

Modelling Ageing Populations to 2030

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on behalf of the MAP2030 project team
Prepared for INDEPENDENT HEALTHY AGEING
Meeting
Thursday 13 November 2008

The background

- In the UK the number of people over the state pension age is projected to rise by about 40% in the next 25 years.
- The number aged 80 and over, where care needs are greatest, will double.
- Consistent projections of their financial, family, social and health resources are lacking.

The 3-year programme objectives

To produce high quality analysis to inform public debate and development of future long-term care and pensions policy up to 2030 by:

- **projecting the numbers, disability status, family circumstances, income, savings and care needs of older people**
- assessing the affordability and distribution of costs and benefits of combined policy options for pensions and long-term care
- accounting for links between care needs and economic resources in later life

Key issues relevant to Independent Healthy Ageing among older people:

- accumulation and distribution of income & assets
- ability to meet care costs
- **how trends in mortality and morbidity will evolve & will the extra years of life will be lived in good health?**
- **the consequences of family change for the availability of informal care & social participation**
- **availability and need for informal & formal care**
- how these domains are inter-related & how they differ between socio-economic and income groups.

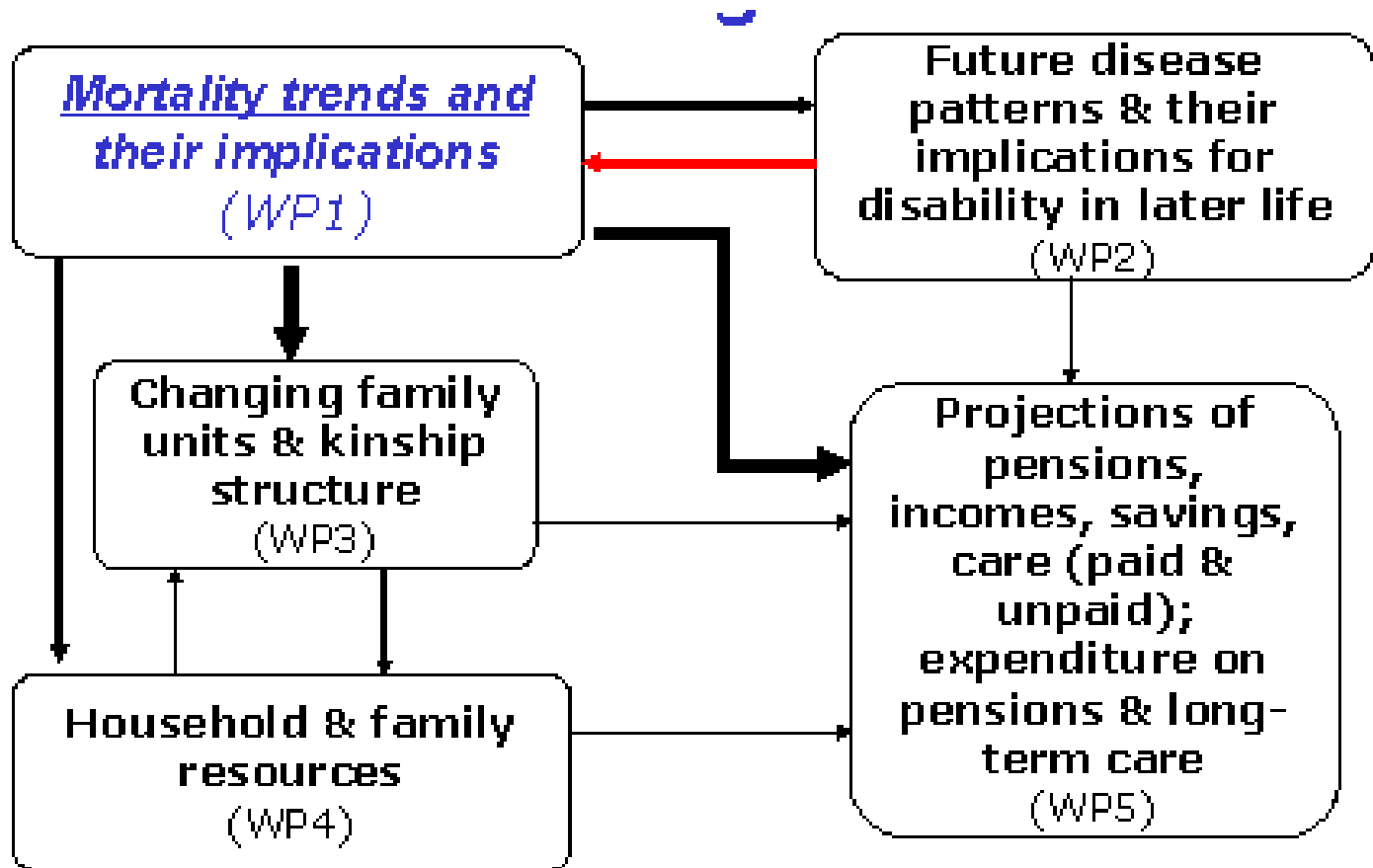
The people involved

- Mike Murphy, Mariachiara di Chesare (LSE)
- Carol Jagger, James Lindesay, Ruth Matthews (Leicester)
- Emily Grundy & Sanna Read (LSHTM)
- Ruth Hancock & Marcello Morciano (UEA)
- Raphael Wittenberg, Adelina Comas-Herrera, Linda Pickard, Derek King, Juliette Malley & Megan Challis (PSSRU)
- Chris Curry, Adam Steventon, Sean James (PPI)

Supporting partner

- Department for Work and Pensions

Work packages



Demographic factors important to Independent Healthy Ageing and demand for services

- **Population size**
- **Age structure**
- **Living arrangements**
 - living alone
 - marital status
- **Kin support**
 - children

In the next 25 years (by 2031)

Total UK expected population growth
approx 10.5 million

- **6.1 million more older people (65+)**
– **of which 2.7 million 80 & over**
- 3.1 million more 'working age' (20-64)
- 1.3 million more children (0-19)

Ageing of the older population

The elderly population is itself ageing. The proportion of the UK population aged 65 & over who were 85 & over

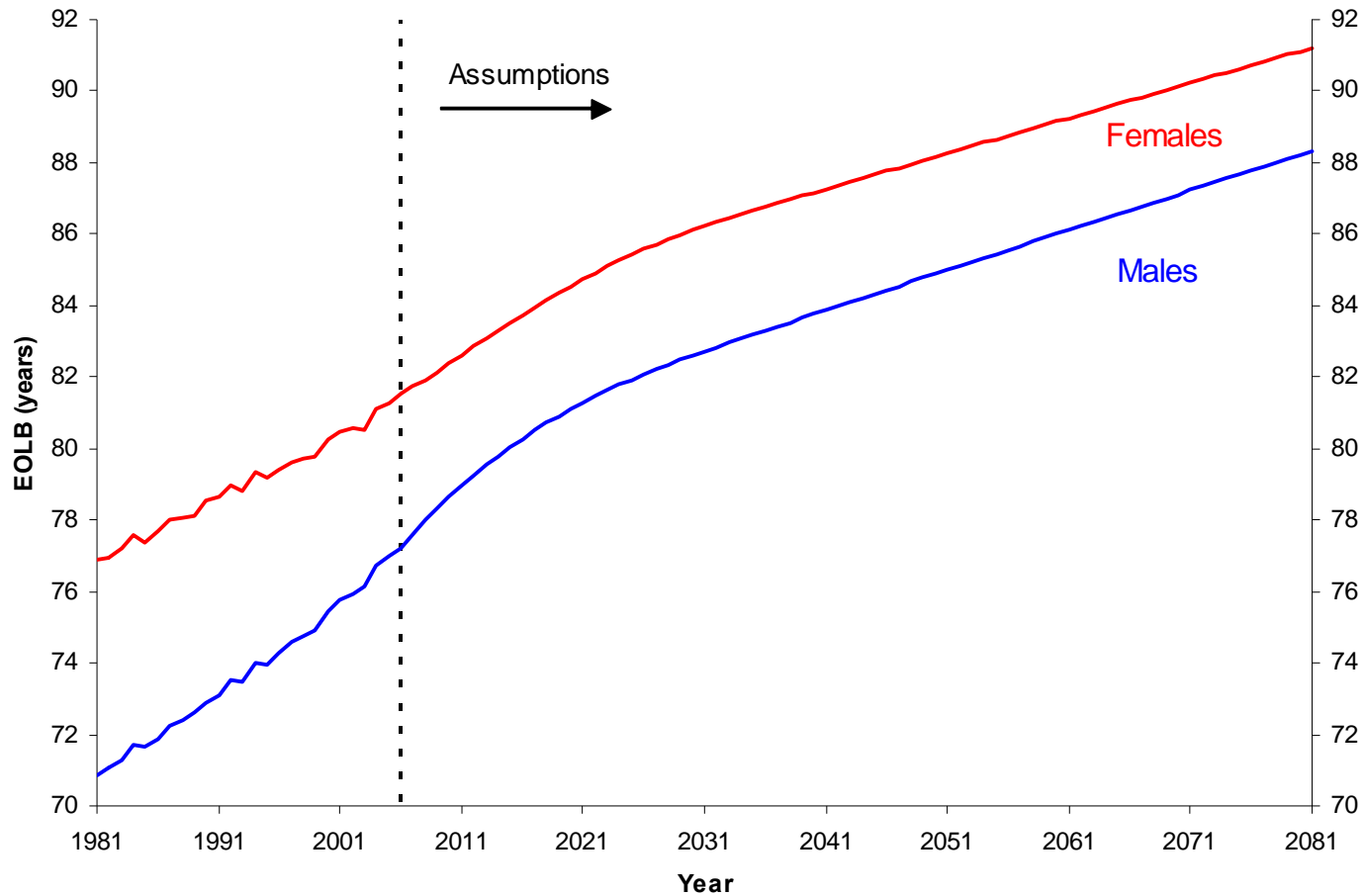
1981 7%

2006 13%

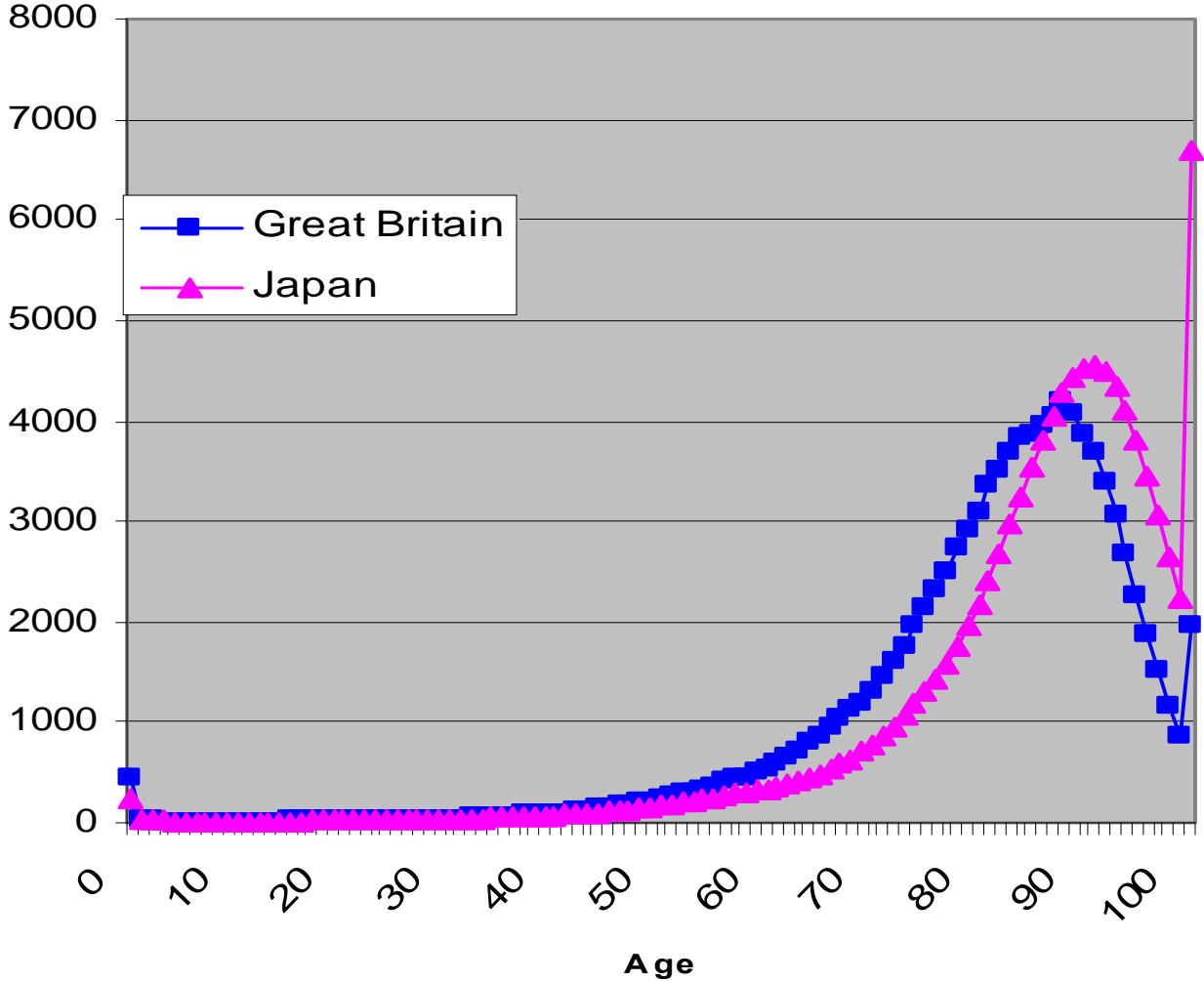
2031 18%

Recent increases in the number of very old people have been larger than expected because of unanticipated falls in mortality among the elderly.

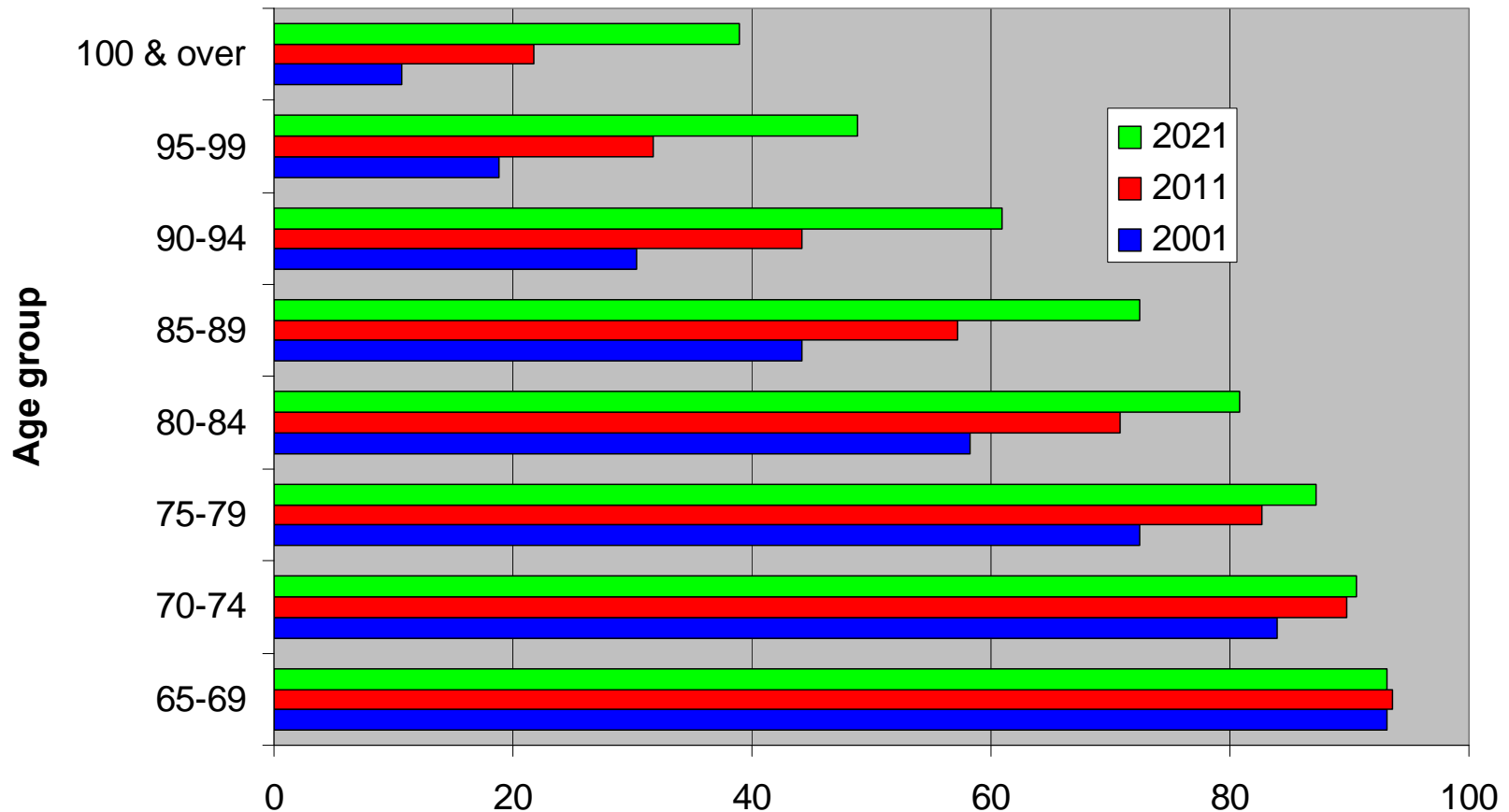
Projected expectation of life at birth, United Kingdom 1981-2081



Distribution of deaths out of 100,000 births, Females GB 2004-6 & Japan 2006



Sex Ratio (Males per 100 Females), England & Wales 2001, 2011 & 2021 (2006-based projections)

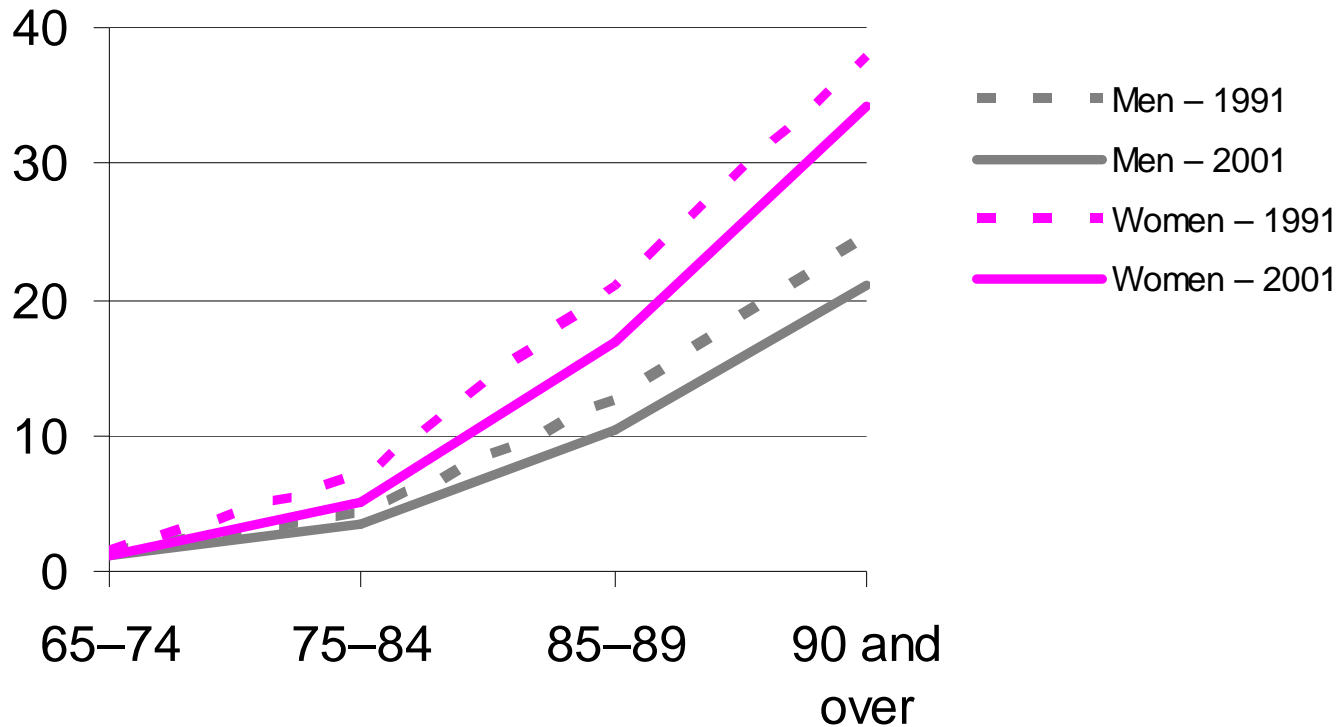


2006-based official projections <http://www.gad.gov.uk/>

Household status of older people

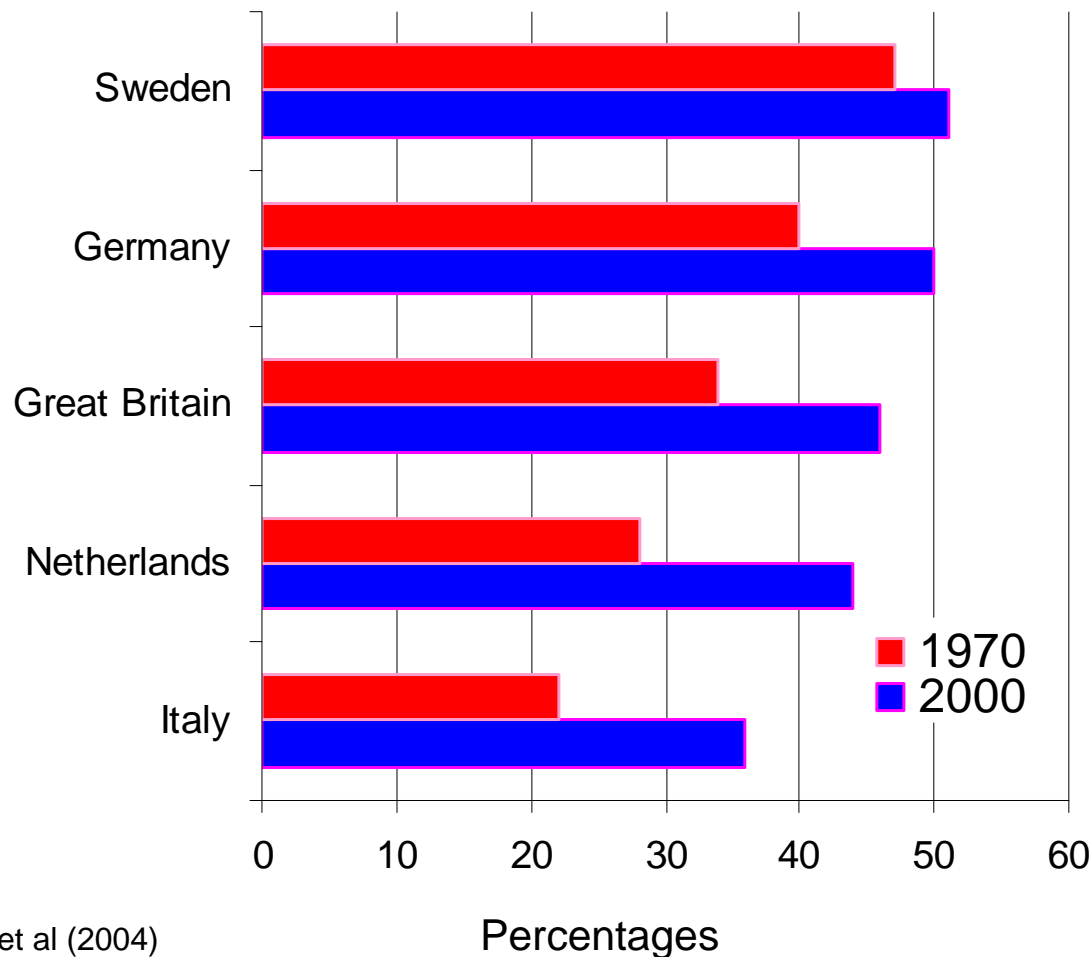
- the proportion in institutions was higher at the beginning of the 20th century than the 21st
- the growth in one-person elderly households, especially among widows and widowers, is substantial
- similar trends are evident in other industrialised countries

People aged 65 & over in communal establishments: by sex & age, 1991 and 2001, GB



Source: Census 1991 and Census 2001, Office for National Statistics;
Census 1991 and Census 2001, General Register Office for Scotland

Women aged 65 and over living alone in selected European countries, 1970 & 2000



Source: Tomassini et al (2004)

Family support influenced by:

- Kin availability (determined by levels and patterns of mortality, fertility and marriage)
- Willingness/ability of younger relatives to provide support and of older people's preferences for family care rather than formal care

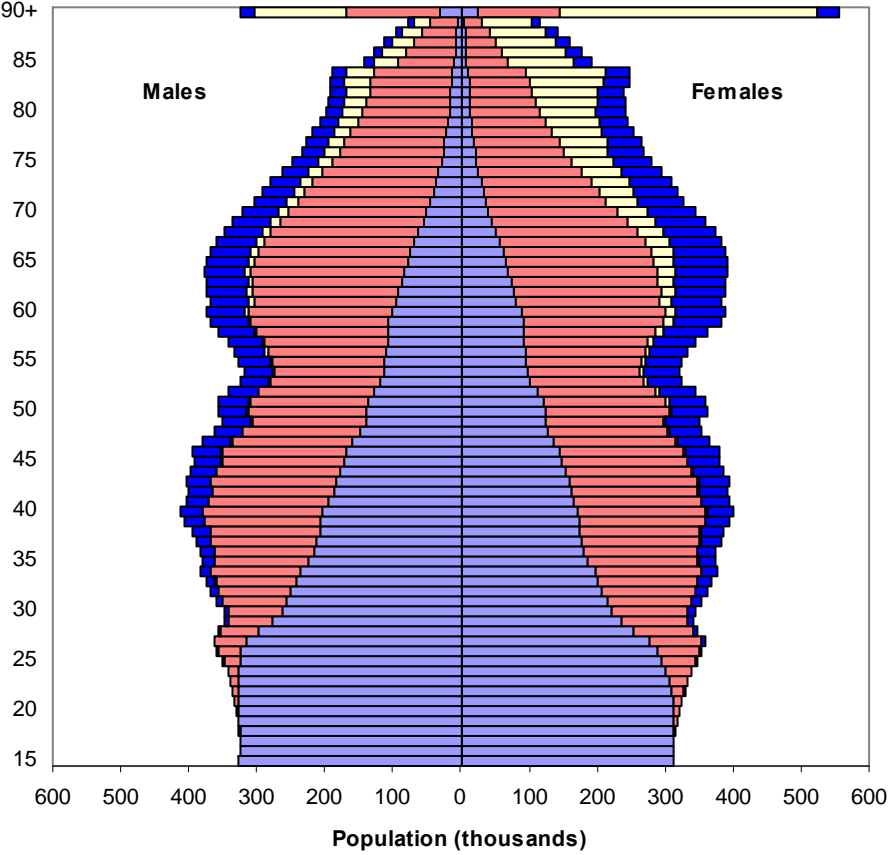
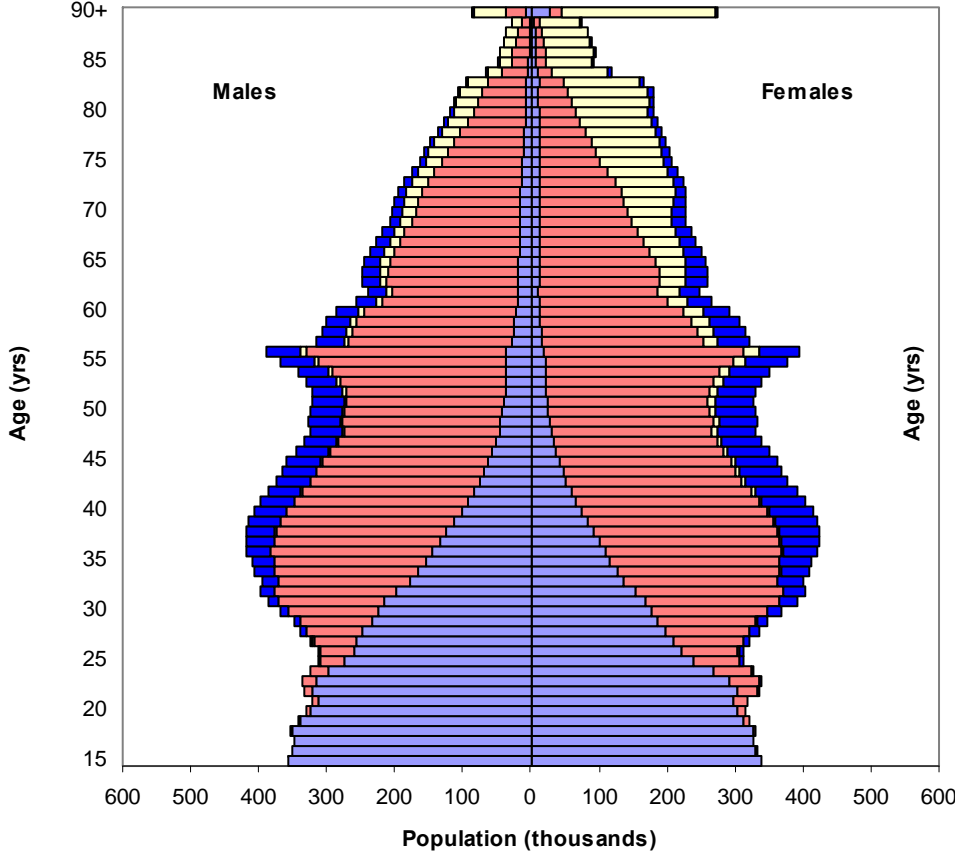
Projected population by age, sex and legal marital status, England & Wales, 2003 & 2031, (000s)

(<http://www.gad.gov.uk/>)

2003-based marital status and cohabitation projections for England and Wales, Population Trends 121)

2003

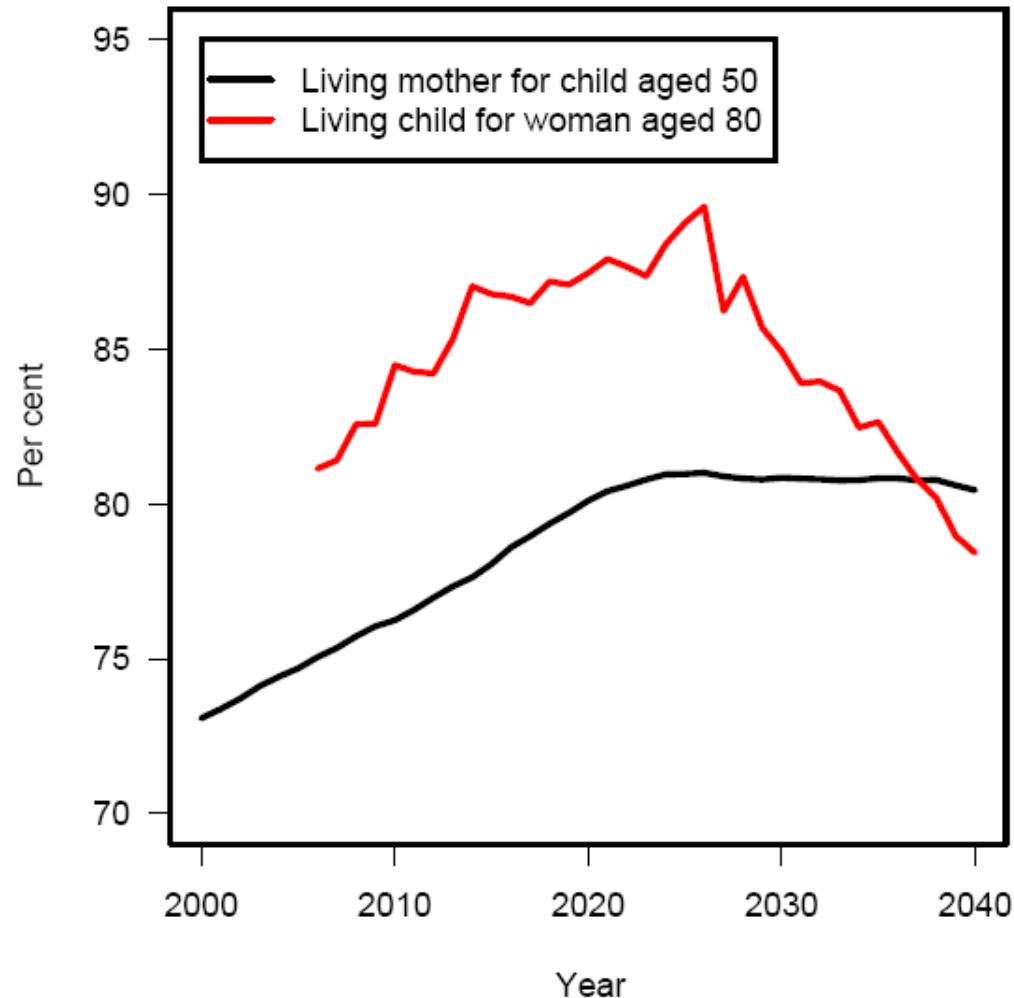
2031



Legend: Never Married (blue), Married (red), Widowed (yellow), Divorced (dark blue)

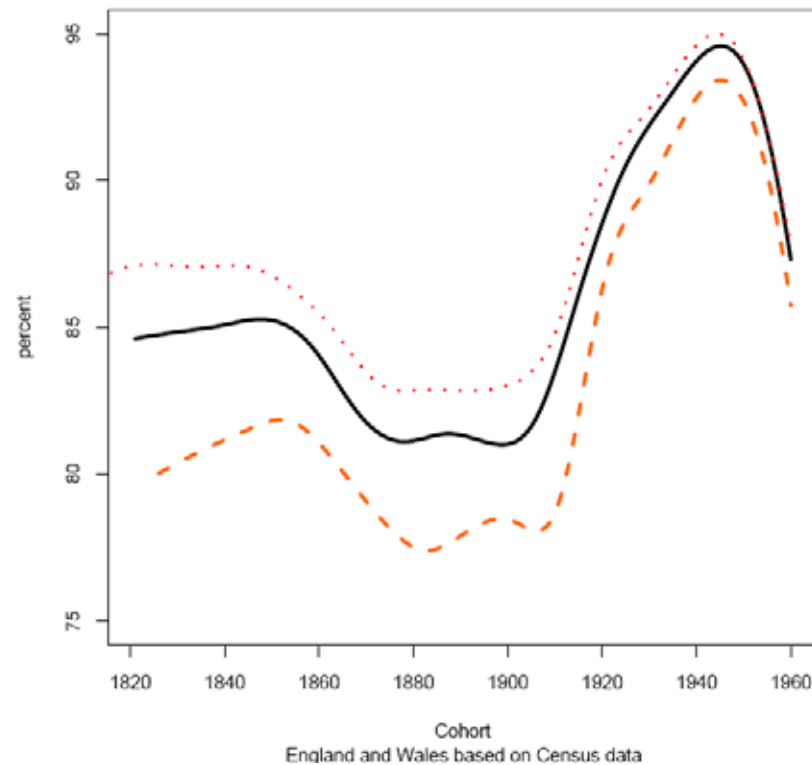
Legend: Never Married (blue), Married (red), Widowed (yellow), Divorced (dark blue)

The Next Four Decades: Living mothers of 50-year-olds and living children of 80-year-old women, England & Wales



Murphy, M and E. Grundy (2003) Mothers with living children and children with living mothers: the role of fertility and mortality in the period 1911–2050. Pp 36-44 in *Population Trends* 112 Summer 2003.

Proportions of women ever-married by exact ages 35, 40 and 45



Independent Healthy Ageing: How will changing disease patterns affect the future burden of disability at older ages?

C. Jagger, R. Matthews, MRC CFAS

Simulation model

- Uses MRC Cognitive Function and Ageing Study (MRC CFAS)
- Has two stages:
 - Transition builds on earlier work modelling the impact of diseases on the onset of disability and death (Spiers et al 2005)
 - Projection applies transition rates to 'age' the population

Scenarios - Improving population health

- Individuals take health seriously
 - decline in risk factors, particularly smoking and obesity
- New treatments or technologies emerge that
 - reduce the disabling effects of arthritis, dementia, stroke and CHD
 - make further gains in survival with these diseases
- Health service is responsive with
 - high rates of technology uptake for disease prevention
 - excellent diffusion of new treatments to all who can benefit

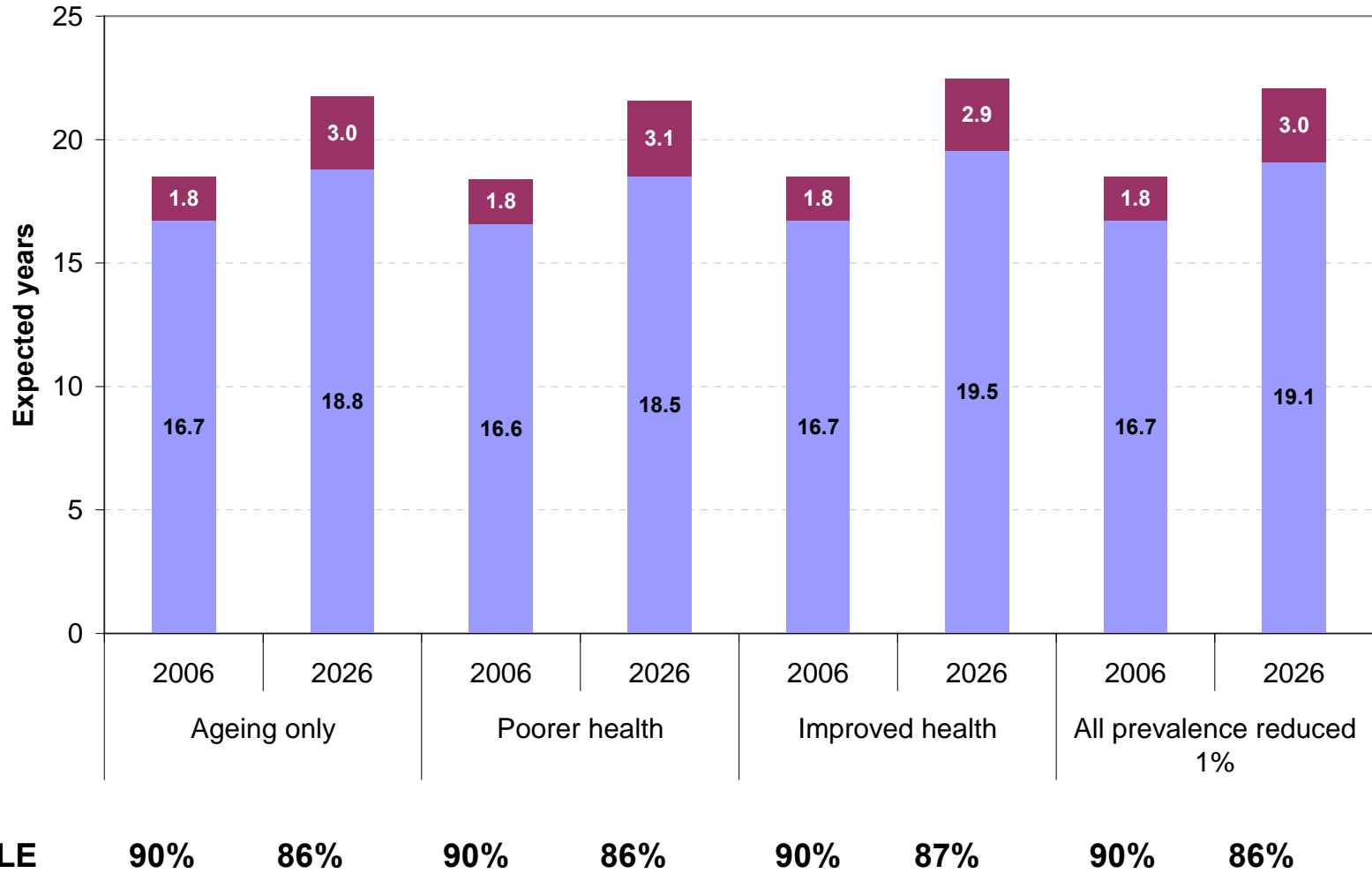
Model parameters- Improving health

- reductions in the prevalence of arthritis, stroke, CHD and mild dementia by 1% every two years from 2012 and for moderate/severe dementia of every two years from 2016
- decrease of 10% in transitions to disability for arthritis, stroke, CHD and mild dementia from 2012
- reduction of 5% in mortality for stroke, CHD and mild dementia from 2016

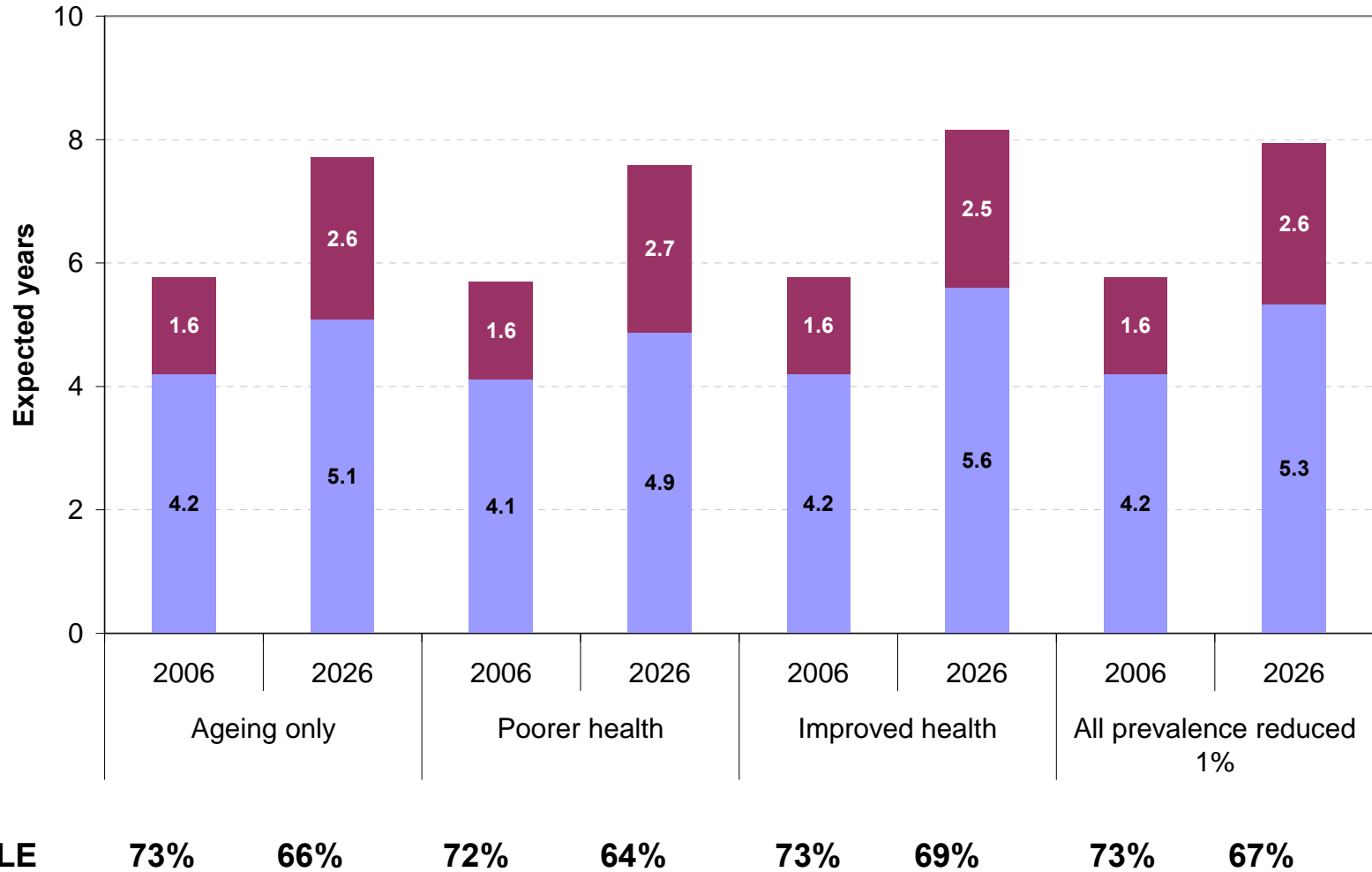
Model parameters - Poorer health

- increases in the prevalence of arthritis, stroke, CHD by 0.5% every two years from 2002
- increase of 10% in the transitions to disability for arthritis, stroke, CHD from 2002
- reduction of 5% in mortality from mild dementia, stroke and CHD from 2016

LE and DFLE at age 65 in 2006 and 2026



LE and DFLE at age 85 in 2006 and 2026



Conclusions: future health status

- Ageing of the population alone will result in considerable increases over the next 20 years in
 - the total number of older people (45%) and
 - the numbers with significant disability (86%)
- Numbers with major diseases will also increase by 40-50%
- LE increases > DFLE increases and %DFLE/LE decreases therefore relative expansion of disability

Conclusions

Modest improvements in population health will

- further increase the total numbers of older people
- reduce the numbers with disability
- give more extra years disability-free

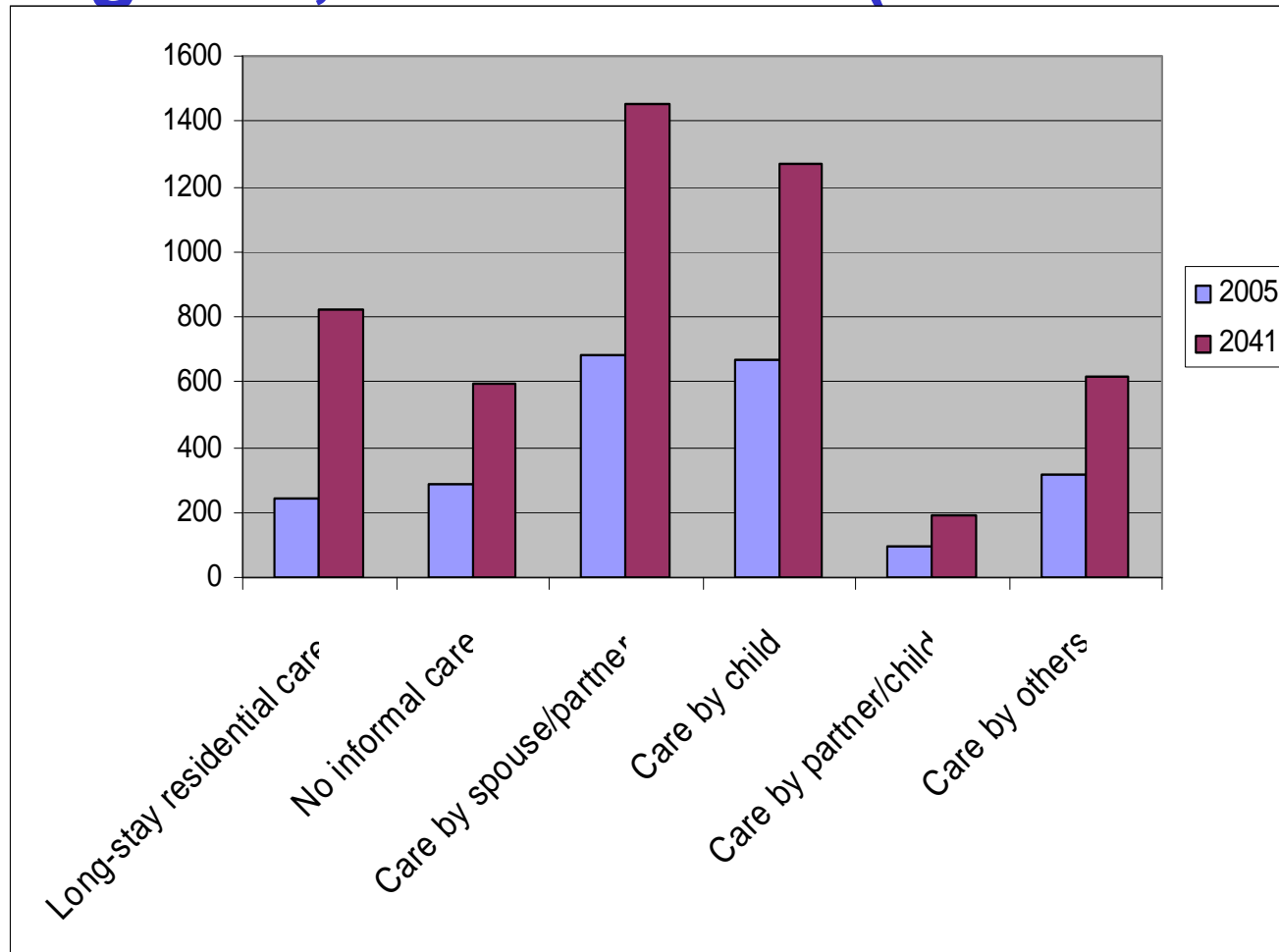
Independent Healthy Ageing: Informal Care for Older People by their Adult Children to 2041: Projections of Demand & Supply in England

(from the PSSRU Long-term Care projections model)

Linda Pickard with Raphael Wittenberg, Derek King, Juliette
Malley, Adelina Comas-Herrera

Personal Social Services Research Unit (PSSRU)
London School of Economics & Political Science

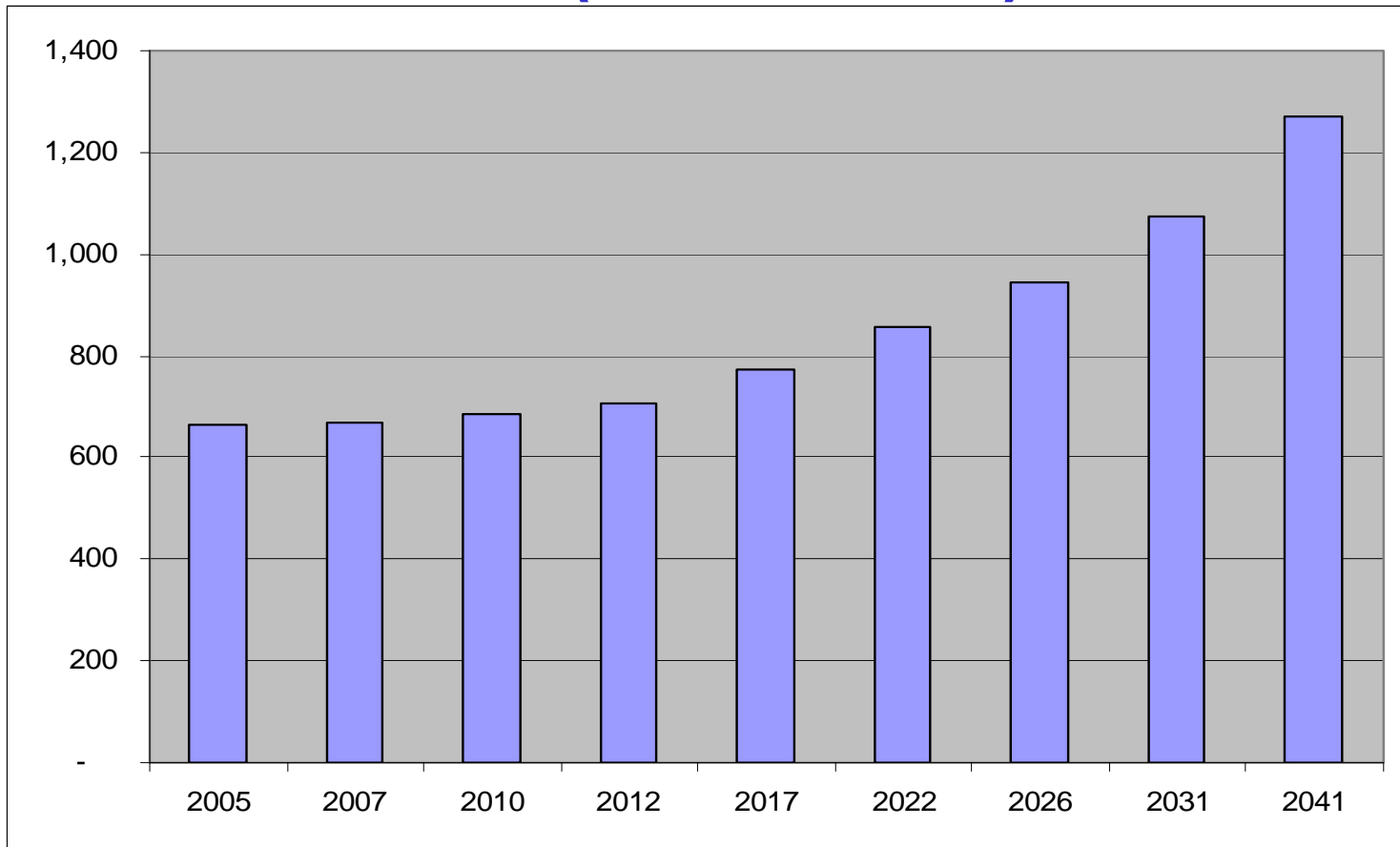
People aged 65+ with a functional disability, by source of informal care, England, 2005 & 2041 (thousands)



Demand for care from children in the future

- Currently around 600,000 disabled older people in England receive informal care from adult children
- Assuming constant probabilities of receiving care by key characteristics, the number of disabled older people projected to receive informal care from adult children is projected to rise by 90% to around 1.3 million in 2041

People aged 65+ with a functional disability projected to receive care from adult children, England, 2005-2041 (thousands)

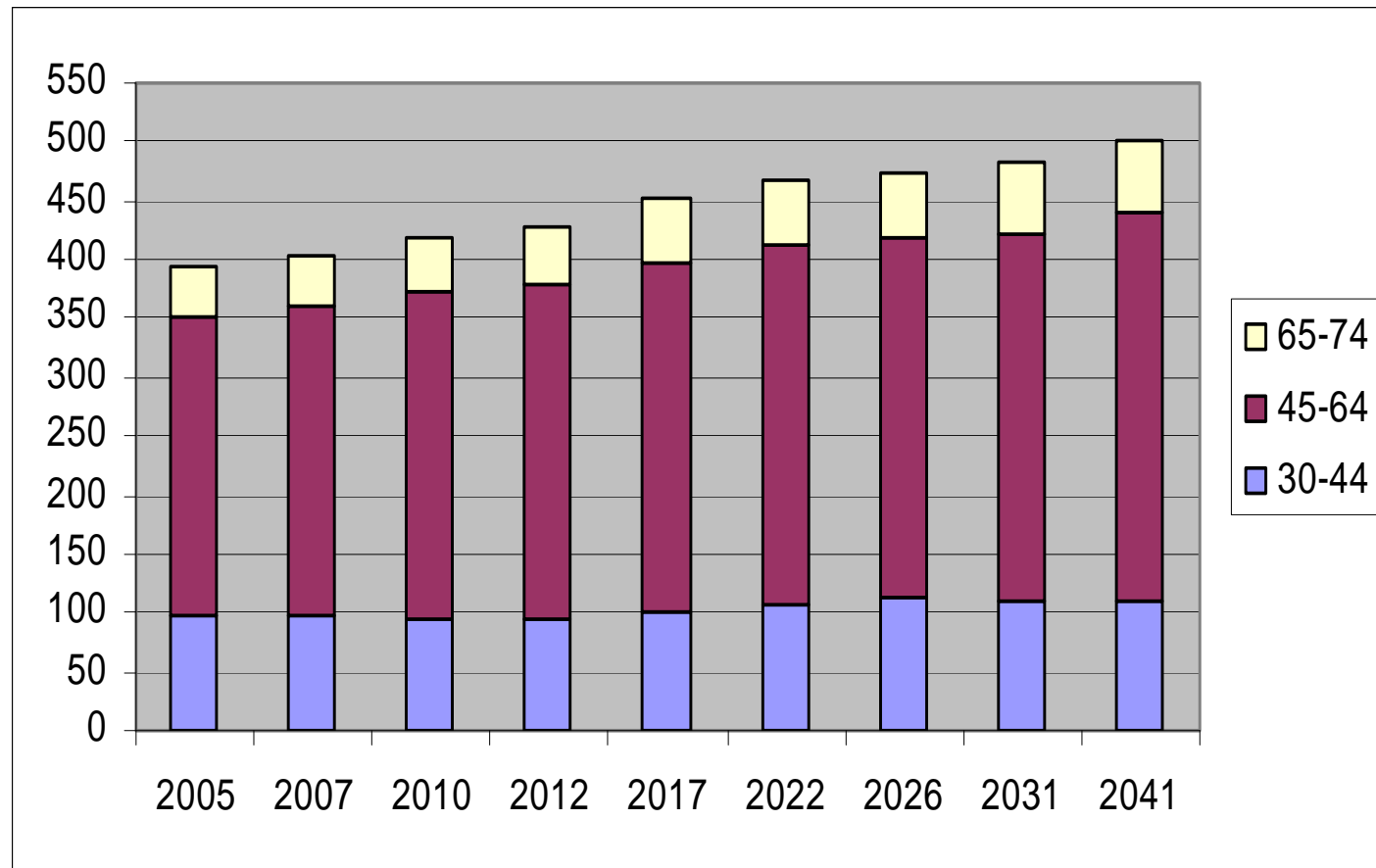


Wittenberg *et al* 2008

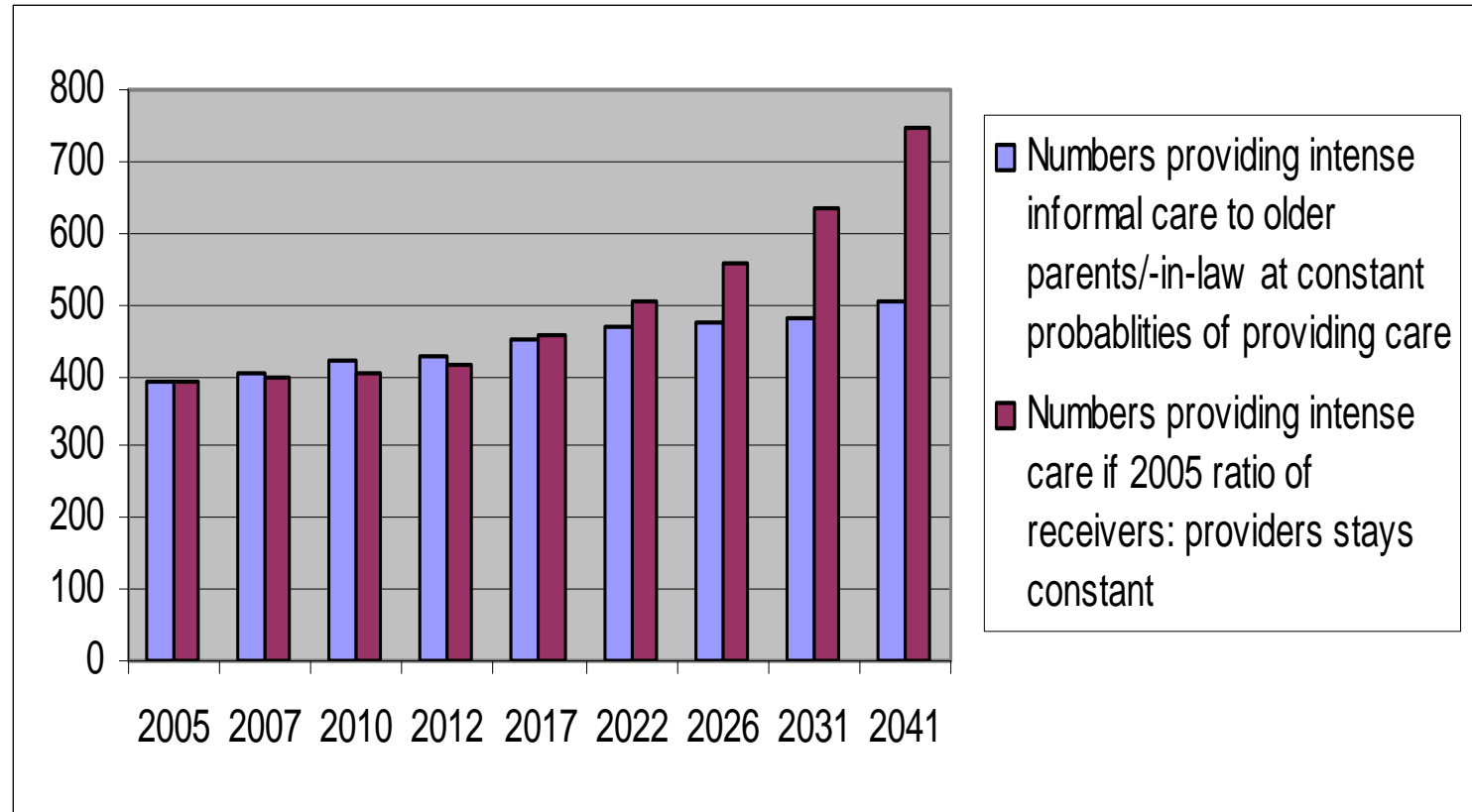
Future *supply* of care by adult children

- There are currently around 400,000 people providing intense informal care to older parents
- This is projected to rise by 27.5% to 500,000 by 2041
- Around 90% of those providing care are under 65 years old and this is still likely to be the case in 2041
- Around two thirds of those providing care are women and this is also still likely to be the case in 2041

Projected numbers people (aged 30 to 74) providing care for 20 or more hours a week to parents aged 65 and over, England, 2005-2041 (thousands)



The 'care gap': difference between supply of intense intergenerational care & demand for care by disabled older people, England 2005-2041



Will the supply of intense intergenerational care keep pace with demand?

- Trends in supply and demand suggest that there will be a fall in the ratio of care-receivers to providers of intense care (from 0.6 in 2005 to 0.4 in 2041)
- This change will result in a shortfall of 250,000 intense carers or 250,000 fewer disabled older people receiving intense informal care by 2041
- 'Care-gap' is primarily driven by demographic changes

Summary: factors relevant independent healthy ageing in next quarter century or so

- **Population size & age structure in next quarter century**
 - Growth of 'young old' (3 million) & 'old old' (3 million)
- **Health status in next 20 years**
 - Growth in numbers with significant disability (86%)
 - Numbers with major diseases will also increase by 40-50%
 - LE increases >DFLE increases and %DFLE/LE decreases therefore relative expansion of disability
- **Living arrangements**
 - Some decrease in prevalence of living alone among old people (but overall numbers increase)
 - More married, especially women (& more divorced)
- **Kin support**
 - More living children available for some decades
 - But an increasing 'care gap' in decades to come

References

- Hancock R., Juarez-Garcia A., Comas-Herrera A., King D., Malley J., Pickard L. and Wittenberg R. (2007) 'Winners and Losers: Assessing the Distributional Effects of Long-Term Care Funding Regimes' *Social Policy and Society* 6 (3) 379-395
- Hancock R., Wittenberg R., Pickard L., Comas-Herrera A., Juarez-Garcia A., King D. and Malley J. (2006) Paying for Long-Term Care for Older People in the UK: Modelling the Costs and Distributional Effects of a Range of Options PSSRU discussion paper 2336/2 available at <http://www.pssru.ac.uk/>
- Berthoud R. and Hancock R. (2008) 'Disability Benefits and Paying for Care' in Churchill N (ed) *Advancing Opportunity: Older People and Social Care*. London: The Smith Institute
- Pickard L (2008a) *Informal Care for Older people provided by their Adult Children: Projections of Supply and Demand to 2041 in England. Report to the Strategy Unit (Cabinet Office) and the Department of Health*. PSSRU Discussion Paper 2515 (www.pssru.ac.uk/pdf/dp2515.pdf)
- Wittenberg R, Pickard L, Malley J, King D, Comas-Herrera A, Darton R (2008) *Future demand for Social Care, 2005 to 2041: Projections of Demand for Social Care for Older People in England. Report to the Strategy Unit (Cabinet Office) and the Department of Health*. PSSRU Discussion Paper 2514 (www.pssru.ac.uk/pdf/dp2514.pdf)

MAP2030 web site:

<http://www.lse.ac.uk/collections/MAP2030>