

PREVENTING ALZHEIMER DISEASE: IS THERE A PLACE FOR COST-EFFECTIVE INTERVENTIONS?
DYNAMIC MODELING APPLIED TO A PAN EUROPEAN ANALYSIS

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Objective

With population aging across European countries, Alzheimer's disease (AD) represents an increasing burden for societies and health care payers. The present study assessed the health-economic potential benefits of hypothetical interventions in preventing AD across 9 European countries: Belgium, Denmark, Finland, France, Germany, Ireland, Norway, Sweden and the UK.

Methods

- A 3-state dynamic Markov model was developed.
- The population of interest was taken from 65+ year old patients.
- Age-specific conversion rates from No AD to AD were retrieved from a European study.
- On top of the non-specific mortality rates, an adjustment factor was applied to patients with AD.
- Annual costs data for AD were retrieved for 9 major European countries including France, Germany and the UK. These costs were taken from a societal perspective and ranged from €9,856 in Ireland to €36,885 in the UK (Table 1).
- Two preventing AD interventions were simulated, based on hypothetical relative risk reductions (RRR) of 0.8 and 0.5 for the conversion risk.

Figure 1: Decision tree structure of Markov Model

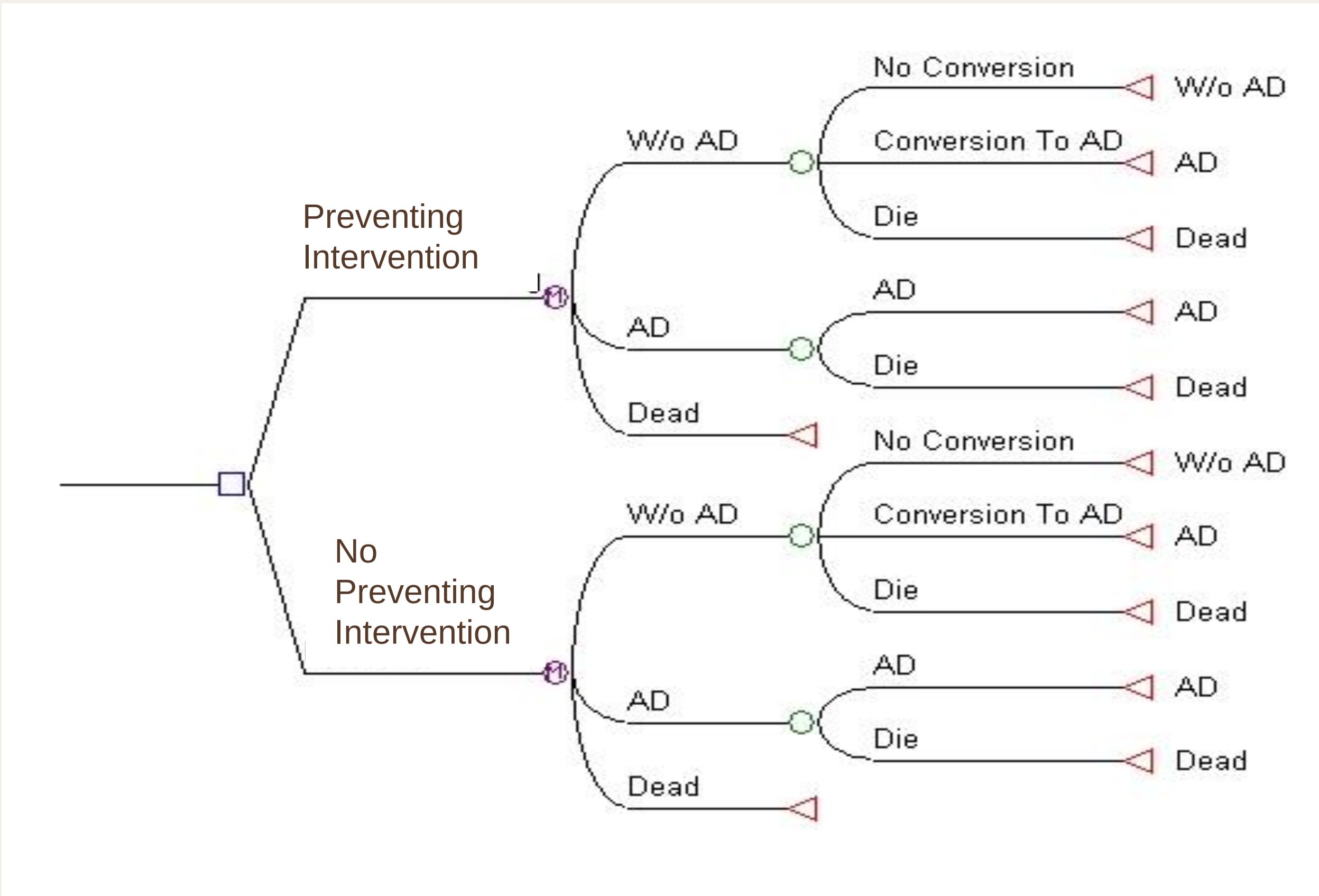
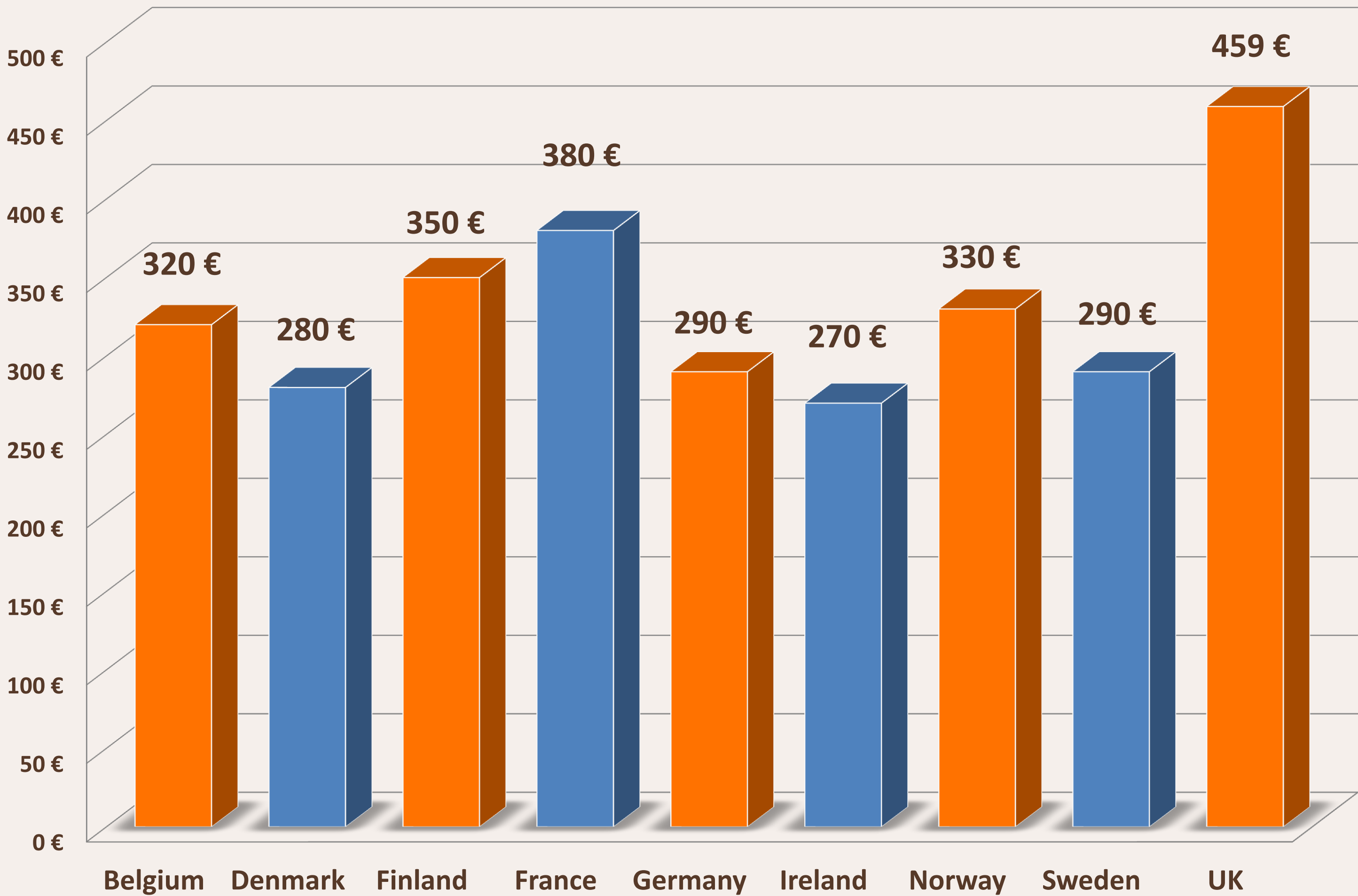


Table 1: Annual costs of AD, from a societal perspective ^a	
Country	Costs in EURO
Belgium	15,435
Denmark	10,610
Finland	19,458
France	22,099
Germany	12,583
Ireland	9,856
Norway	16,415
Sweden	11,321
UK	36,885

Results

- The improvement in undiscounted life expectancy were 0.11 and 0.29 years, respectively for preventing interventions with RRR of 0.8 and 0.5
- In order to be break-even, annual costs of interventions ranged from €90 in Denmark, Ireland and Sweden to €335 in the UK for RRR of 0.8 and from €230 up to €831 in the same countries for RRR 0.5
- For a given willingness to pay of €50,000 per life year gained, interventions were cost-effective in France at €380 and €970, in Germany at €290 and €770, respectively for RRR of 0.8 and 0.5
- For these 2 interventions in Belgium, average per patients expected savings ranged from €1,859 and €4,829, respectively for RRR 0.8 and 0.5
- The demographic projections led in France to a reduction of AD prevalent patients of 25,295 (0.8) and 66,334 (0.5) cases
- This translated into annual savings in France of €559 million and €1.465 billion, respectively for RRR of 0.8 and 0.5

Figure 2: Annual costs of cost-effective preventing intervention, with RRR=0.8



Conclusion

- These analyses demonstrate the large potential health-economic benefits of AD preventing interventions.
- The results are robust across 9 major European countries and should encourage intervention development and financing.

a. European Journal of Neurology 2005, 12 (Suppl. 1):50-53