a dementia patient can thus easily exceed the mean annual income. Alzheimer Research in Great Britain, for example, has calculated that the cost to the economy for caring for a dementia patient is around 32,265 euros, compared to a per capita income of 28,825 euros.⁷ The Swiss Alzheimer Association estimates the mean costs for the care of a dementia patient at 42,500 euros, though the amount always depends

"The World Alzheimer Association predicts that the number of dementia patients will more than triple by 2050 and reach over 115 million worldwide."

on the severity of the disease. According to Swiss calculations, in advanced stages of dementia the costs can be as high as 93,000 euros if the person affected lives at home.⁸ However, the costs for formal care are much higher: according to the Vienna Regional Health Insurance Fund they quadruple if the patient resides in a nursing home.⁹

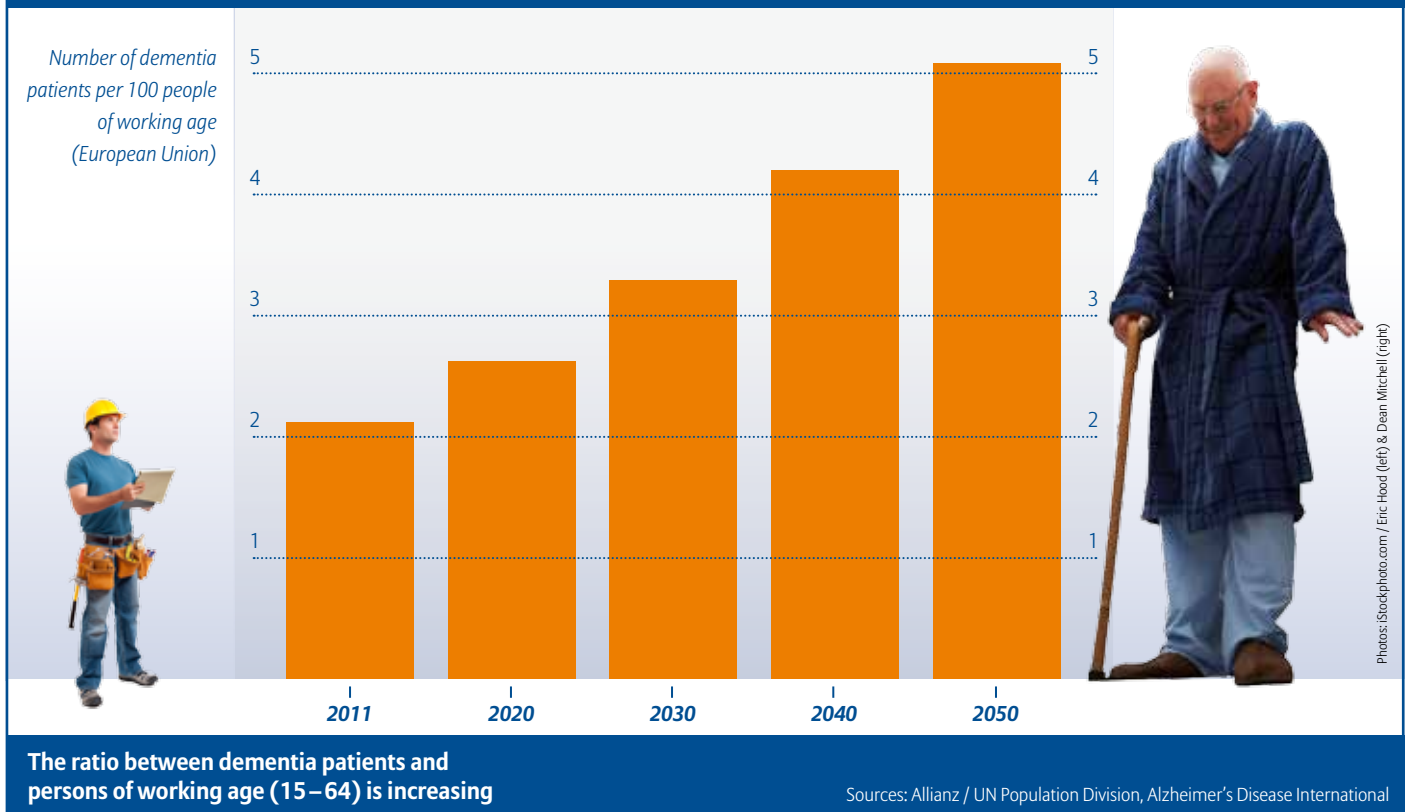
As a result of ongoing demographic change, the number of dementia patients reliant on formal care is set to increase substantially, especially in Europe. Rising life expectancy on the one hand and declin-

⁷ Cf. Alzheimer's Research UK, Dementia Statistics, p. 3.

⁸ Berlin Institute for Population and Development (2011), p. 52.

⁹ According to official statistics, in Austria the average costs for home care per patient is around 11,000 euros. The total cost is 1.6 billion euros. By 2050 dementia-related health and care costs are expected to treble to 4.6 billion euros per year. Cf. Vienna Regional Health Insurance Fund (Wiener Gebietskrankenkasse) (2011).

Today there are two dementia patients per 100 workers



ing birth rates on the other means that by the middle of the century there will be five dementia patients per 100 persons between the ages of 15 and 64, compared to just two per 100 today.

This is because while the number of dementia cases due to the aging of society is expected to nearly double in the European Union, while the number of people of working age will see a significant decline. This decline shall be partly offset by greater participation of women in the job market as well as by an increase in the percentage of elderly people in gainful employment. However, caring

“In 2050 there will be five dementia patients per 100 persons of working age.”

relatives – usually spouses, daughters or daughters-in-law – come from these population groups. Falling pension levels, rising statutory retirement ages, and increasing demands for job mobility will make the decision to stop working early in order to devote oneself to a dementia patient much more difficult for many people in the future. Thus, the percentage of people from the family sphere who are available as informal carers is likely to dwindle. This trend can be seen not only in European countries but also in Asia. This is especially true of China, where as a result of the country's one-child-policy the ratio of persons of working age to over-sixties will worsen significantly in the coming decades.

Improvements in the future?

For all of these reasons, research is now focusing on ways to improve the care for dementia patients. One aim is to adapt procedures in formal care to the needs of dementia patients, whereby the use and costs of psychoactive drugs can be reduced.¹⁰ The main objective, however, is to maintain the independence of dementia patients for as long as possible. This requires the provision of support for caring relatives through improvements in integrated medical care and existing care options.

In addition, the establishment of day care centers and alternative forms of nursing care and housing, such as assisted living facilities, are also gaining importance. Another vital component is improved early diagnosis methods. This may appear contradictory in view of the fact that only symptomatic treatment is currently possible; no cure for dementia has yet been found. But early diagnosis enables those affected to inform themselves comprehensively about available support and care options, to initiate the necessary legal steps, such as assigning powers of attorney, and to undertake structural changes to make their home suitable for disabled living. Early diagnosis also makes it possible to delay progression of the disease with anti-dementia drugs for a while – albeit for a relatively short time at

¹⁰ Thus, the establishment of care facilities geared to meeting the needs of dementia patients has proven effective. Because of their increasing loss of spatial and temporal orientation, it is often difficult to integrate the needs of dementia patients in the strict daily routines of “normal” care facilities. Studies have shown improvement in the well-being of both dementia patients and care staff if daily routines can be individually adapted. For example, a care center specializing exclusively in dementia patients has opened in Shanghai based on a Dutch model. See, for example, Government of China (2006), Belluck (2010) or Minkmann et al. (2009).

the moment. This time can be used, however, to adapt to the new situation and carry out everyday activities independently for longer despite dementia.¹¹

Incurable for the foreseeable future

The best-known and most widespread form of dementia is Alzheimer's disease. The second most common forms are vascular dementias due to circulatory disturbances in the brain and mixed forms of Alzheimer's and vascular dementia.¹² Since it was first described by Alois Alzheimer in 1906, considerable progress has been made in elucidating the nature of Alzheimer's dementia, but long-term relief, let alone a cure, has remained elusive.¹³

"Dementia is a disease of industrialized countries? Recent studies have concluded that the prevalence in developing and emerging countries has been underestimated."

If the condition is diagnosed early, the onset or progression of the disease can be delayed by several months with the help of suitable anti-dementia drugs. Mental and certain physical exercises can also have a preventive effect or attenuate the course of the disease.

Are there risk factors?

Risk factors include smoking, obesity, high blood pressure, diabetes, and depression. However, the major risk factor is age. The older a person is, the greater is his or her risk of developing dementia. Above the age of 60 the risk doubles every five years. Around 1.6% of all men and 0.5% of all women between the ages of 60 and 65 develop some form of dementia. The figures for 70-to-74-year-olds are 4.6% and 3.9%, respectively, and for 80-to-84-year-olds 12.1%

"Early diagnosis enables those affected to adapt to the new situation and cope with everyday activities independently for longer despite dementia."

and 13.5%. At least one third of people over 90 are affected.¹⁴ Currently available data indicate that the prevalence of the disorder, i.e. the extent to which it occurs in the various age groups, has remained stable in recent decades despite medical advances and improvements to the general health of the population.¹⁵

It was long suspected that dementia is a disease of industrialized countries and the Western world. However, recent studies have concluded that its prevalence in developing and emerging countries has been underestimated. This is due to the fact that in many of these countries life expectancy was relatively low, so that the number of people who reached the age of 60 or over, who constitute the main risk group, was significantly smaller than in the industrialized world and thus has kept the number of dementia cases down. Moreover, these countries lack diagnostic means – small wonder when you consider that even in Western industrialized countries dementia is often diagnosed at a very late stage, if at all.¹⁶ In addition, dementia – especially mild forms of dementia – is defined as a disorder is a cultural question. In many developing countries it is regarded as normal for elderly people to become somewhat "odd".¹⁷ Differences apparently also exist with regard to the forms of dementia diagnosed, probably due to life style factors. For example, Alzheimer's dementia is the most commonly diagnosed form of dementia in Japanese immigrants in the USA, as in the indigenous US population, whereas in Japan itself vascular dementia predominates.¹⁸ Because of rising life expectancy in most developing and threshold countries and given a leveling of life styles, researchers believe that the number of people affected by dementia worldwide will continue to grow in the future.

¹¹ According to a UK study, early diagnosis and treatment with suitable anti-dementia drugs could reduce costs per patient by just under 4% on average. Cf. Getsios et al. (2011), p. 5. New drugs are being tested; initial results are expected by mid-2012.

¹² In Europe 61.4% of all people with dementia suffer from Alzheimer's disease. In North America that figure is 74.5% and in Asia 46.5%. Cf. EURODEM (2008). Other forms are Lewy body dementia, frontotemporal dementia (Pick's disease), and Creutzfeldt-Jakob disease. Besides these primary dementias there are also forms known as secondary dementias that are triggered by other diseases, e.g. Parkinson's disease.

¹³ The exact mechanisms of action underlying the disease are still a subject of research. It is unclear why some people never develop signs of dementia throughout their lives, even though they have massive plaque deposits in their brains. Cf. Berlin Institute for Population and Development (2011), p. 10. Recent research suggests that a combination of several causes is responsible for the development of Alzheimer's disease. Cf. Miltner, Frank A. (2011). Thus, the plaque may be due not only to the production but also to the impaired transport of beta amyloid. Cf. Mawuenyega et al. (2010).

¹⁴ Cf. Alzheimer Europe, EURODEM (2008). However, the prevalence in advanced age may be higher than previously thought, because the elderly population may have been overestimated and the number of dementia cases underestimated. Cf. for example Scholz, Jdanov (2007) and Berlin Institute for Population and Development (2011), p. 16.

¹⁵ Cf. Prince (2007), p. 489 und Alzheimer's Disease International Factsheet.

¹⁶ The Alzheimer's Society estimates, for example, that in Great Britain only 40% of all cases are diagnosed. Cf. Alzheimer's Society (2011). In the USA it is believed that only 50% of all those affected are diagnosed. Cf. Alzheimer's Association (2011), p. 216.

¹⁷ Surveys in China, for example, have shown that 48.8% of all those questioned believe that dementia is a normal consequence of aging. Cf. Qiu (2007), p. 583 and Fuh and Wang (2008), p. 154. Studies in Africa have produced similar findings, cf. Ineichen (2000), p. 1674.

¹⁸ Cf. Berlin Institute for Population and Development (2011), p. 21.

Sources:

Alzheimer's Association (2011): Alzheimer's Association report. 2011 Alzheimer's disease facts and figures, in: Alzheimer's and Dementia 7 (2011), pp. 208–224.
Alzheimer's Disease International (ADI) (2011): World Alzheimer Report 2010. The Global Economic Impact of Dementia, Reprint. Alzheimer's Society (2011): Facts for the media, www.alzheimers.org.uk.
Belluck, Pam (2010): Giving Alzheimer's patients their way, even chocolate, in: The New York Times, online edition, 31.12.2010.
Berlin Institute for Population and Development (2011): Dementia Report. Wie sich die Regionen in Deutschland, Österreich und der Schweiz auf die Alterung der Gesellschaft vorbereiten können (How regions in Germany, Austria and Switzerland can prepare for societal aging), Berlin 2011.

EURODEM (European Community Concerted Action on the Epidemiology and Prevention of Dementia), www.alzheimer-europe.org
Fuh, Jong-Ling und Shuu-Jiun Wang (2008): Dementia in Taiwan: Past, Present and Future, in Acta Neurologica Taiwan, Vol. 17, Nr. 3, pp. 153–161.
Gestios, Dennis, et al. (2011): An economic evaluation for early assessment for Alzheimer's disease in the United Kingdom, in: Alzheimer's and Dementia (2011), pp. 1–9.
Government of China (2006): Senile dementia care center opens in Shanghai, www.gov.cn.
Ineichen, Bernard (2000): The epidemiology of dementia in Africa: a review, in: Social Science & Medicine, (2000), Nr. 50, pp. 1673–1677.

Mawuenyega, Kwasi C. et al (2010): Decreased clearance of CNS β -amyloid in Alzheimer's disease, in: Science, Vol. 330, 24.12.2010, p. 1774.
Miltner, Frank A. (2011): "Gemischte Demenz": Neurologen gehen neue Wege gegen Alzheimer & Co ("Mixed dementia": neurologists take new approaches against Alzheimer & co.), in: Informationsdienst Wissenschaft, 21.09.2011.
Minkmann, Mirella M. N. et al. (2009): Integrated dementia care in the Netherlands: a multiple case study of case management programs, in: Health and Social Care in the Community, (2009), Vol. 17, Nr. 5, pp. 485–494.
Prince, Martin (2007): Epidemiology of dementia, in: Psychiatry, Vol. 6, Nr. 12, pp. 488–490.
Qiu, Jane (2007): Ticking time bomb faced by China's ageing population, in: The Lancet Neurology, (2007), Nr. 6, pp. 582–583.

Scholz, Rembrandt D. und Dimitri A. Jdanov (2007): Method to correct the official population statistics on the elderly, MPIDR Working Paper, 2007-002, Rostock 2007. United Nations, Department of Economic and Social Affairs, Population Division (2011): World Population Prospects: The 2010 Revision, CD-ROM Edition.
Wiener Gebietskrankenkasse (2011): http://www.wgkk.at/portal27/portal/wgkkportal/channel_content/cmsWindow?action=2&p_menuid=69468&p_tabid=3

Editor: Dr. Michaela Grimm, Group Economic Research & Corporate Development

Publisher: Allianz SE, Königinstraße 28, 80802 München | Claudia Mohr-Calliet, claudia.mohr-calliet@allianz.com | <http://www.allianz.com>

Why does Allianz care about demography?

As a global financial service provider, Allianz believes demographic change to be of crucial importance. Identified as one of the major megatrends, demographic change will hold the key to many upcoming social challenges, whether with regard to health, old-age provision, education, consumption or capital markets.

Why does it matter to journalists and the public?

Demographic change is challenging today's societies in many ways: People are getting older, and this raises the issues of long-term care and dementia, amongst others. Furthermore, in the future there will be a significant decline in the workforce in all of the world's markets, triggering challenges in areas such as pension funding. Only information, awareness and discussion on the topic will help to change attitudes, behavior and situations, so hopefully solve urgent needs and come up with innovative solutions.

What are the benefits of Allianz Demographic Pulse?

Allianz Demographic Pulse is based on the latest research into various aspects of demographic change. Conducted and written by Allianz experts, it highlights current and globally relevant demographic data and provides an insight into their impact on worldwide economies and societies. To ensure up-to-date coverage of major developments in this field, Allianz Demographic Pulse is published on a regular basis, thus providing ongoing and detailed information about a major trend that is shaping the world we live in.

More publications at:

Allianz Group Economic Research & Corporate Development

https://www.allianz.com/en/economic_research/publications/index.html

International Pensions, Allianz Global Investors

<http://publications.allianzgi.com/en/PensionResearch/Pages/PensionResearch.aspx>

Allianz Knowledge Site

<http://knowledge.allianz.com/>

Do you have any comments, suggestions or questions? We look forward to your feedback!

Claudia Mohr-Calliet
++49 89 3800 18797
claudia.mohr-calliet@allianz.com

These assessments are, as always, subject to the disclaimer provided below.

Cautionary note regarding forward-looking statements: The statements contained herein may include statements of future expectations and other forward-looking statements that are based on management's current views and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in such statements. In addition to statements which are forward-looking by reason of context, the words "may", "will", "should", "expects", "plans", "intends", "anticipates", "believes", "estimates", "predicts", "potential", or "continue" and similar expressions identify forward-looking statements. Actual results, performance or events may differ materially from those in such statements due to, without limitation, (i) general economic conditions, including in particular economic conditions in the Allianz Group's core business and core markets, (ii) performance of financial markets, including emerging markets, and including market volatility, liquidity and credit events

(iii) the frequency and severity of insured loss events, including from natural catastrophes and including the development of loss expenses, (iv) mortality and morbidity levels and trends, (v) persistency levels, (vi) the extent of credit defaults, (vii) interest rate levels, (viii) currency exchange rates including the Euro/US Dollar exchange rate, (ix) changing levels of competition, (x) changes in laws and regulations, including monetary convergence and the European Monetary Union, (xi) changes in the policies of central banks and/or foreign governments, (xii) the impact of acquisitions, including related integration issues, (xiii) reorganization measures, and (xiv) general competitive factors, in each case on a local, regional, national and/or global basis. Many of these factors may be more likely to occur, or more pronounced, as a result of terrorist activities and their consequences. The company assumes no obligation to update any forward-looking statement. **No duty to update:** The company assumes no obligation to update any information contained herein.