

# **The worldwide costs of dementia 2015 and comparisons with 2010**

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# Worldwide costs of dementia in 2010



- 604 billion US\$
- 17,000 US\$ per person with dementia
- 1 % of global aggregated GDP (0.6% ex informal care)

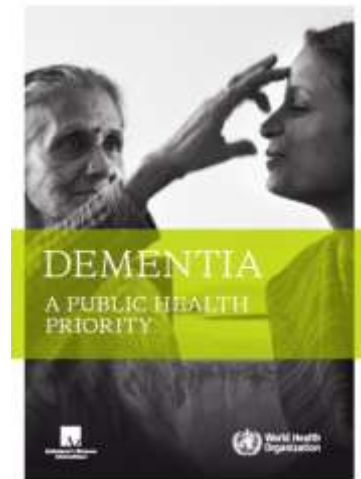


# METHODS

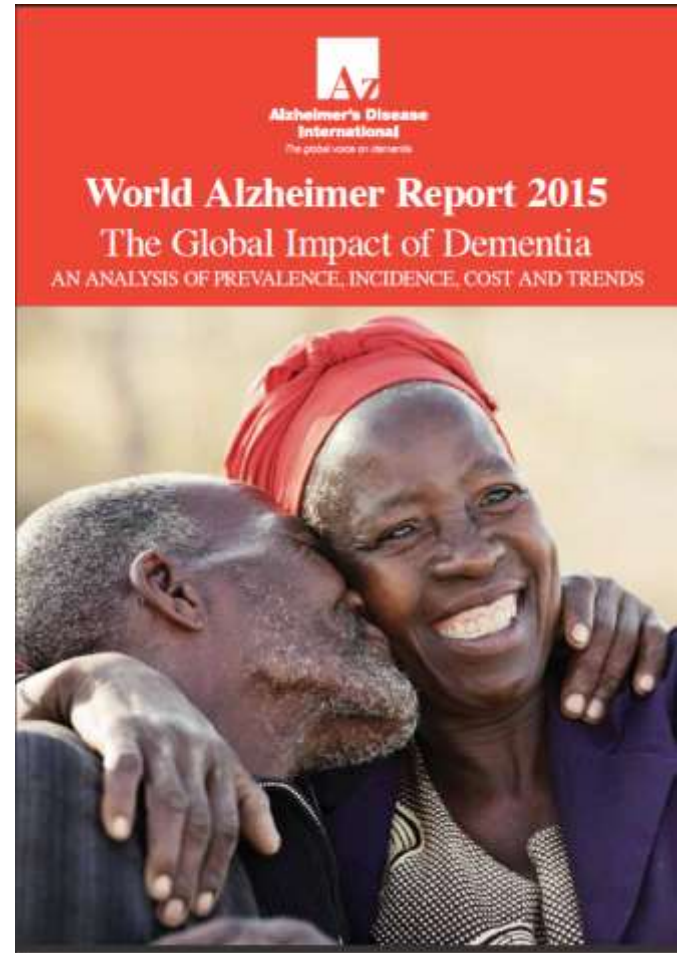


- **Systematic review of CoI studies**
- **Medical care sector, social care sector, informal care**
- **Informal care: Basic and instrumental ADLs**
- **Informal care: Average wage**
- **Imputations**
- **Sensitivity analysis**
- **36 milj people with dementia 2010**

- **Wimo A, Prince M. World Alzheimer Report 2010. The global economic impact of dementia. Alzheimer Disease International, London, 2010**
- **Prince M, Wimo A, et al. Epidemiology of dementia pp 11-32. In: WHO: Dementia: A public health priority. Geneva, WHO, 2012**
- **Prince M, Bryce R, Albanese E, Wimo A, Ribeiro W, Ferri CP. The global prevalence of dementia: A systematic review and metaanalysis. Alzheimers Dement. 2013 Jan;9(1):63-75.**
- **Wimo A, Jönsson L, Bond J, Prince M, Winblad B; Alzheimer Disease International. The worldwide economic impact of dementia 2010. Alzheimers Dement. 2013 Jan;9(1):1-11.**



- **More Col studies**
- **More Resource use studies (LMIC)**
- **Updated prevalence for 2010 and 2015**
- **Updated World Bank classification**



# Worldwide costs of dementia 2010 & 2015



Worldwide costs of dementia in 2010 and 2015 (billion US\$), based on World Bank country classification 2010

Year for cost estimates (basis for prevalence estimates)	2010 (WAR 2010)		2015 (WAR 2015)	
World Bank Country Classification Year	2010		2010	
	US\$ (billions)	Per cent	US\$ (billions)	Per cent
Low income	4.4	0.7%	6.6	0.8%
Lower middle income	29.2	4.8%	57.1	7.0%
Upper middle income	32.5	5.4%	84.5	10.3%
High income	537.9	89.1%	669.6	81.9%
Total	604.0	100.0%	817.9	100.0%

**604 bUS\$**

**818 bUS\$**

# Worldwide costs of dementia 2010 & 2015



Sub-category costs of dementia in 2010 and 2015 (billion US\$, and percent of total costs), by country income level based on current World Bank country classification

	Direct medical costs		Direct social sector costs		Informal care costs	
	US\$ (billions)	Per cent	US\$ (billions)	Per cent	US\$ (billions)	Per cent
2010 (WAR 2009)						
Low income	0.1	22.3%	0.1	11.5%	0.3	66.2%
Lower middle income	2.9	29.4%	1.6	16.4%	5.3	54.2%
Upper middle income	12.6	28.1%	8.3	18.6%	23.9	53.3%
High income	80.8	14.7%	245.7	44.8%	222.4	40.5%
Total	96.4	16.0%	255.7	42.3%	251.9	41.7%
2015 (WAR 2015)						
Low income	0.2	20.4%	0.1	10.4%	0.8	69.2%
Lower middle income	3.7	23.9%	2.0	13.2%	9.6	62.9%
Upper middle income	19.3	22.4%	17.7	20.5%	49.3	57.1%
High income	136.0	19.0%	308.1	43.1%	271.1	37.9%
Total	159.2	19.5%	327.9	40.1%	330.8	40.4%

# Worldwide costs of dementia 2010 & 2015

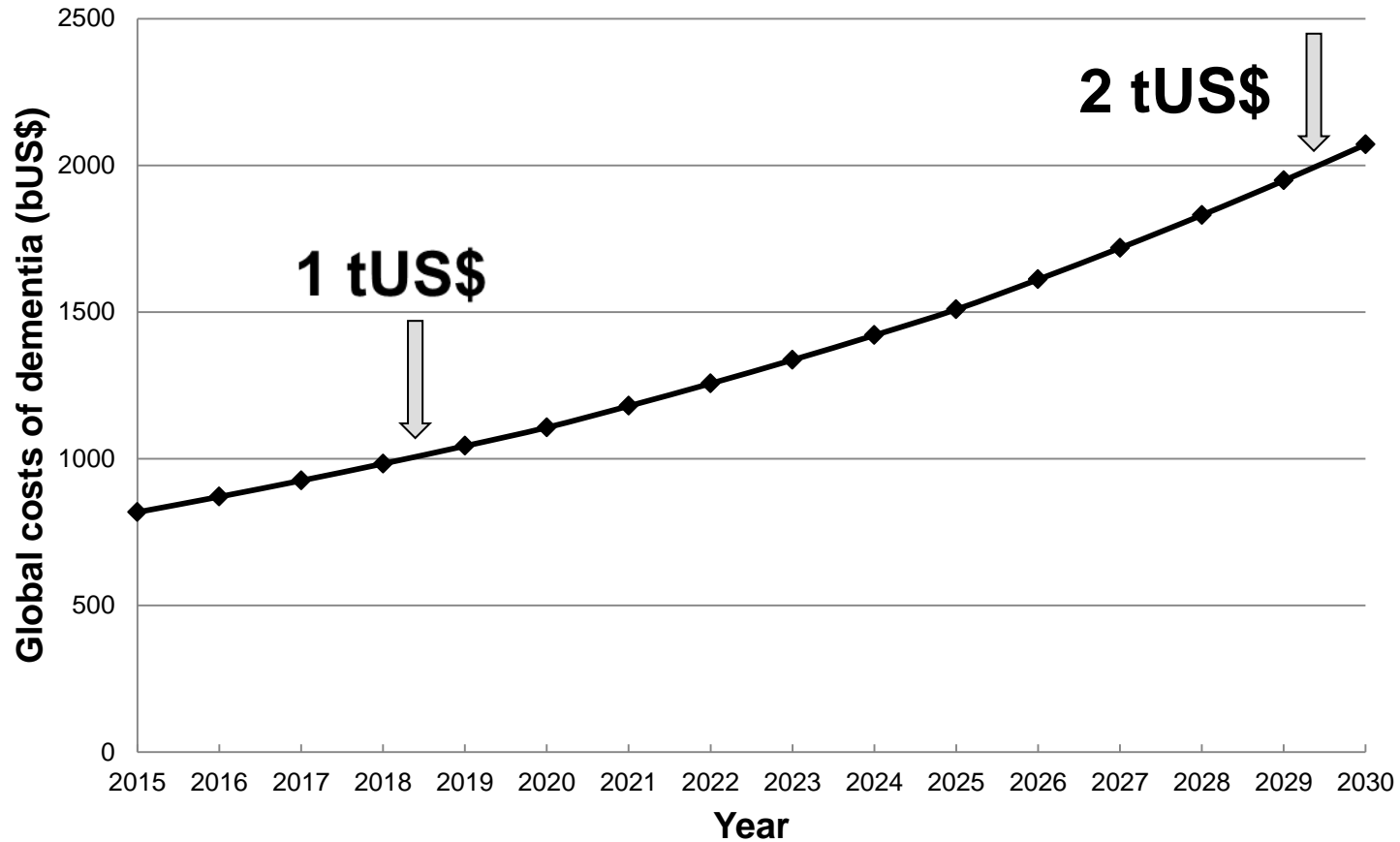


Per person costs of dementia (US\$) in 2010 and 2015, based on World Bank country classification (2010 or 2015) and prevalence estimates (WAR 2009 or 2015)

	2010		2015		
Column	1	2	3	4	5
Year for cost estimates (basis for prevalence estimates)	2010 (WAR 2010)	2010 (WAR 2015)	2015 (WAR 2015)	2015 (WAR 2015)	Change (%) in costs per person (WAR 2015)
World Bank Country Classification Year	2010	2010	2015	2010	2010
Low income	868	875	1,019	939	7.3%
Lower middle income	3,109	3,259	1,560	3,865	18.6%
Upper middle income	6,827	7,224	5,284	10,467	44.9%
High income	32,865	34,735	36,669	39,595	14.0%



# Worldwide costs of dementia Forecast?



# Worldwide costs of dementia 2010 & 2015

## sensitivity analysis



Costs of dementia in 2015 (billion US\$), by 2015 World Bank country income level, according to different approaches to costing informal care based on different caregiver inputs

	Base option		More restrictive		More inclusive	
	All ADLs		Only basic ADLs		All ADLs and supervision	
	US\$ (billions)	Per cent	US\$ (billions)	Per cent	US\$ (billions)	Per cent
Low income	1.2	0.1%	0.9	0.1%	1.6	0.2%
Lower middle income	15.3	1.9%	10.7	1.6%	21.7	2.1%
Upper middle income	86.3	10.5%	75.0	11.5%	121.2	11.5%
High income	715.1	87.4%	564.9	86.7%	912.2	86.3%
Total	817.9	100.0%	651.5	100.0%	1056.8	100.0%

# Costing informal care: example Sweden

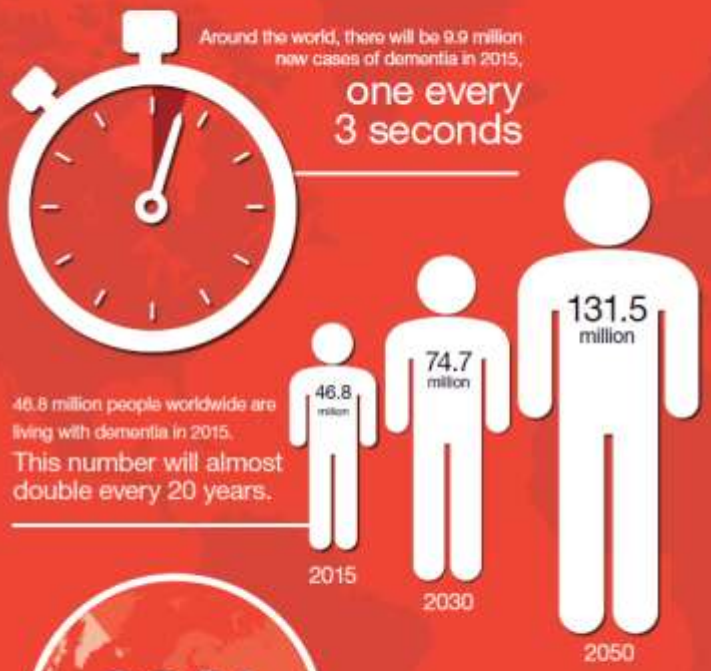


Wimo et al: The societal costs of dementia in Sweden 2012. The Swedish national board of health and welfare (report in Swedish)

	Hours/d	SEK/h	COI (bSEK)	Informal care (bSEK)	Per person
<b>1. Base option (All ADL)</b>	<b>1.9</b>	<b>152</b>	<b>62.9</b>	<b>10.6</b>	<b>398,000</b>
2. 0 (zero) value of informal care	0	0	52.3	0	331,000
3. Lower cost/h	1.9	109	59.9	7.6	379,000
4. All ADL, another source	3.3	152	70.2	18.0	445,000
5. ADL+Supervision	4.7	152	77.4	25.4	490,000
6. Replacement cost	1.9	434	82.6	30.3	523,000
7. Combine 5 and 6	4.7	434	123.8	71.5	784,000

INFOGRAPHIC

# The global impact of dementia



Much of the increase will take place in low and middle income countries (LMICs): in 2015, 58% of all people with dementia live in LMICs, rising to 63% in 2030 and 68% in 2050.



The total estimated worldwide cost of dementia in 2015 is US\$ 818 billion. By 2018, dementia will become a trillion dollar disease, rising to **US\$ 2 trillion by 2030**

If global dementia care were a country, it would be the **18th largest economy** in the world exceeding the market values of companies such as Apple and Google



# Acknowledgements

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## **ALZHEIMER'S DISEASE INTERNATIONAL**



**THE END**

Costs of dementia in 2010 and 2015 (billion US\$, and percent of worldwide costs), by Global Burden of Disease world region classification

Year for cost estimates (basis for prevalence estimates)	2010 (WAR 2009)		2015 (WAR 2015)		2010-2015
	US\$ (billions)	Per cent	US\$ (billions)	Per cent	Per cent change
Australasia	10.1	1.7%	14.1	1.7%	39.6%
Asia Pacific High Income	82.1	13.6%	109.9	13.4%	33.9%
Oceania	0.1	0.0%	0.2	0.0%	59.0%
Asia Central	0.9	0.2%	1.2	0.1%	28.6%
Asia East	22.4	3.7%	42.9	5.2%	91.7%
Asia South	4.0	0.7%	4.5	0.5%	11.8%
Asia Southeast	4.0	0.7%	7.3	0.9%	81.9%
Europe Central	14.2	2.3%	15.0	1.8%	5.7%
Europe Eastern	14.3	2.4%	23.5	2.9%	64.3%
Europe Western	210.1	34.8%	262.6	32.1%	25.0%
North America High Income	213.0	35.3%	268.9	32.9%	26.3%
Caribbean	3.0	0.5%	3.5	0.4%	18.2%
Latin America Andean	0.9	0.2%	1.1	0.1%	27.0%
Latin America Central	6.6	1.1%	15.9	1.9%	140.8%
Latin America Southern	5.1	0.8%	10.1	1.2%	98.7%
Latin America Tropical	7.3	1.2%	15.6	1.9%	113.8%
North Africa / Middle East	4.5	0.7%	16.7	2.0%	270.7%
Sub-Saharan Africa Central	0.1	0.0%	0.3	0.0%	198.6%
Sub-Saharan Africa East	0.4	0.1%	1.5	0.2%	267.4%
Sub-Saharan Africa Southern	0.7	0.1%	2.3	0.3%	221.7%
Sub-Saharan Africa West	0.2	0.0%	0.8	0.1%	298.6%
<b>Total</b>	<b>604.0</b>	<b>100.0%</b>	<b>817.9</b>	<b>100.0%</b>	<b>35.4%</b>

# Worldwide costs of dementia 2015 (bUS\$)



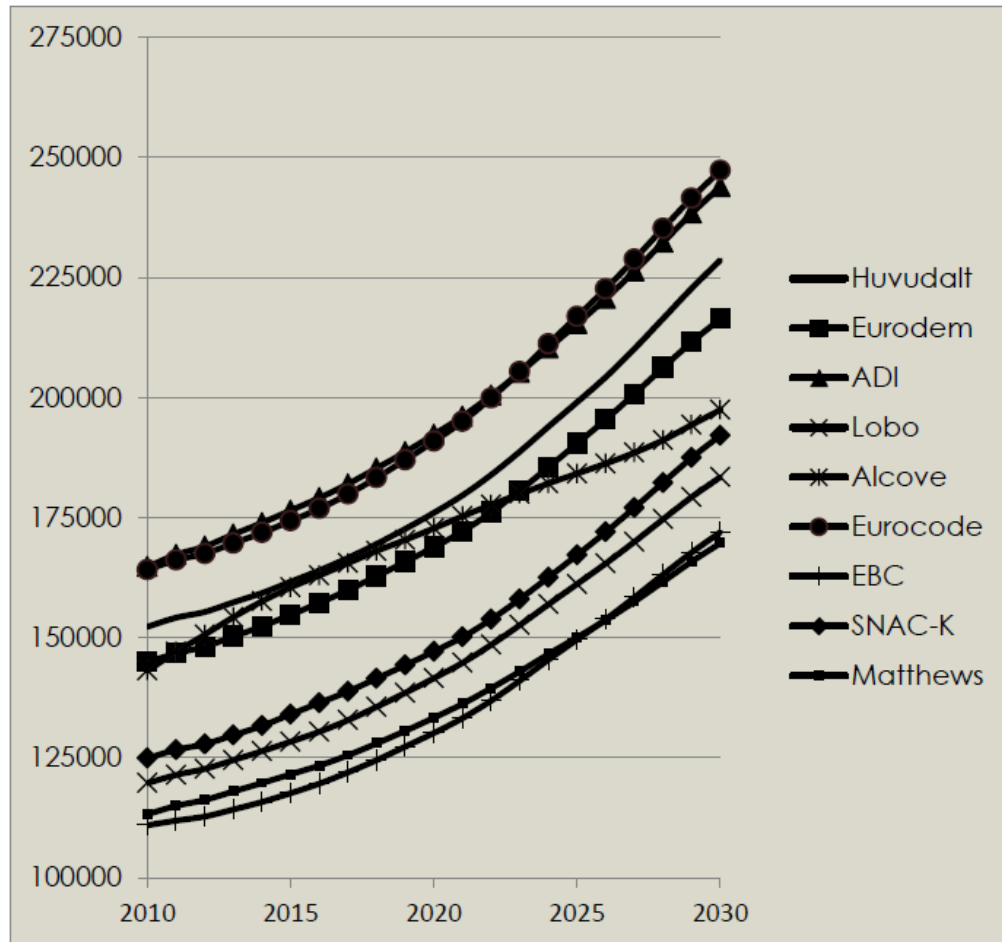
- **OECD**                      **676.5**
- **G7**                              **508.7**
- **G20**                            **754.2**
  
- **World**                        **817.9**



# The incidence-prevalence-mortality debate: example: Sweden



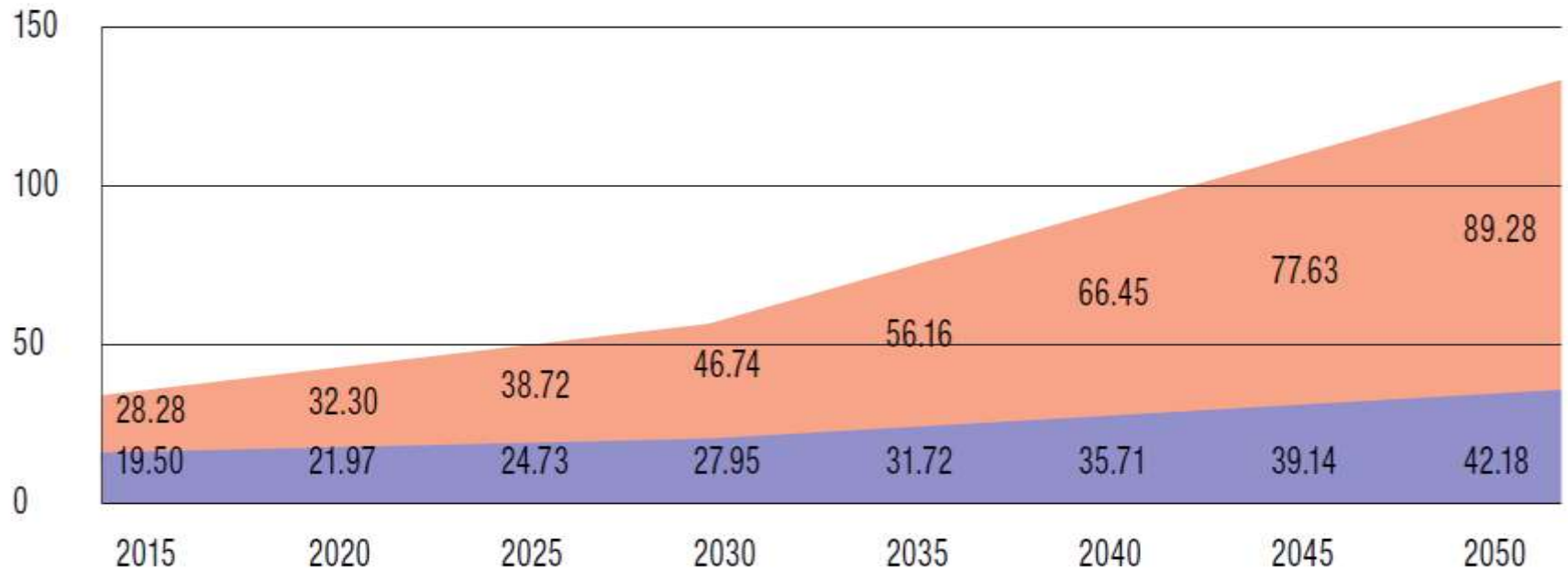
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# Numbers of people with dementia



The growth in numbers of people with dementia (millions) in high income (HIC) and low and middle income countries (LMIC)



**47 million**

High Income ■ Low and Middle Income ■

# CONCLUSIONS - RECOMMENDATIONS



- **Col Dementia global challenge (LMIC!)**
- **Informal care crucial**
- **Prevalence/Incidence issue**
- **Big data: EU, OECD, WHO**
- **Global initiatives: WHO, G8/7, WDC, OECD**