

# Estimating the future number of cases of dementia in PCTs and upper tier local authorities in England

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## Summary

People with dementia require substantial amounts of care, particularly social care. Their numbers are predictable from simple calculations applied to population projections

The paper describes the detail of the calculation and introduces a set of tables providing projected numbers of sufferers for local authorities and 2006 reorganisation PCTs for the period 2008-2025

## Information Sources

People with dementia require substantial amounts of care, particularly social care. Planning and commissioning this requires an estimate of the likely number of sufferers in the population.

The prevalence of dementia is very closely associated with age. It affects less than 1% of the population aged over 65, while roughly 30% of those aged over 95 suffer with it.

Over the last century, both the number and the proportion of elderly people have increased sharply in all developed western countries. These increases have not been steady, and future projections suggest they are likely to continue.

This paper describes technical issues involved in predicting likely numbers of dementia sufferers in between 2008 and 2025.

The results of the analysis will be made available through the NEPHO and PHINE (Public Health Intelligence North East) websites.

The analysis depends on two sources: anticipated population-based rates of dementia, and projected age-specific populations. The rate of dementia varies relatively little other than with sex and age. A number of authors have reviewed this area recently (Ferri, Prince, Brayne, *et al*, 2005; Knapp & Prince, 2007). The age- and sex-specific rates used for this analysis are the consensus figures arrived at, by Knapp and Prince, through a 'Delphi' process among 10 leading UK experts.

Population projections for the UK as a whole are produced by the Government Actuary's Department. This is done in alternate years. Projected national figures are subsequently assigned to local authority areas by the Office for National Statistics (ONS) (a process called 'sub national population projection'). Details of the methods used are set out on the ONS website (Office for National Statistics, 2007). Sub national projections are produced, by sex, for quinary age bands to age 84 and for those aged 85 and over. The national projections, on which these are based, provide quinary projections to age 100.

The most recently available figures at the time the work was undertaken, and on which it is based, were the revised projections based on 2004 mid-year estimates. The City of London and the Isles of Scilly are excluded from these projections as their numbers are too small for reliable calculations.

## Calculation

In most respects the calculation was simple. Projected numbers in each age and sex group were multiplied by the predicted prevalence to produce expected numbers of sufferers. This was not so simple for those aged 85 and above. It was important to make use of the more detailed age-specific predicted prevalence rates, as these differ sharply for the three age groupings covered. However the sub national population projections do not provide any breakdown in this range.

Instead it was assumed that the profile of individuals aged 85 and above for each sex has a similar age structure (derived from the national population projections figures) for all local authorities.

The immediate prompt for undertaking this work was a health service planning exercise. For this reason results were required for NHS 2006 reorganisation PCT boundaries. 130 of the 152 PCTs can be directly mapped by amalgamating one or more local authority areas. In the remaining 22 cases, boundaries are not neatly aligned. In these cases the population of local authorities involved was divided between PCTs pro rata to the count of residential addresses in the national postcode address file (May 2007 edition). This approach produced 368 lower tier local authority/PCT 'patches'. Calculations were undertaken at this level.

## Presentation of Results

Principal results are presented in tables 2 and 3 for England. A spreadsheet comprising four further tables gives local results. Three of these tables present data for lower and upper tier local authorities and 2006 reorganisation PCTs respectively. Each shows the total number of estimated dementia sufferers and the total population aged 65 and over for the area, for each of the five projection years. A fourth table provides comprehensive age specific data for use in a database package.

**Table 1: Estimated prevalence (cases per 100 population) of dementia (all causes) in the UK by age and sex (from Knapp and Prince, 2007)**

Age group	Females	Males
65 to 69	1	1.5
70 to 74	2.4	3.1
75 to 79	6.5	5.1
80 to 84	13.3	10.2
85 to 89	22.2	16.7
90 to 94	29.6	27.5
95 and above	34.4	30



## Discussion

In assessing the relevance of these projections, several aspects need to be considered. Predictions approaching 20 years into the future are inevitably vulnerable to unforeseen developments. The predictions assume that age and sex specific prevalences for dementia are the same everywhere and will not change. Their applicability across all areas is the conclusion of current research. Their persistence over time is not so well established. Since there is no obvious alternative, for practical purposes this is probably reasonable, but a number of caveats should be noted. Dementia treatments that have been developed in recent years delay the development of dementia by months, or possibly a small number of years but no more. They do not halt the process. If these were widely applied, they could conceivably alter the age sex specific prevalences. It is possible that generally improved medical treatment might affect the life expectancy of people after the development of dementia. This would have the effect of increasing prevalences.

Probably the most tenuous of the underlying assumptions are those relating to the population projections. The elements of these relevant to the present study are based on forecasts of age-specific mortality rates and international migration patterns. These do not encompass information about anticipated changes in geographic settlement patterns. The model also assumes that dementia sufferers do not migrate between local authority areas as a consequence of their illness. In the past there has been some tendency of inner London local authorities to resettle some demented elderly people in residential care homes outside the capital. If this were to be done in the future on a substantial scale, this would clearly alter local, though not national, predictions.

## References

1. Ferri, C. P., Prince, M., Brayne, C., et al (2005) Global prevalence of dementia: a Delphi consensus study. *Lancet*, 366, 2112-2117.

2. Knapp, M. & Prince, M. (2007) *Dementia UK*. London: Alzheimer's Society

3. Office for National Statistics (2007) Subnational population projections for England, <http://www.statistics.gov.uk/statbase/product.asp?vlnk=997>

**Table 2: Projected population and dementia sufferers by age group and projection year 2008-2025, England.**

Age Group	Projection Year	Women		Men	
		Population	Sufferers	Population	Sufferers
65 to 69	2008	1183700	11837	1106600	16599
	2010	1259800	12598	1179700	17696
	2015	1535700	15357	1432300	21485
	2020	1404100	14041	1305500	19583
	2025	1523700	15237	1424100	21362
70 to 74	2008	1061600	25478	947200	29363
	2010	1090100	26162	978600	30337
	2015	1187300	28495	1073800	33288
	2020	1452000	34848	1311400	40653
	2025	1331900	31966	1202800	37287
75 to 79	2008	922000	59930	733500	37409
	2010	915400	59501	749700	38235
	2015	981700	63811	836100	42641
	2020	1079700	70181	931600	47512
	2025	1327100	86262	1146000	58446
80 to 84	2008	730700	97183	488500	49827
	2010	736300	97928	511200	52142
	2015	755500	100482	570900	58232
	2020	833000	110789	657900	67106
	2025	928600	123504	746800	76174
85 to 89	2008	501408	111313	265387	44320
	2010	501766	111392	278991	46591
	2015	499219	110827	317513	53025
	2020	532141	118135	371448	62032
	2025	602208	133690	436193	72844
90 to 94	2008	189023	55951	73779	20289
	2010	205773	60909	88472	24330
	2015	254244	75256	127210	34983
	2020	271807	80455	158239	43516
	2025	314306	93035	201992	55548
95 and over	2008	65868	22659	17234	5170
	2010	68161	23447	19937	5981
	2015	74138	25503	27578	8273
	2020	98452	33868	44113	13234
	2025	121686	41860	63615	19084

Detailed local figures can be found on our website:

[www.mentalhealthobservatory.org.uk/dementiaprojections](http://www.mentalhealthobservatory.org.uk/dementiaprojections)

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