

HEALTH ENGLAND

the national reference group for health and wellbeing

HALE ONE HUNDRED: Towards 100 Healthy and Active Years

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‘To die young as old as possible’ *Sir Richard Doll 1912*
– 2005

‘Prevention: never too early, never too late’ *Health England*

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Executive Summary

- One in four babies born today in England is expected to live to 100.
- Life expectancy is increasing and the over 100s are the fastest growing age group.
- The population of those aged 85 and over is expected to increase over four times from 1.1 million to 4.5 million over the next 50 years.
- This continues a trend that has been apparent for decades. Since the 1940s, life expectancy has increased on average by three months every year.
- However, as the World Health Organisation has argued, adding Life to Years is as important as adding Years to Life.
- To reflect this, WHO has recommended adopting the concept of health adjusted life expectancy. This is a way of describing the number of years that a person can expect to live in ‘full health’, taking into account years lived in less than full health due to disease and/or injury.
- We recommend that at least as much value should be given to increasing *healthy and active life* as to increasing *life expectancy*. Indeed, it might be thought reasonable to prioritise improvements in healthy and active life over further improvements in life expectancy.
- Hence we propose extending the concept of health adjusted life expectancy to become “Healthy and Active Life Expectancy”. Being active has been demonstrated to contribute positively to wellbeing and to health itself, and as life expectancy increases towards 100 years, the people of England should aspire towards 100 healthy and active years of life. This aspiration may be described as “HALE 100”.
- Trends have suggested that healthy and active life expectancy is not increasing as fast as overall life expectancy. In 1981 the expected time lived in poor health for males was 6.5 years. By 2001 this had risen to 8.7 years. In 1981, the expected time lived in poor health for females was 10.1 years, rising to 11.6 years in 2001.
- Moreover for healthy life expectancy at birth, the UK appears to perform worse than other comparable European countries.
- So more people are currently living for longer, but doing so in a state of poor health. There is a significant risk that this ‘expansion of morbidity’ is likely to get worse as average life expectancy moves towards 100. We therefore need to take measures to try to reverse this expansion, and to create a ‘compression of morbidity’.
- Disease prevention is one way in which this may be done. There is evidence that prevention measures at each stage in life can reduce morbidity, not only at that stage, but throughout the life course - including older ages.

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- Work commissioned by Health England¹ has shown that we are now spending about 4% of total health expenditure on prevention, which is approximately 1.2% higher than the EU15 average. In order to close the gap in health adjusted life expectancy between England and the EU15, we believe that England should maintain this higher proportionate spend on prevention compared to the rest of the EU15. In addition, this spend should be maintained as a proportion of health spending even in difficult economic periods.
- To fill the remaining gaps in the evidence base, more emphasis should be devoted to research and development on the prevention of the medical problems of old age, including dementia, depression and incontinence.
- Overall, disease prevention, at all stages of life, should be seen as the key element of achieving long, healthy and active lives for all citizens.
- *Prevention: never too early, never too late*

Recommendations

1. As more people inevitably live close to 100 years, Government should promote the concept of Healthy and Active Life Expectancy (HALE 100).
2. The aim of improving Healthy and Active Life Expectancy (HALE 100) should apply to all parts of Government, not just the Department of Health.
3. To improve healthy and active life expectancy for all citizens, there needs to be investment in evidence-based prevention at all stages of life.
4. The current proportion of health and social care spending that represents investment in prevention should be maintained with an aim to achieve healthy life expectancy in England that is above the average for the EU15 both at birth and at age 65.
5. Central government should incentivise health commissioners and local authorities to spend more on prevention measures by providing grants that match such spending
6. More research should be focused on the cost-effectiveness of different preventive strategies, particularly on prevention in the later stages of life.

Prevention: never too early, never too late

1. Introduction

One in four babies born today in England is likely to celebrate his or her hundredth birthday.

Life expectancy is increasing and the over 100s are the fastest growing age group. Of those born in 2001, 66% of men and 75% of women are projected to reach 85, and 22% of men and 27% of women are projected to reach 100.² Over the next fifty years, the population of those aged 85 and over is expected to increase by more than four times: from around 1.1 million to around 4.5 million. Those aged 100 and over are expected to increase in numbers from around 9,000 to 239,000. Long-term projections suggest that about a third of those who reach 85 in England in 2086 will survive to 100. Recent research published by the Danish Ageing Research Centre suggests that if mortality rates before the age of 50 remain at 2006 levels, more than 50% of babies born since 2000 in countries with long-lived residents such as Japan, Spain, Sweden and the UK will live to celebrate their 100th birthdays³.

This is to be welcomed. It can only be a good thing for fewer babies to die in infancy, for fewer children to be deprived of their futures, and for fewer parents to be deprived of their children. It must be a cause for celebration that more and more working-age men and women live to enjoy their grandchildren, and even their great grandchildren.

However, these benefits may not be achieved without costs. There will be implications for pensions, for the retirement age and for the time that people spend working.⁴ Falls in mortality are usually accompanied (after a lag) by falls in fertility, with implications for the size of the labour force, and for policies towards immigration, education and child care. And, of course, there will be increased demands on the National Health Service and on social care.

Some of these costs may be exaggerated. There will be no overall increase in the health care costs directly associated with the onset of death, as increasing longevity simply postpones those costs, without increasing them. However, other potential problems are real and have yet to be tackled sufficiently. There are threats to the growth in longevity itself, especially those arising from the predicted increases in obesity among children and adults.⁵ There are inequalities in increases in life expectancy, with less well-off social groups and poorer areas experiencing smaller rises than the better off.⁶ And, perhaps most importantly, there is the real possibility of a significant deterioration in the quality of life, especially for elderly people. If extending life expectancy simply means an increase in the number of years lived with dementia, incontinence and depression, many would question its value. As the World Health Organisation has argued, adding Life to Years is as important as adding Years to Life.⁷

All of this represents a number of challenges for government policy. Should government work to maintain the growth in life expectancy for all its citizens (and to make sure that this does not reverse)? Or should it ensure that citizens live their long lives well – or, at least, in good health? If so, how may this be achieved?

Chapter 2 examines recent trends in the quantity of life, as measured by life expectancy, and in the quality of life, as measured by *healthy* life expectancy.

2. The Quantity and Quality of Life

There are two aspects of any life course: its length or quantity, and its character or quality. The quantity of life is usually taken to be equivalent to length of life or to life-expectancy. The quality of life is obviously multi-dimensional. But one of the most important of its dimensions is what is commonly termed *healthy* life-expectancy: the number of years lived in freedom from mental and physical illness and disability. Here we examine trends in both life-expectancy and healthy life-expectancy.

2.1 Trends in life expectancy

Since the 1940s, life expectancy in the United Kingdom has grown on average by three months every year. This is not simply because older people are living longer: there have been falls in infant mortality, in death rates for children and for adults of working-age, as well as falls in mortality for those over 65⁸. Fewer people are dying among all age groups, and many more are living way beyond the traditional span of three score years and ten.

These improvements are set to continue. The latest available long range national population projections published by the Office for National Statistics (ONS) include information on future trends in life expectancy, based on estimates of cohort life expectancy. These estimates are calculated using age-specific mortality rates which allow for known or projected changes in mortality in later years. So cohort life expectancy at 65 in 2008 would be calculated using the actual mortality rates for those aged 65 in 2008, and the projected rates for those aged 66 in 2009, those aged 67 in 2010, and so on.

Figures 1 and 2 illustrate projected trends in cohort life expectancy by year of birth for men and women in England.

Figure 1: Projected male life expectancy at birth for England, 1981 to 2056



Source: Government Actuary Department. 2006-based principal population projections for expectations of life at birth

Figure 2: Projected female life expectancy at birth, England, 1981 to 2056



Source: Government Actuary Department. 2006-based principal population projections for expectations of life at birth

As is apparent from the figures, current trends suggest that life expectancies will rise to 94 for men and 97 for women born in 2051. Closer to the present, in its long range population forecasts the ONS has estimated that, for people born in 1980, 14.8% of males and 20% of females will survive to 100. In autumn 2008 the ONS issued a press release commenting that for people born in 2001, 22% of males and 27% of females would be expected to live to 100. In addition, of those born in 2001 who reach the age of 85 (in 2086), a third will then survive from 85 to 100.⁹

The exact numbers should be viewed with some caution. Cohort life expectancies are based on projected mortality rates for their calculation, and inevitably those projections become more speculative the further we go into the future. There is a new threat to health in the growth in obesity, but the most plausible projections do not indicate a massive impact on life-expectancy³. Overall, there is no reason to suppose that the broad picture of a steady improvement in the quantity of life is misleading. Life-expectancy is increasing towards 100 years, and will continue to do so.

2.2 Increase in the Very Elderly Population

As the life expectancy of the population ages, so the proportion of very elderly people rises. Table 1 shows how the numbers of people aged 90-99 and 100+ have risen between 2002 and 2007 in England and Wales.

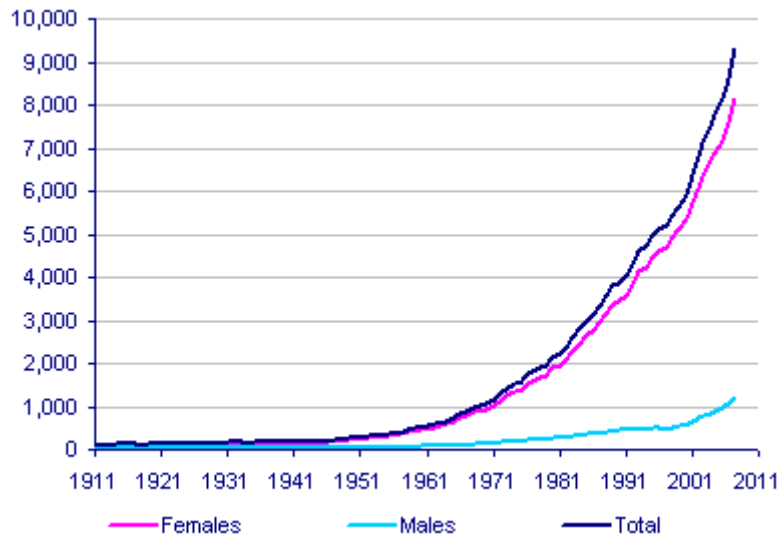
Table 1: Population estimates of the very elderly, England & Wales, 2002 to 2007

	Persons	Males	Females	Persons	Males	Females
	90-99	90-99	90-99	100+	100+	100+
2002	343,710	80,400	263,310	7,110	780	6,340
2003	353,060	84,260	268,800	7,410	800	6,610
2004	361,840	88,500	273,340	7,750	870	6,880
2005	370,370	92,550	277,820	8,150	970	7,180
2006	373,470	94,820	278,650	8,630	1,070	7,560
2007	375,600	97,320	278,270	9,330	1,190	8,130
Percentage Change	9.3%	21.0%	5.7%	31.2%	52.6%	28.2%

Source: Office for National Statistics. Mid-2002 to Mid-2007 estimates of the very elderly (including centenarians). Available at <http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=15003>

This table shows that, even over the last five years, there have been significant percentage increases in the populations in both age groups. In particular, the number of centenarians in England and Wales has increased from 7,110 in 2002 to over 9,300 in 2007. This rapid rise in the number of centenarians (particularly female) is shown clearly in Figure 3.

Figure 3: Centenarians: The fastest increasing age group



Population aged 100 years and over, as at 1 January, England and Wales

Source: Population estimates of the very elderly (including centenarians): Office for National Statistics Experimental statistics. 2006-based National Population projections.
<http://www.statistics.gov.uk/cci/nugget.asp?id=1875>

In fact from the 1950s onwards the number of centenarians in England and Wales has increased at a faster rate than any other age group. Nationally, it is good that so many people are living to the age of 100; but it is extremely important to consider the quality of life that people experience as they age.

2.3 The Quality of Life

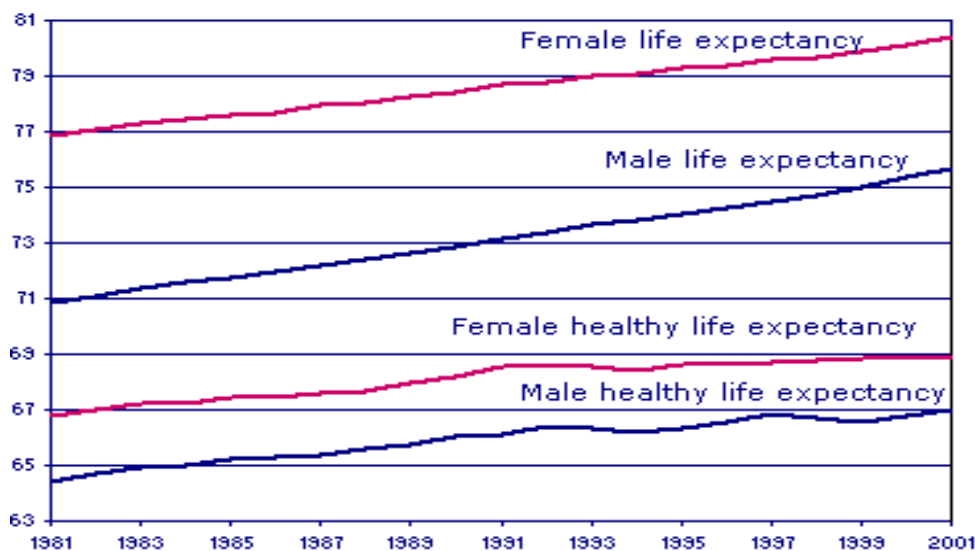
As the population ages, it is possible that the increase in life expectancy may not be matched by a similar increase in the number of years lived in good health (i.e. without significant physical disease, mental illness or physical and mental disabilities). Currently, there is some debate about whether additional years of life gained through increases in life expectancy are likely to be spent in good or poor health.

We endorse the view of the World Health Organisation (WHO) that quality of life should be valued as highly as quantity of life. Therefore it is important to agree on a useful measure that takes account of both quantity and quality of life. This can be described by the concept of ‘healthy life expectancy’, which combines both quality and quantity into a single outcome that may be useful when planning services, or for making comparisons between national populations. Across the world, a number of different measures of healthy life expectancy are in use. WHO uses the term ‘health-adjusted life-expectancy’. In Europe, when comparing healthy life expectancy across countries, the term ‘health expectancies’ is often used. Elsewhere, worldwide international comparisons are often described in terms of ‘disability-free life expectancy’ or the ‘percentage of life lived in good health or free from disability’. All these terms have essentially the same purpose: to describe health status or health improvement in terms of a duration modified by some sort of factor for quality of life.

So the measures of healthy life expectancy generally add up the expectation of life (in years) for different health states, adjusted for the severity of mental or physical illness or disability. This adjustment for severity is achieved by asking people (usually in surveys or focus groups) how much they value living in particular states of health, or with particular disabilities. This is obviously subjective, as different groups of people (e.g. men and women, different social classes, different regions) may place different values on the same states of health; moreover, these values may change over time. Furthermore, the way that severity of health states is distributed across the age range may vary between countries or over time.

In Britain, healthy life expectancy is calculated using self reported health status data collected in large scale population surveys, such as the General Household Survey. These self-reported levels of ill-health are combined with mortality data to estimate the number of years of healthy life an individual may expect to live. Figure 4 shows how both life expectancy and healthy life expectancy have increased in Britain between 1981 and 2001. Again, it is important to note that self-reported health may be influenced by the way that different groups value different states of health, and that expectations vary over time i.e. what is regarded as good health at one point in time, may only be regarded as adequate health at another point in time.

Figure 4: Life Expectancy and Healthy Life Expectancy in Great Britain 1981 - 2001



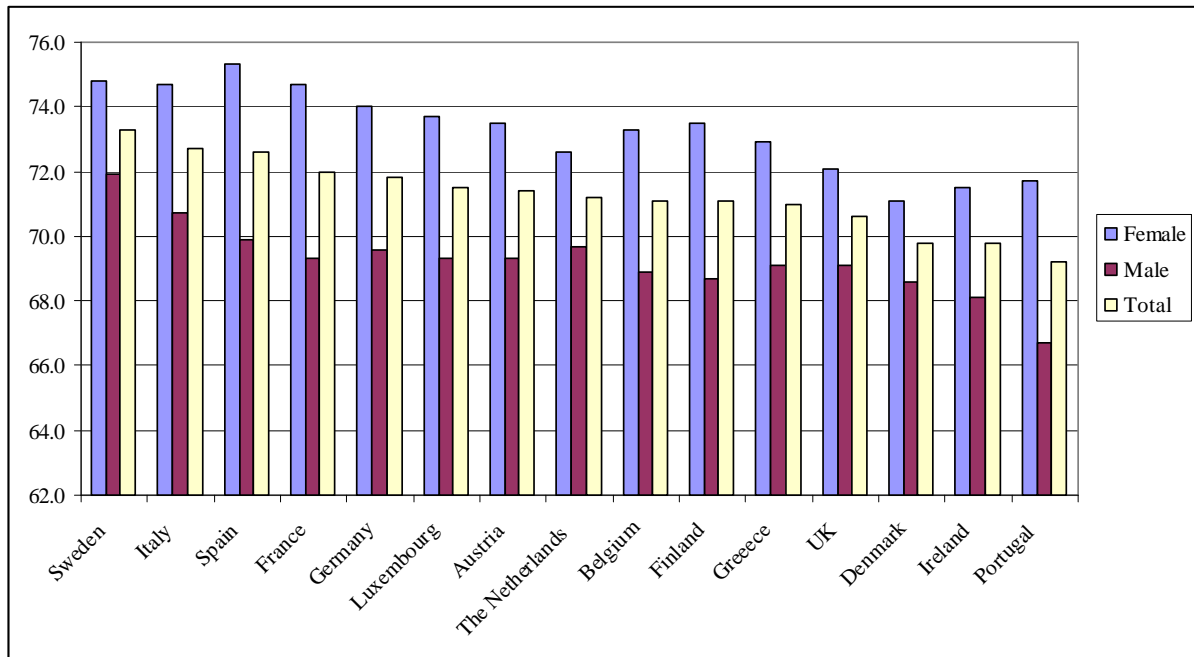
Source: ONS

It is apparent from Figure 4 that between 1981 and 2001, life expectancy increased at a faster rate than health-adjusted life expectancy. The difference between life expectancy and health-adjusted life expectancy represents an estimate of the number of years a person can expect to live in poor health. In 1981, males could be expected to live in poor health for 6.5 years. By 2001 this had risen to 8.7 years. Females can expect to live longer in poor health than males. In 1981, females could be expected to live in poor health for 10.1 years. By 2001 this had risen to 11.6 years.

In passing, it is interesting to note that the gap between male and female *healthy* life expectancy was smaller than the gap in overall life expectancy. In 2001, healthy life expectancy at birth was 67.0 years for males and 68.8 years for females, a gap of 1.8 years.

The figure below shows how the UK compares with other leading European countries in respect of health-adjusted life expectancy at birth¹⁰.

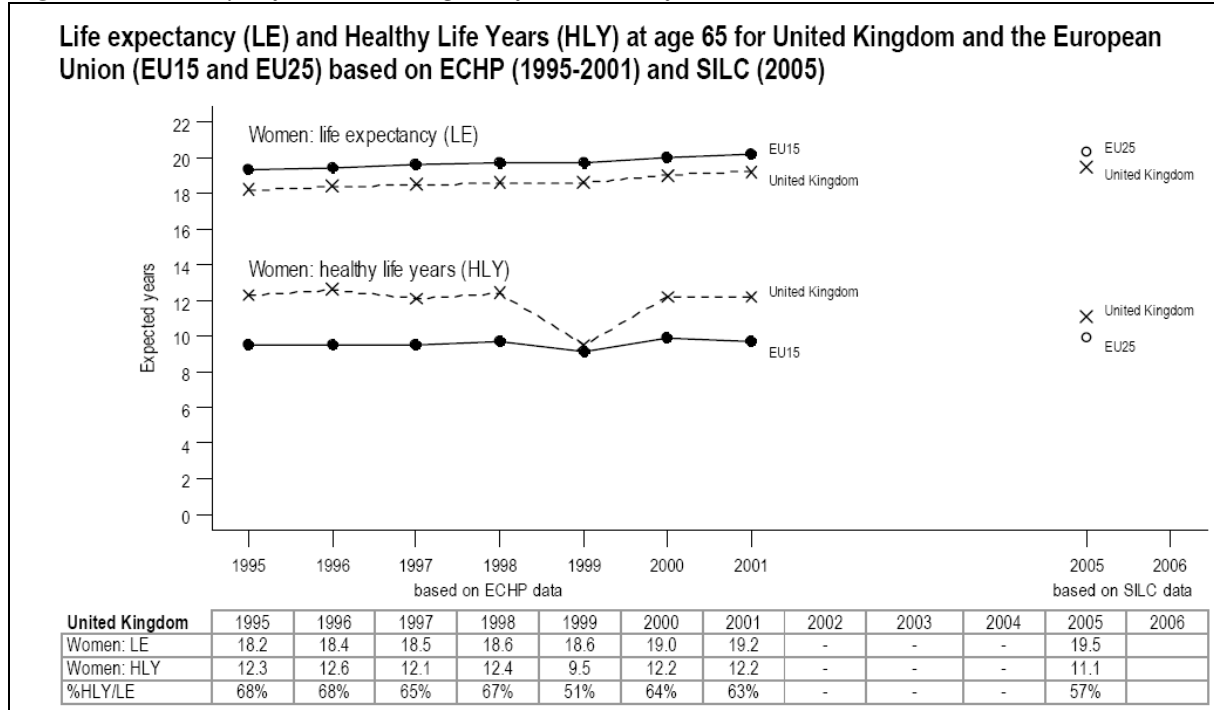
Figure 5: Healthy Life Expectancy at Birth in the EU15, 2002



Source: WHO. The World Health Report 2004: Changing History

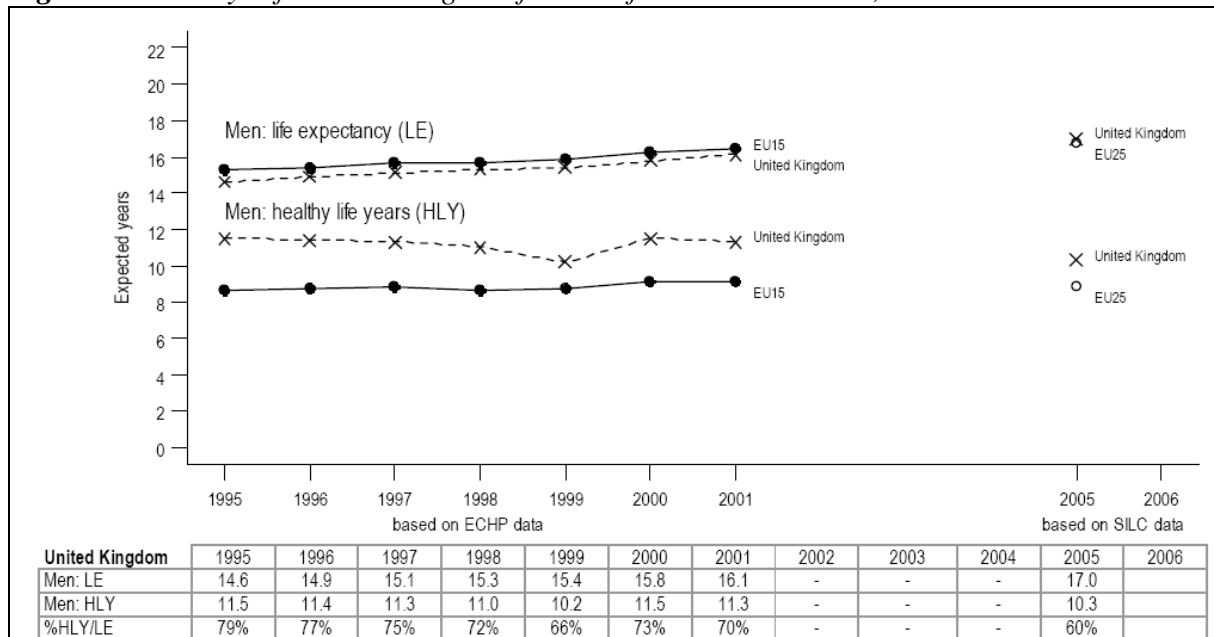
These data indicate that the UK came 12th out of the EU 15 members with a health-adjusted life expectancy at birth of 70.6 years in 2002. This compares with 73.3 years for Sweden and 72.7 years for Italy. However, the UK appears to do better in terms of healthy life years at age 65. The graphs below show data published by the European Health Expectancy Monitoring Unit (EHEMU) on healthy life years at age 65 for men and women in the UK compared with the rest of the EU¹¹. These data have been compiled from survey questions asking respondents about limitations in activities of daily living. Before 2005 data for the UK was gathered from the British Household Panel Survey, which was a different data source from that used to obtain the data for the rest of the EU. Therefore the EHEMU warn against over-interpretation of these data.

Figure 6: Healthy Life Years at Age 65 for Women for the UK and EU, 1995-2001 and 2005



Source: EHEMU Country Reports 2008: Health Expectancy in United Kingdom

Figure 7: Healthy Life Years at Age 65 for Men for the UK and EU, 1995-2001 and 2005



Source: EHEMU Country Reports 2008: Health Expectancy in United Kingdom

Recent studies commissioned by the UK government have highlighted projected growth in a number of chronic conditions in the years ahead. Examples include both obesity and dementia. The Foresight Report Tackling Obesity: Future Choices⁵ undertook modelling work based on recent historical trends in obesity. The authors predicted that:

- By 2015 36% of adult males and 28% of adult females will be obese
- By 2025 47% of adult males and 38% of adult females could be obese
- By 2050 60% of adult males and 50% of adult females could be obese

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- By 2025 15% of males and females aged under 20 could be obese
- By 2050 25% of males and females aged under 20 could be obese

The evidence included in the Marmot inequalities review on the recent trends in obesity suggests not only a significant rise in obesity prevalence across all income groups, but also a greater percentage rise among those living in households with lower incomes, compared with higher incomes¹². The figures below (taken from the Marmot review into health inequalities <http://www.ucl.ac.uk/gheg/marmotreview/consultation>) compare obesity prevalence in 1996 and 2006 across quintiles of income for both men and women.

Figure 8a: Obesity prevalence (%) by income quintile, 1996 and 2006 for men

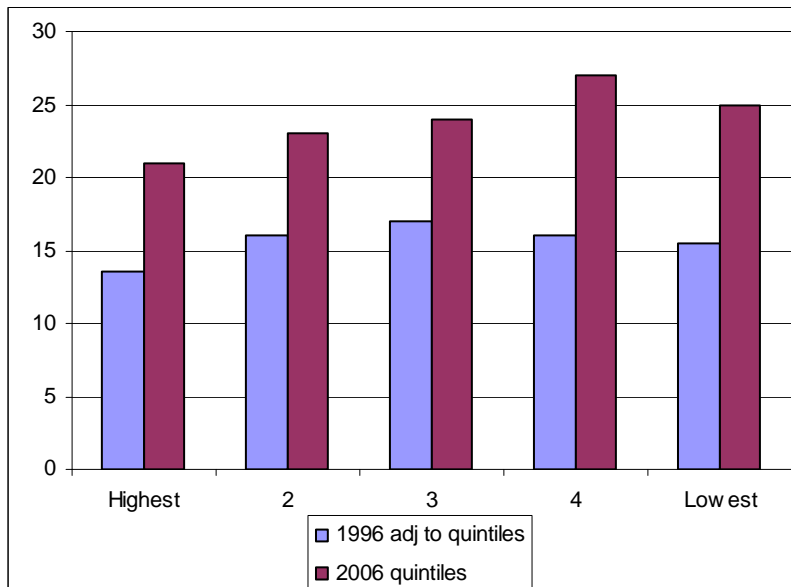
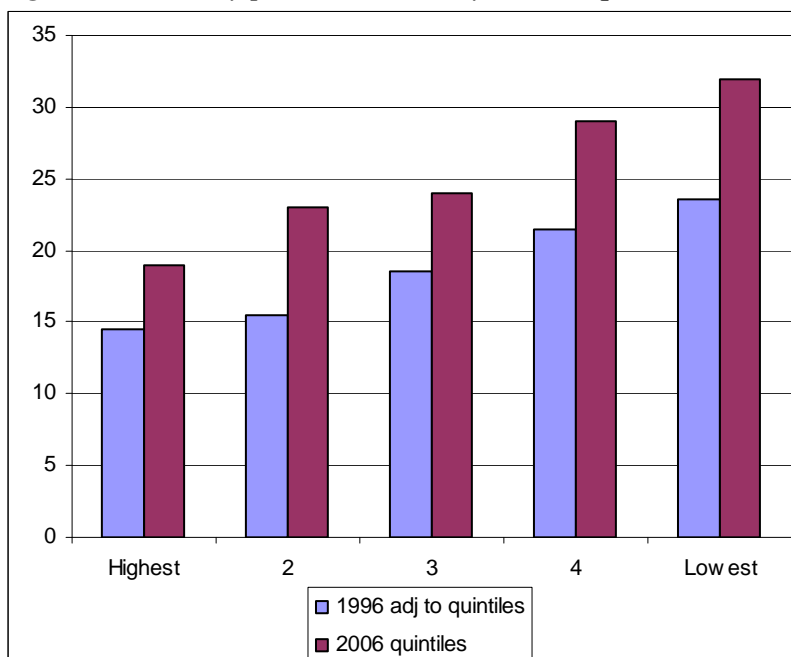


Figure 8b: Obesity prevalence (%) by income quintile, 1996 and 2006 for women



Source: Health Survey for England 1996 and 2006.

The graphs above show that in both the 1996 and 2006 Health Survey for England, obesity prevalence for men and women was highest in the lowest income quintile. Between 1996 and 2006 obesity prevalence has increased across all income groups for both sexes, but the increase is generally greater in the lower income quintiles.

In February 2009, the Department of Health published the first national dementia strategy for the UK¹³. The strategy notes that dementia is one of the most severe and devastating disorders. It is also very common. Key data for the UK as a whole include the following:

- There are approximately 700,000 people with dementia.
- In just 30 years, the number of people with dementia is expected to double to 1.4 million
- The national cost of dementia is about £17 billion per year.
- In the same 30 years, the cost will treble to over £50 billion per year

So this data suggests that there has been an expansion of morbidity in later life (i.e. more years lived in poor health) and that this will continue. As life expectancy increases, and if quality of life is valued as greatly as quantity of life, it will be necessary to pay particular attention to interventions that will promote good health or prevent disability in later life.

2.4 Disability Free Life Expectancy

An alternative to healthy life expectancy is a measure termed ‘disability free life expectancy’. This is another measure combining the quality and the duration of life, but this time by assessing levels of disability using reported limitations in day to day activities such as work, school and leisure activities¹⁴. More severe disability can be measured by the extent of limitations in people’s ability to carry out activities of daily living such as bathing, dressing and shopping. Such measures of functional ability are considered to be more independent of social factors than self reported health.

Like data on healthy life expectancy, information on disability free life expectancy is collected from population surveys. At present, in England, data on severe disability in older people are not routinely available nationally. However, a recent House of Lords report has recommended that the Government should routinely measure disability free life expectancy by asking people about limitations in carrying out their daily activities¹⁵.

Despite this lack of routine data for older people, there has been sufficient data to allow the WHO to highlight the variations in the proportion of life lived in good health or free from disability in different European countries¹⁶. Many of the former Eastern Bloc countries have the lowest proportion of healthy life years. The UK is ranked a rather unflattering 20 out of 51 countries (including microstates).

Recent work by the Organisation for Economic Co-operation and Development (OECD) has tried to address the question of whether improvements in the functional status of the elderly population could reduce the demand for and therefore cost of expenditure on long term care¹⁷. This paper assessed the most recent evidence on trends in disability among the population aged 65 and over in 12 OECD countries: Australia, Belgium, Canada, Denmark, Finland, France, Italy, Japan, the Netherlands, Sweden, the United Kingdom and the United States. The focus was on reviewing trends in severe disability (or dependency). For this analysis, severe disability was defined (where possible) as one or more limitation in basic activities of

daily living (ADLs) such as eating, washing/bathing, dressing, and getting in and out of bed; as such severe limitations tend to be closely related to demands for long-term care.

One of the principal findings from this review is that there is clear evidence of a decline in disability among elderly people in only five of the twelve countries studied (Denmark, Finland, Italy, the Netherlands and the United States). Three countries (Belgium, Japan and Sweden) report an increasing rate of severe disability among people aged 65 and over during the past five to ten years, and two countries (Australia, Canada) report a stable rate. In France and the United Kingdom, data from different surveys show different trends in ADL disability rates among elderly people, making it impossible to reach any definitive conclusion.

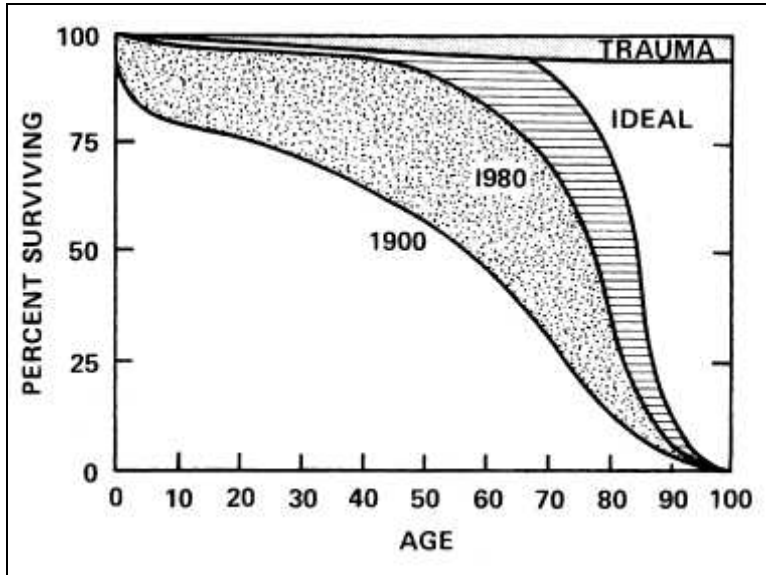
2.5 Compression or Expansion of Morbidity?

On balance the evidence reviewed above suggests that, although life expectancy will continue to increase, healthy life expectancy will not increase as fast. In other words we will see more people living in ill-health for longer: what is termed in the literature an *expansion of morbidity*.

However, such a scenario may not be inevitable. A seminal article on this topic was published in 1980 by James Fries, who argued that actually a *compression of morbidity* was a more likely outcome¹⁸. At that time the conventional wisdom on ageing was the same as now: that as life expectancy increased people would live for longer, but would also experience increased disability and require more expensive care. Fries cast doubt on this. He argued that it was likely that humans had a finite life span and that natural death may occur without disease. He illustrated this point by observing that, despite considerable increases in average life expectancy in the USA during the 20th Century, at that time there had been almost no detectable change in the number of people living longer than 100 years or in the maximum age of persons dying in a given year. Fries also argued that reductions in mortality experienced in the USA and other developed countries in the early 20th Century were largely due to reductions in neonatal mortality. Life expectancy for the population aged 75+ in the USA had remained largely unchanged throughout the 20th Century.

Fries also argued that the compression of mortality towards older ages could be followed by a compression of morbidity. He postulated that the 20th Century had seen a “rectangularisation” of the survival curve (see Figure 9) due to the elimination or significant reduction in the prevalence of many acute, usually infectious, diseases such as smallpox, polio, tuberculosis, diphtheria etc. that were previously major causes of premature deaths.

Figure 9: The rectangularisation of the survival curve



But by 1980 chronic diseases such as coronary heart disease, COPD and diabetes accounted for 80% of all deaths and a higher proportion of disability. Fries argued that the onset of these chronic diseases and markers of ageing (such as raised blood pressure and cholesterol) could be postponed by *changes in lifestyle*, thus raising the age of first disability or major infirmity to near the end of life which he estimated as an average maximum length of 85 years.

As we saw earlier in England & Wales, the number of people living longer than 100 years has been rising steadily (see Figure 3); and the number of people in the 65+ and 85+ age ranges have also been rising and are projected to continue doing so (see Table 2). This does not support the suggestion that there may be a natural average maximum length of life of 85 years. Indeed, there is no evidence yet to suggest what any natural maximum might be if disease and degenerative changes can be prevented or treated successfully.

However, the rest of Fries’ argument - that changes in lifestyle could bring about a compression of morbidity - has considerably more weight. Hubert and colleagues examined the functional status and lifestyle-related risk factors in 418 deceased members of a cohort¹⁹. Those studied were divided into three risk groups on the basis of cigarette smoking, physical inactivity, and under- or overweight. Analysis showed that members of the risk-free group - that is, the physically active, non-smoking, non-overweight group - showed an average disability score of near zero 10-12 years before death, rising slowly over time, and without any evidence of accelerated functional decline. In contrast, those with higher risk (two or more risk factors) maintained a greater level of disability throughout follow-up and experienced an increase in the rate of decline 1.5 years prior to death. For those at intermediate risk, the rate of decline increased significantly only in the last 3 months of life. Other differences between the groups provided no alternative explanations for the findings.

Two other points are worth noting. Robine and Michel suggest that population-wide studies may obscure some significant -trends through time and in sub-groups of societies²⁰. They tentatively suggest a four-stage process that may explain the some of the evidence, as follows:

- an initial increase in survival rates of sick people, leading to an expansion of morbidity
- control of the progression of chronic diseases, which produces a “dynamic equilibrium” between a fall in mortality and an increase in disability
- an improvement in the health status and behaviours of new cohorts of older people, which produces a compression of morbidity
- the eventual emergence of very old and frail populations, which would be represented as a new expansion of morbidity.

A recent review of the international literature by Parker and Thorslund examined the implications of population ageing in terms of medical and long-term care costs, and in terms of disability²¹. The reviewers noted that disability may be decreasing as the population ages, suggesting a compression of morbidity. However, they also observed that there is a simultaneous increase in long-term chronic disease and functional impairments, with their associated costs. In other words, there is a compression of disability at the same time as an expansion of chronic disease and functional impairments. This has implications for how morbidity is measured, as well as for the national prevention priorities that should be chosen in order to deliver healthy ageing as life expectancy increases towards 100 years.

3. The Way Forward – Prevention at all stages of life

Much of the remarkable improvements in life expectancy documented above arose from improvements in our ability to cure disease. The development of antibiotics helped control mortality from infections. Improvements in medicine and technology have significantly reduced deaths from heart attacks, and new treatments have enabled us to reduce mortality from some cancers.

But many would argue that most of the dramatic increase in life expectancy has actually arisen, not so much from changes in our ability to cure disease, but more from improvements in our ability to prevent its onset in the first place²². Some of these changes arise from within the fields of medicine and health care: widespread immunisation, the extension of screening programmes, the development of antihypertensive drugs to reduce blood pressure and of statins to reduce the build-up of cholesterol and thus prevent the onset of heart disease. Others stem, not from improvements in the system of health care as such, but from changes in the wider society and economy: improvements in nutrition, itself a product of economic growth, cleaner water and air leading to a healthier environment, and the changes in individual behaviour and social mores that lead to healthier behaviour in some respects such as the decline in smoking.

So disease prevention, both within the field of health care and outside it, has been a key element – indeed arguably the key element – in the extension of life expectancy. However, though more people are living for longer, as we saw above, too many of them are doing so in a state of poor health. This ‘expansion of morbidity’ is likely to get worse as average life expectancy moves towards 100. We therefore need to take urgent measures to reverse this increase: to create a ‘compression of morbidity’. That is, we need to promote an increase in healthy life expectancy that would outpace the crude increase in life expectancy and thus lead to more people leading healthier and more active lives for longer.

Now there is evidence that prevention measures at each stage in life indeed achieve this end: they not only reduce mortality but also reduce morbidity. Moreover they can do this, not only at older age groups, but throughout the life course. Hence we are recommending a framework for strategic investment in prevention in each stage of life.

A recent review from the OECD has tried to identify mechanisms to avoid the expansion of morbidity in later life. It concluded that ‘Looking at specific programmes... this review also suggests that important improvements to the health and welfare of older cohorts seem possible from some combination of: delaying retirement, increased community activities, improved lifestyles, health-care systems that are better adapted to the needs of the elderly, particularly where they are combined with more emphasis on cost-effective prevention’²³.

Moreover, it is possible that some of the costs of health and social care might be partly avoided by means of a coherent prevention strategy. The Wanless Report (2002)²⁴ found that projected resource requirements would be less if people actively engaged in prevention-related activities. These estimates assume that by participating in effective prevention activities, people would spend a smaller proportion of their lives in ill health. In addition, as life expectancy rises, the proportion of a lifetime spent in long-term ill health would decline. Future projected costs might be reduced to £154 billion rather than the £184 billion otherwise predicted. In other words, investment in effective prevention strategies could save up to £30 billion in health and social care costs by 2026.

The Health Effectiveness Network (HEN) of the WHO has published a report that identifies the main risk factors associated with disability in old age and suggests ways in which disability can be prevented²⁵. Many of the risk factors stem from earlier phases of life and the prevalent socioeconomic conditions. Much evidence shows that physical activity in particular may ameliorate diseases, reduce depressive symptoms and prevent or delay functional limitations and disabilities in the elderly. Long term physical activity leads to postponed disability and sustained independence, even for the chronically ill.

There are, however, gaps and conflicting findings on the relative importance of various risk factors and the best ways of intervening. Environmental risk factors have largely been neglected in earlier research, as have risk factors and prevention with respect to the oldest age groups. As the report says, there is little evidence on the costs and benefits for various old-age disability preventive strategies.

However, we do know that there are important preventive strategies with respect to some of the specific diseases of old age, such as Alzheimer's disease, arthritis and falls. So the National Institute on Ageing in America has published advice aimed at the prevention of Alzheimer's disease (AD): 'Even though no treatments, drugs, or pills have yet been proven to prevent AD or even delay its development, people can take some actions that might reduce the effect of possible AD risk factors. These actions include lowering cholesterol and homocystein, lowering high blood pressure, controlling diabetes, exercising regularly and engaging in social and intellectually stimulating activities'²⁶. The Arthritis Association in America has produced similar advice on preventing arthritis: eating a healthy, well-balanced diet to help maintain recommended weight; exercising regularly to strengthen muscles around joints and help increase bone density; avoiding smoking and limiting alcohol consumption to help avoid osteoporosis²⁷. In the UK, the National Institute for Health and Clinical Excellence (NICE) commissioned the National Collaborating Centre for Nursing and Supportive Care (NCC-NSC) and the Guideline Development Group (GDG) to produce guidelines for assessing the risk of falls in older people, and interventions to prevent falls or repeat falling. These guidelines made particular reference to a number of preventive interventions, including strength and balance training, interventions to prevent home hazards and safety, and education and information-giving²⁸.

But there are also important prevention strategies at earlier ages. These include: continually updated childhood immunisations – now routinely providing protection against some of the causes of pneumonia and meningitis; new immunisations for teenagers – reducing the risk of cervical cancer; routine seasonal influenza immunisation for older people and those at special risk; the monitoring of childhood obesity in primary schools; the reporting of physical activity in secondary schools; promotion of healthy foods and cooking in schools; screening for cervical and breast cancer in young adult and older women; and screening for bowel cancer in older people.

With respect to mental health, the Foresight Mental Capital and Wellbeing project has emphasised that interventions to promote the best possible mental development need to start as early as possible, and suggests a number of steps that can be taken to enhance mental development for children, adolescents, the working population and older people²⁹. The report suggests five actions that individuals can take to improve their mental health and well-being:

- Connect... With the people around you. With family, friends, colleagues and neighbours. At home, work, school or in your local community. Think of these as the

cornerstones of your life and invest time in developing them. Building these connections will support and enrich you every day.

- Be active... Go for a walk or run. Step outside. Cycle. Play a game. Garden. Dance. Exercising makes you feel good. Most importantly, discover a physical activity you enjoy and that suits your level of mobility and fitness.
- Take notice... Be curious. Catch sight of the beautiful. Remark on the unusual. Notice the changing seasons. Savour the moment, whether you are walking to work, eating lunch or talking to friends. Be aware of the world around you and what you are feeling. Reflecting on your experiences will help you appreciate what matters to you.
- Keep learning... Try something new. Rediscover an old interest. Sign up for that course. Take on a different responsibility at work. Fix a bike. Learn to play an instrument or how to cook your favourite food. Set a challenge you enjoy achieving. Learning new things will make you more confident as well as being fun.
- Give ... Do something nice for a friend, or a stranger. Thank someone. Smile. Volunteer your time. Join a community group. Look out, as well as in. Seeing yourself, and your happiness, as linked to the wider community can be incredibly rewarding and creates connections with the people around you.

In addition NICE is preparing an updated clinical guideline for the clinical management and treatment of adults with depression. Although not dealing with primary prevention, the guideline will address issues of secondary prevention and preventing relapse following a depressive episode³⁰.

Garber³¹ argued in a recent article that important advances have occurred in research on the prevention of depression, but that a number of key questions regarding the efficacy of depression prevention programmes need to be addressed before these can be disseminated more widely.

So prevention is key. Overall, we believe that as the population ages it will be more important to be able to provide effective evidence-based interventions at every stage of life. If a greater proportion of the population is likely to live to the age of 100 years, preventative interventions before and during old age become increasingly important.

4. Conclusions and Recommendations

This report has highlighted a number of challenges for government policy. Should government work to maintain the growth in life expectancy for all its citizens (and to make sure that it does not reverse)? Should it ensure that citizens live their long lives well – or, at least, in good health? How might this be achieved?

In this report, we conclude with a series of answers to these questions. In the first set of recommendations, we argue that government should indeed improve the quality of life for all its citizens. Specifically, as life expectancy is already increasing, government should adopt, as a priority, the aim of increasing the *healthy and active* life expectancy of all citizens towards one hundred healthy and active years. This we term “Healthy and Active Life Expectancy of 100 years” i.e. HALE 100. Moreover, this should be a goal for all departments of government, not just those concerned with health and social care.

Why should HALE 100 be a priority for government as a whole? There are two principal reasons. First, as we have already argued, achieving this aim would be of direct benefit to both the individual and the wider society. Second, the relevant policy instruments for achieving this aim range across almost all the functions of government: the provision of health and social care services of course, but also those functions and services concerned with social security, taxation, education, housing, transport, agriculture, law and order and the environment.

Recommendation 1. As more people inevitably live close to 100 years, Government should promote the concept of Healthy and Active Life Expectancy (HALE 100).

Recommendation 2. The aim of improving Healthy and Active Life Expectancy (HALE 100) should apply to all parts of Government, not just the Department of Health.

Our second set of recommendations concerns the role of disease prevention in achieving HALE 100. Part of that framework should be based on an agreed proportion of total health and social care spending. In Health England Report No 2, we established that, over the past decade the proportion of spending on preventive health in England has increased from below the OECD average to above it³². At the very least these proportions should be maintained, and they should be maintained even in difficult economic periods such as the one we are currently experiencing.

Recommendation 3. To improve healthy and active life expectancy for all citizens, there needs to be investment in evidence-based prevention at all stages of life.

Some of this investment should be an agreed proportion of total health and social care spending. The current proportion is 4% as shown in the table below.

Figure 10: Total Expenditure on Prevention and Public Health as a Percentage of Total Expenditure on Health for the EU15, 2000-2006

Countries	2000	2001	2002	2003	2004	2005	2006
	Tot.exp. prev.,pub.h ealth % total expenditure on health, TEH	Tot.exp. prev.,pub.h ealth % total expenditure on health, TEH	Tot.exp. prev.,pub.h ealth % total expenditure on health, TEH	Tot.exp. prev.,pub.h ealth % total expenditure on health, TEH	Tot.exp. prev.,pub.h ealth % total expenditure on health, TEH	Tot.exp. prev.,pub.h ealth % total expenditure on health, TEH	Tot.exp. prev.,pub.h ealth % total expenditure on health, TEH
Austria	1.5	1.7	1.7	1.8	2.1	1.8	1.8
Belgium				1.3	1.6	3.5	b 3.4
Denmark				2.4	2.4	2.2	2.3
Finland	4.8	4.8	4.8	4.9	5.0	5.2	5.1
France	2.2	2.1	2.1	2.1	2.0	2.1	2.2
Germany	3.1	3.1	3.2	3.2	3.3	3.2	3.3
Greece							
Ireland							
Italy	0.6	0.6	0.6	0.7	0.6	0.6	0.6
Luxembourg	1.0	1.0	0.8	0.7	b 0.7	1.1	
Netherlands	5.1	5.1	5.1	5.1	b 4.7		
Portugal	2.4	2.3	2.1	1.9	1.8	1.8	1.8
Spain	1.1	1.1	1.2	2.3	b 2.3	2.3	2.3
Sweden		3.4	b 3.5	3.2	3.2	2.4	3.5
United Kingdom							4.0
Average	2.4	2.5	2.5	2.5	2.5	2.4	2.8

Source: OECD Health Data 2009. Version December 2008

This *proportion* should be maintained even in times of economic difficulty in order to ensure that healthy life expectancy in England is maintained above the average of the EU 15 both at birth and at age 65 (see Figures 5 – 7 above).

Recommendation 4. The current proportion of health and social care spending that represents investment in prevention should be maintained with an aim to achieve healthy life expectancy in England that is above the average for the EU15 both at birth and at age 65.

Furthermore, there is room within these resources to redirect spending to more appropriate priorities. During the course of Health England’s work, it has become apparent that there is no ongoing methodology to establish prevention priorities in either health or social care. In Health England Report No 5, we have provided both such a methodology and an illustration of its application.

However, simply asserting that the proportions of health and social care spending on prevention ought to be maintained or increased, or that this spending ought to be redirected, is not enough to ensure that this will happen. It is also necessary that the relevant agents of spending - in this case, NHS commissioners and local authorities – have the incentives to follow these recommendations. Otherwise, the recommendations will suffer the fate of so many of the previous calls to emphasise disease prevention and health promotion: agreement in principle to the ideas, but little action on the ground.

Health England Report No 3 examined various ways of incentivising commissioners and local authorities to spend more on prevention, including formula funding, ring-fencing the relevant areas of spending, and matching grants from central government to commissioners spending on preventive care³³. Of these, the last - matching grants – was amongst the highest scores against the relevant criteria. Hence we recommend that matching grants from central

government to commissioners for preventive spending be adopted as a means of ensuring that preventive measures are appropriately funded.

Recommendation 5. Central government should incentivise health commissioners and local authorities to spend more on prevention measures by providing grants that match such spending

However, as we have emphasised above, public spending on preventive health and social care forms only a part of a strategic investment on prevention. Other areas of government and government policy are essential. Prevention is a key element of a number of recent initiatives introduced by government departments.

Finally, it is important to note that there are still significant gaps in the evidence base³⁴. We do not always know what works, especially where the medical problems of old age, such as dementia, depression and incontinence, are concerned. Hence more resources should be devoted to research and development on disease prevention, particularly in those areas.

Recommendation 6. More research should be focused on the cost-effectiveness of different preventive strategies, particularly on prevention in the later stages of life.

Overall, prevention, at all stages of life, should be seen as the key element of achieving long, healthy and active lives for all citizens. The moral of this work should be:

Prevention: never too early, never too late.

Appendix: Healthy Life Expectancy

With the development of health gap measures in the 1990s, there has been some shift in the use of these terms, and health expectancy is now used to denote the general class of summary measures that relate to the area under the survival curve. Also, following the feedback from Member States and to better reflect the inclusion of all states of health in the calculation of healthy life expectancy, the name of the indicator used by WHO to measure healthy life expectancy was changed from disability-adjusted life expectancy (DALE) to health adjusted life expectancy in *The World Health Report 2001*.

WHO has adopted the following terminology:

Health expectancy (HE): Generic term for summary measures of population health that estimate the expectation of years of life lived in various health states.

Health state expectancy: Generic term for health expectancies that measure the expectation of years lived in a single specified health state (e.g. disability-free).

Health-adjusted life expectancy (HEALTH ADJUSTED LIFE EXPECTANCY): General term for health expectancies that estimate the expectation of equivalent years of good health based on an exhaustive set of health states and weights defined in terms of health state valuations.

Disability-adjusted life expectancy (DALE): Term used for HEALTH ADJUSTED LIFE EXPECTANCY calculated based on DALY estimates from a burden of disease study.

Healthy life expectancy: WHO implementation of a cross-population comparable HEALTH ADJUSTED LIFE EXPECTANCY, using population-based health state preferences.

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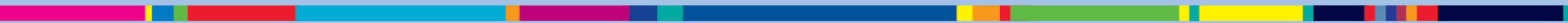
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