

Securing Good Health for the Whole Population

Population Health Trends

Derek Wanless

December 2003

Securing Good Health for the Whole Population

Population Health Trends

Derek Wanless

December 2003

© Crown copyright 2003.

Published with the permission of HM Treasury on behalf of the Controller of Her Majesty's Stationery Office.

The text in this document may be reproduced free of charge in any format or medium providing that it is reproduced accurately and not used in a misleading context. The material must be acknowledged as Crown copyright and the title of the document specified.

Any enquiries relating to the copyright in this document should be sent to:

HMSO
Licensing Division
St Clements House
2-16 Colegate
Norwich
NR3 1BQ

Fax: 01603 723000

E-mail: hmsolicensing@cabinet-office.x.gsi.gov.uk

HM Treasury contacts

This document can be accessed from the Treasury Internet site at:

www.hm-treasury.gov.uk

For further information on the Treasury and its work, contact:

Correspondence and Enquiry Unit
HM Treasury
1 Horse Guards Road
London
SW1A 2HQ

Tel: 020 7270 4558

Fax: 020 7270 4574

E-mail: public.enquiries@hm-treasury.gov.uk

ISBN: 0-947819-70-3

Department of Health contacts

Information on the Department of Health and its work is available on the department's website at:

www.doh.gov.uk

For further information on the Department of Health and its work, contact:

Public Enquiry Office
The Department of Health
Richmond House
79 Whitehall
London
SW1A 2NL

Tel: 020 7210 4850

E-mail: dhmail@doh.gsi.gov.uk

CONTENTS

	Page	
Chapter 1	Introduction	1
Chapter 2	Mortality	5
Chapter 3	Morbidity	19
Chapter 4	Determinants of health	23
Chapter 5	Long-term health drivers	35
Chapter 6	Conclusions and next steps	39
Annex A	Annex A: List of Tables	
Annex B	Annex B: List of Charts	
Annex C	Annex C: List of Abbreviations	
Annex D	Annex D: Glossary	

INTRODUCTION

1.1 Prior to Spending Review 2002, Derek Wanless was asked to examine future health trends and to identify the factors determining the long-term financial and resource needs for the NHS to 2022. This was the first time in the history of the NHS that the Government had commissioned such a long-term assessment of the resources required to provide high-quality health services in the future.

1.2 The Review was built on assumptions about what would be needed in order for health services to catch up and keep up with those in other developed countries. It used scenario planning as a tool for capturing a range of uncertainties under possible alternative futures. Three scenarios were presented in the final report¹ – the slow uptake, solid progress and the fully engaged scenarios. The three scenarios differed on supply side assumptions, according to how productively the health services use resources such as staff, buildings and technologies and, on the demand side, in the extent to which people are successfully engaged in protecting and promoting their own health and become more engaged in managing their own care.

1.3 The Review showed that historical underinvestment in the NHS had created capacity shortages and that demand, due to increasing expectations of healthcare, would outstrip supply. The funding needs in the short term would be similar under any of the three scenarios in order to “catch up” with the best healthcare systems in Europe over the next ten years, but funding could be reduced in the following ten years through a combination of reduced demand due to success in public health measures and improved supply via increased productivity.

1.4 In the longer term, the scenarios modelled a fundamental shift in the level of public engagement in health. The scenarios differed in the extent to which people are engaged in their own health – so for example, the more engaged, the more often people will use primary care and self care as opposed to secondary or acute care, and the lower some key risk factors such as smoking and obesity will be. This illustrated the potential for effective public health measures – including primary and secondary prevention and chronic disease management – to reduce demand pressures in the longer term. There are potentially large gains to be made by refocusing the health service towards the promotion of good health and the prevention of illness.

The fully engaged scenario

1.5 Under the fully engaged scenario, the level of public engagement in relation to health is high, life expectancy goes beyond current forecasts, health status improves dramatically, use of resources is more efficient and the health service is responsive with high rates of technology uptake.

1.6 Over a twenty-year period, the fully engaged scenario was not only the least expensive scenario modelled but also, by definition, delivered the best health outcomes. In absolute expenditure terms the gap between the best and worst scenarios is large – around £30 billion by 2022/23, or half of current NHS expenditure. The fully engaged scenario would also leave the NHS far better prepared to face the changing demography of the population by 2022 and beyond, and to tackle issues of choice where in the short term, and potentially in the long term, lack of capacity is a major constraint.

¹ *Securing Our Future Health: Taking a Long-Term View*, Derek Wanless, 2002

1.7 The Review suggested that evidence-based principles needed to be established for public health expenditure decisions and the scenario modelling illustrated that lifestyle changes such as stopping smoking, increasing physical activity and better diet could have a major impact on the required level of health resources.

1.8 The last report established the need for considerable additional resources under any scenario but made clear that more money did not guarantee success. Success also requires radical reform, not only of the delivery of health services but also in terms of public engagement.

1.9 In the short term, better use of existing capacity could assist but, in the long term, investment would be key; productive investment in skilled people, buildings, information systems and medical technologies to create adequate long term supply and productive investment in the health of the population and their levels of engagement to limit demands on the health services. Both are critical for achievement of the fully engaged scenario and both require much greater success than health services have achieved historically.

Securing Good Health For The Whole Population

1.10 In April 2003, Derek Wanless was invited to provide an update on the challenges involved in achieving the fully engaged scenario, and in particular, on the public health aspects of the fully engaged scenario.

Box 1.1: Terms of Reference

The review will be led by Derek Wanless and will report early in 2004 to the Prime Minister, Secretary of State for Health and the Chancellor. It will focus on prevention and the wider determinants of health in England and in doing so will:

- make recommendations to the Government on implementing cost-effective approaches to improving population health, prevention, and reducing health inequalities consistent with the public health aspects of the "fully engaged" scenario outlined in the first Wanless report;
- help enlist support from across government and other agencies in addressing these issues; and
- advise on whether the delivery plan to implement the Government's cross-cutting review on tackling health inequalities, and other follow-up action including public health delivery plans at the national and local level, is consistent with delivering the public health aspects of the "fully engaged" scenario in the Wanless review.
- The review will not, other than in respect of public health, cover the financing or organisation of the National Health Service.

1.11 A list of questions were set out on the HM Treasury website² and responses have been encouraged. Many contributions to the Review have already been received and these are currently being analysed and will be incorporated into the final report.

Health trends 1.12 This paper provides information on the main causes of mortality, morbidity and key risk factors in England, including trends over time. International comparisons have been made with Australia, Denmark, Canada, Finland, France, Germany, the Netherlands and Sweden – selected for comparison because they have broadly similar population structures, health care systems and per capita wealth as England.

1.13 The main trends examined here show that over the last century there has been a big shift in the burden of disease – from infectious diseases of the nineteenth and early twentieth centuries to chronic diseases in the twentieth century and now. The UK (and England) performs poorly compared to other countries on some key measures of health outcomes and chronic disease such as Coronary Heart Disease (CHD), cancer and particularly on respiratory diseases. Chronic diseases, such as CHD and cancer are also strongly related to lifestyle factors such as smoking, poor diet, physical inactivity and alcohol consumption³. There is a strong social gradient to the prevalence of many of these risk factors, for example, it is estimated that half the difference in survival to 70 years of age between social class I and V is due to higher smoking prevalence in class V⁴.

1.14 Changes over time in the burden of disease have shifted the emphasis of public health from health protection measures to tackle infectious diseases, towards health promotion policy targeting individual behaviour and lifestyle risk factors, as well as the wider determinants of health, such as poverty and education. Although health protection is still an important issue in the context of new, emerging and resurgent infectious diseases (such as HIV, Ebola Virus, vCJD and tuberculosis), and with possible threats to health post-September 11th, this trend seems likely to continue. In addition, there could well be the development of new diagnostic technologies, including those based on genetics, which could also play a role in improving population health. There could also be developments in the use of ICT to predict future health status, and for directing the use of resource to prevent or minimise demand on health services.

1.15 This paper aims to set the context for Derek Wanless' final report "Securing Good Health for the Whole Population", due to report in February 2004.

² www.hm-treasury.gov.uk/wanless

³ *Coronary Heart Disease Epidemiology; from aetiology to public health* M. Marmot and P. Elliot, 1994 and *Oxford Textbook of Medicine, Epidemiology of Cancer*, R. Doll and R. Peto, 1995

⁴ Department of Health analysis

2

MORTALITY

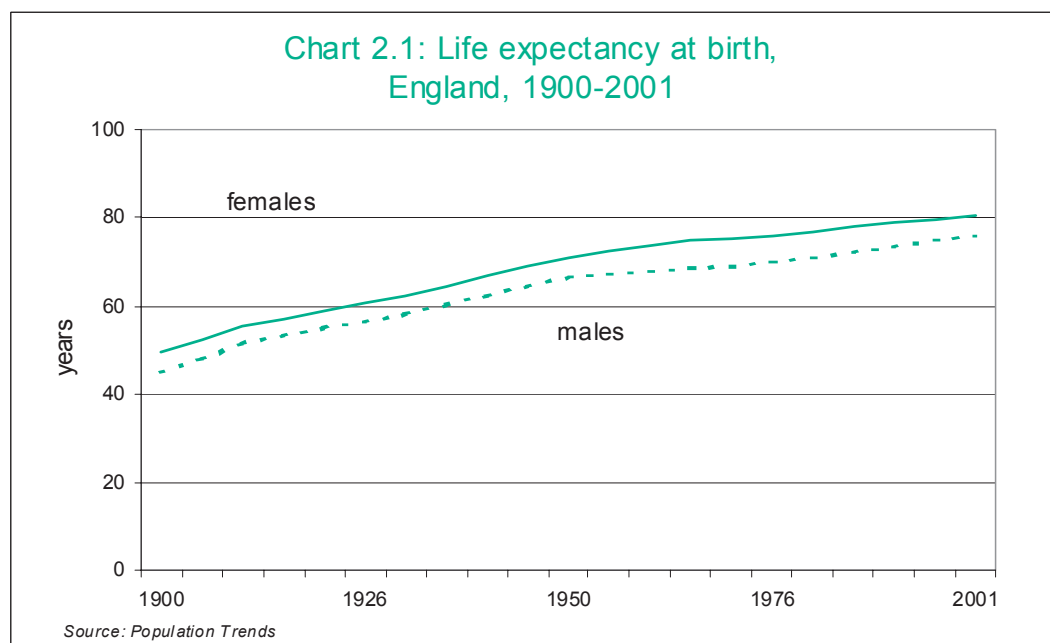
Summary

This chapter describes trends in life expectancy, inequalities in life expectancy and the main causes of death in England.

- Life expectancy at birth has increased by over 30 years since 1900, with the most rapid increases being seen in the first half of the century;
- The main causes of premature mortality now are coronary heart disease and cancer – accounting for 35 per cent of premature life years lost;
- But there are significant inequalities in life expectancy between genders, socio-economic groups and geographical areas, and by ethnicity;
- Life expectancy at birth is low in England – particularly for women – in relation to some other comparable countries; and
- Mortality rates are relatively high compared to other countries for some of the key chronic diseases.

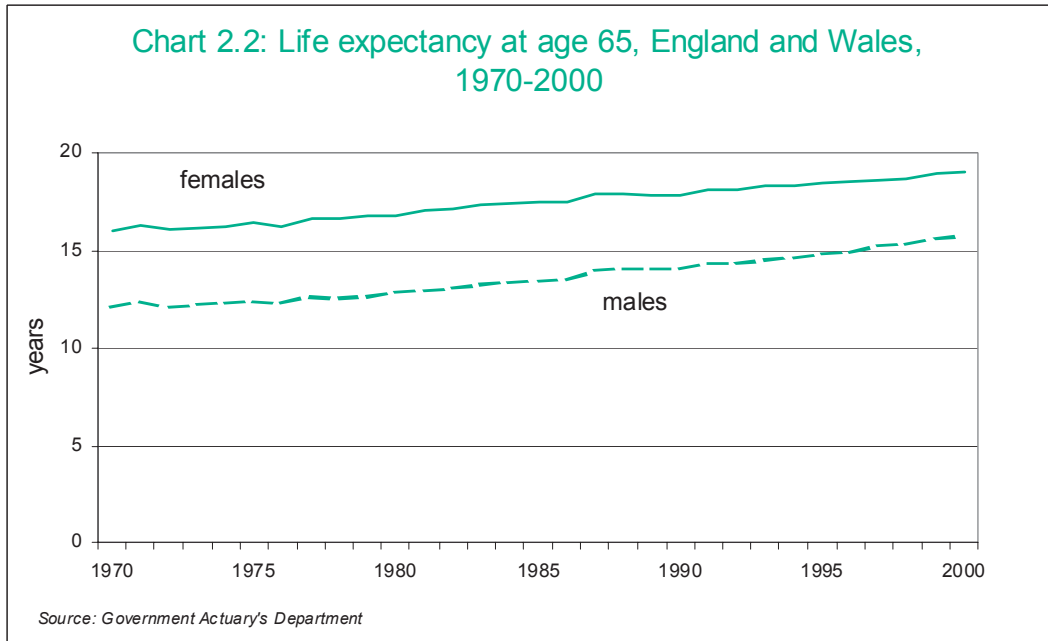
Life Expectancy

Life expectancy at birth 2.1 In 2001, life expectancy at birth in England was 80.6 years for women and 76.0 years for men. Life expectancy at birth increased by over 30 years during the last century (chart 2.1). The increase in life expectancy was most rapid during the first half of the twentieth century.

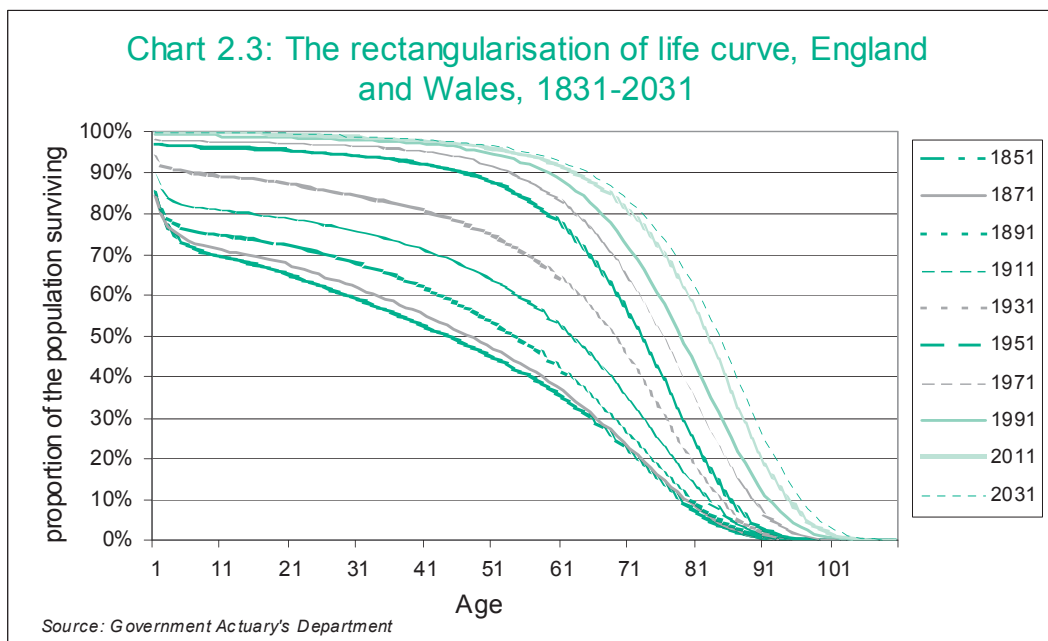


Life expectancy at age 65

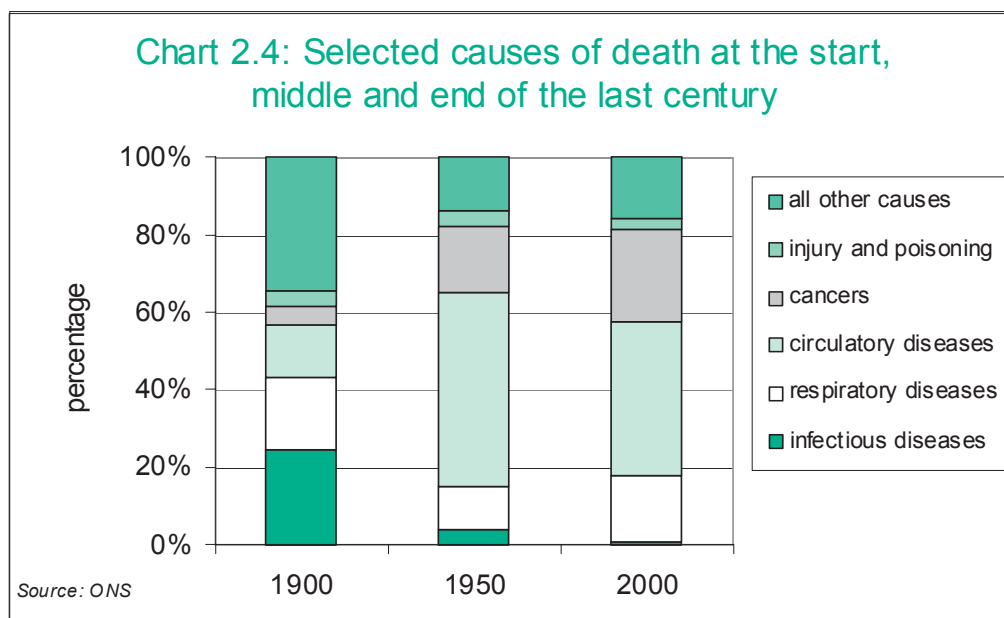
2.2 A second commonly used measure is that of life expectancy at older age, for example at age 65. This provides a broad indicator of the health of older people in the population. Life expectancy at age 65 is also increasing. In 1978, life expectancy at age 65 was 16.6 years for women and 12.5 years for men. By 2001, this had risen to 18.9 and 15.8 years respectively (chart 2.2)



2.3 Over the last century, the number of people surviving into old age has increased dramatically. This phenomenon – illustrated in chart 2.3 – is known as the rectangularisation of life curve. Until the middle of the last century, although a larger proportion of the population began to survive into old age, the maximum age that people reached changed very little. In more recent years, not only are people more likely to live into old age, but the maximum age of life reached has also increased.



Main causes of mortality 2.4 In England, the main causes of death at the present time are circulatory disease, cancer and respiratory disease. This has changed over the past century, with a decline in deaths from infectious diseases and an increase in deaths from chronic diseases such as circulatory diseases and cancer (chart 2.4).



Premature mortality 2.5 A further commonly reported measure of health outcomes is potential years of life lost (PYLL), which calculates the total number of years by which people dying are failing to reach a specified age – often 70 or 75 years. The measure, therefore, gives greater weight to deaths at younger ages. Table 2.1 shows that the main contributors to PYLL to age 75 are CHD and cancer, based on the main cause of death for each individual.

Table 2.1: Top causes of years of life lost up to age 75 in England (1999)

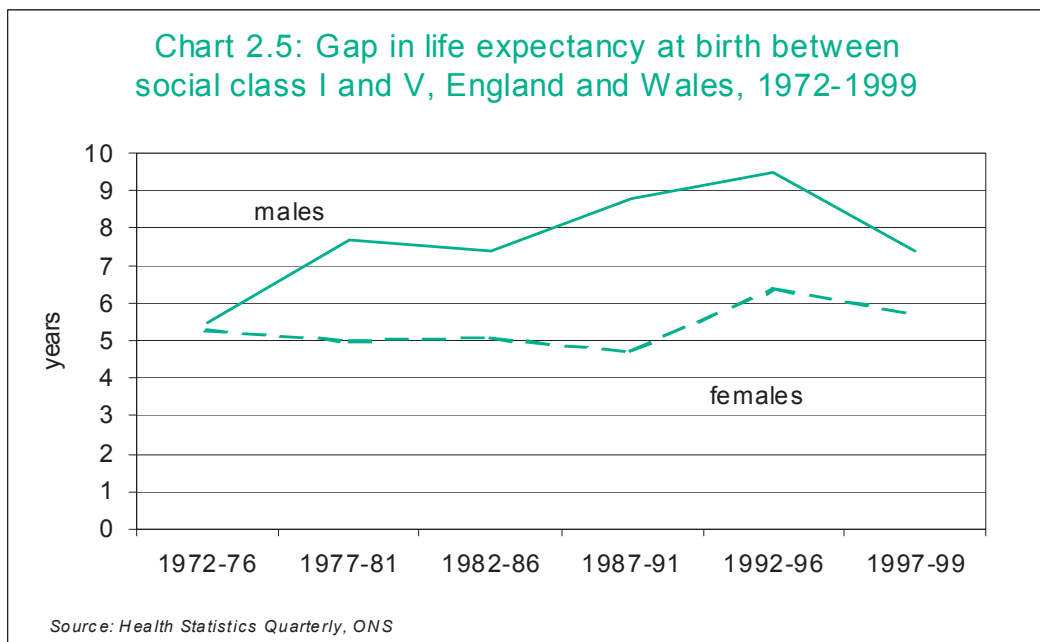
Contributing factor	Percentage of total life years lost
CHD	18
Cancer	17
Injury/poisoning	9
Suicide and undetermined death	6
Stroke	6
Respiratory disease	6
Liver disease (alcohol related)	2
Road traffic accidents	2
Diabetes	1
Others	33
Total	100

Source: Department of Health analysis based on the Public Health Common Data Set

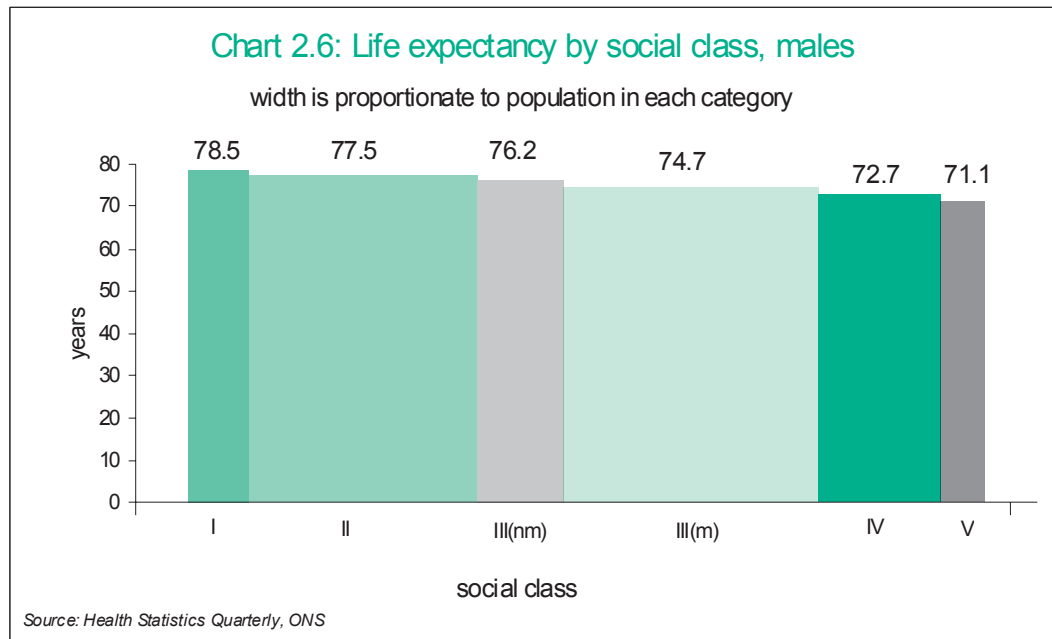
INEQUALITIES IN LIFE EXPECTANCY

Gender inequalities 2.6 Although life expectancy of the population as a whole has increased significantly, there is still a gap between the life expectancy of different groups. Male life expectancy at birth lags behind female life expectancy, although this gap is narrowing. Between 1971 and 2001, male life expectancy at birth increased by 7.0 years, whereas female life expectancy at birth increased by 5.3 years.

Socio-economic inequalities 2.7 Life expectancy at birth also varies by social class. In 1997-99, male life expectancy at birth was 71.1 years for unskilled manual classes compared to 78.5 for professional classes, a gap of 7.4 years. For women, the gap was 5.7 years (chart 2.5). The gap in life expectancy between the lowest and highest social classes reached a peak in the early 1990s. It has declined since then, but remains higher than in the early 1970s.



2.8 However, the proportion of the population in social classes I and V is low, with social classes II, III and IV each containing more people – as shown in chart 2.6. It is important not just to consider the two extreme ends of the spectrum when examining life expectancy but the gradient across the whole population.

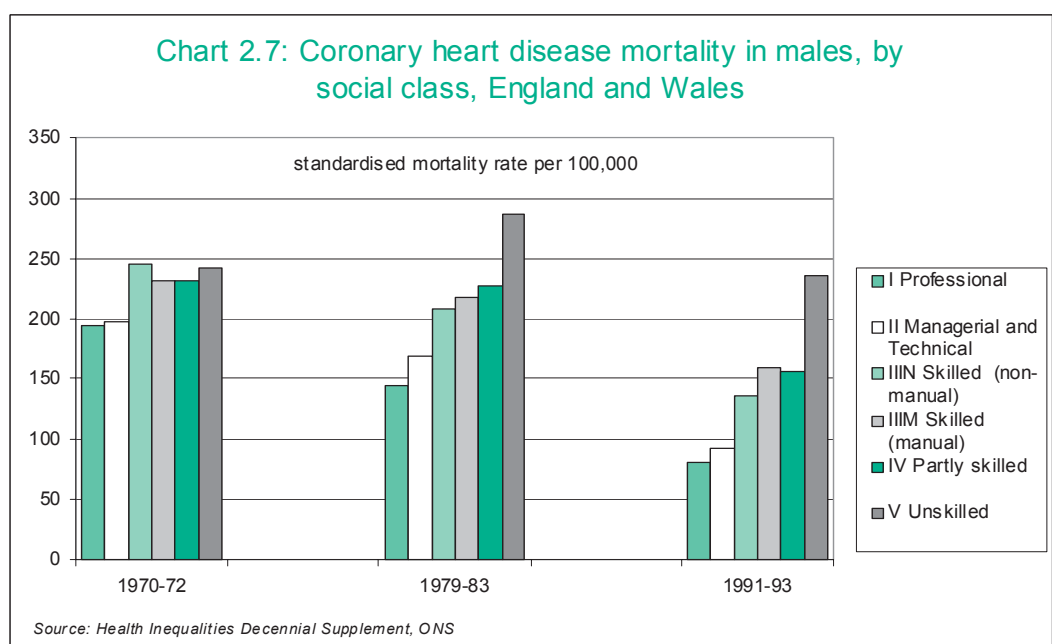


Geographical inequalities

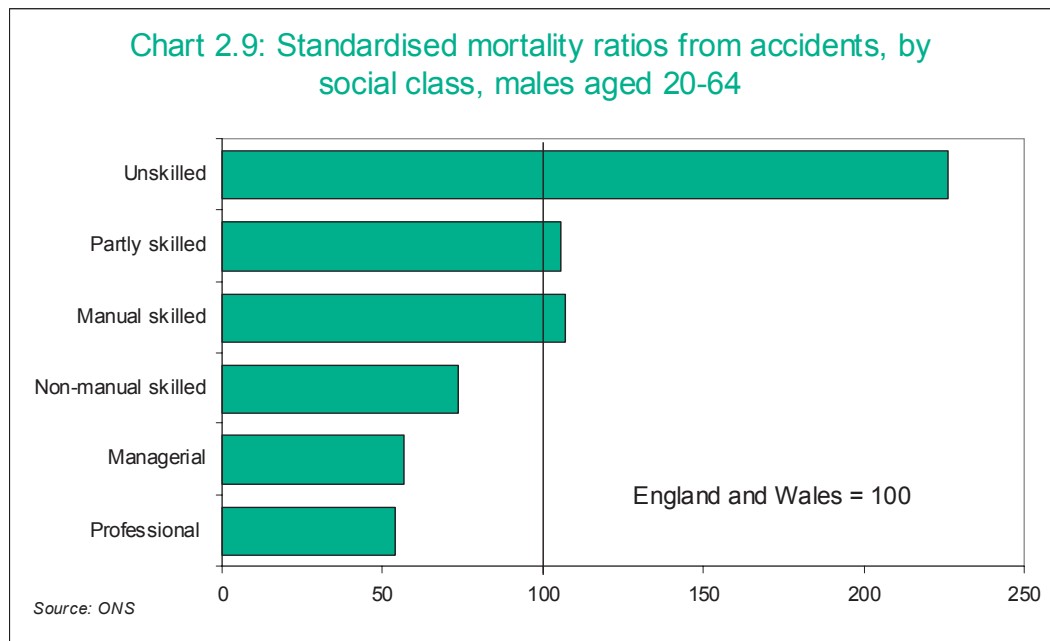
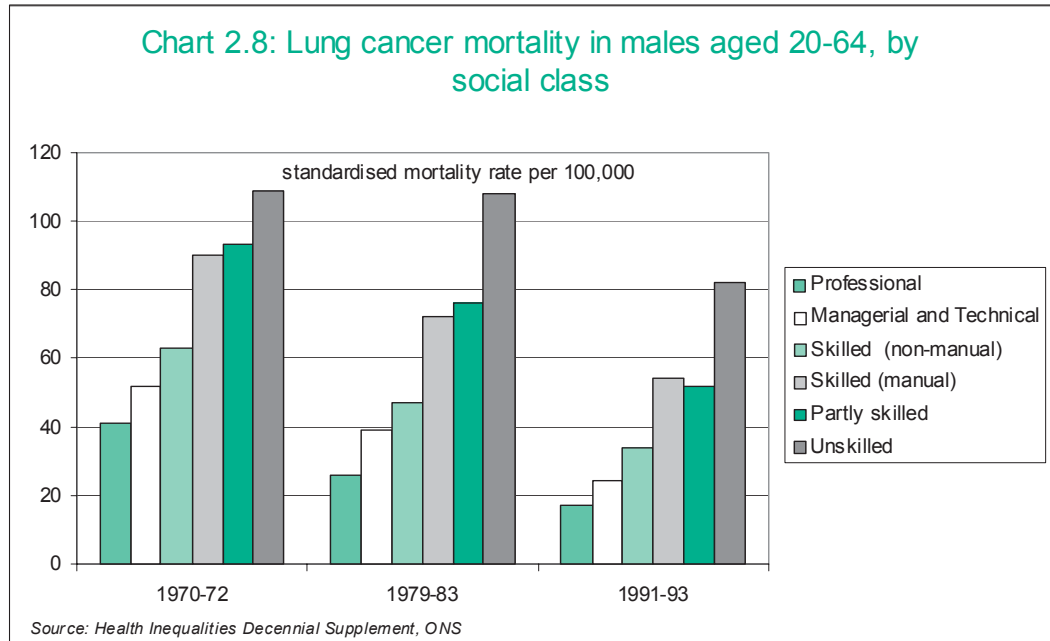
2.9 Life expectancy at birth also varies by area of residence. In 2000-02, the differences between the areas with the highest and lowest life expectancy at birth were considerable. For males, the difference between the highest (Rutland) and the lowest (Manchester) was 8.5 years. For females, the difference between the highest (Kensington and Chelsea) and the lowest (Manchester) was 6.8 years¹.

Inequalities in cause-specific mortality rates

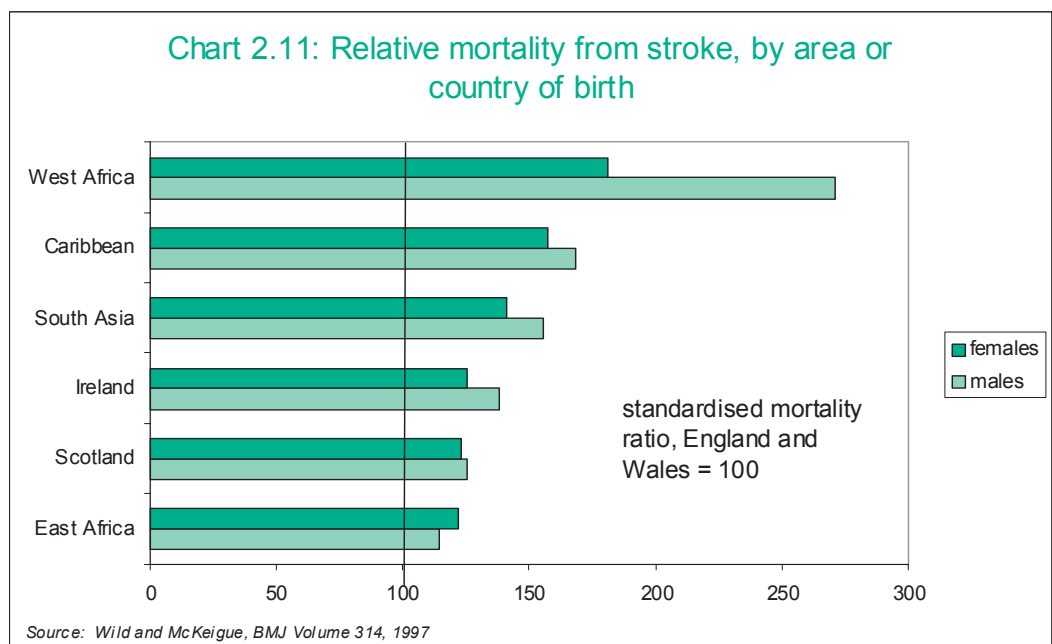
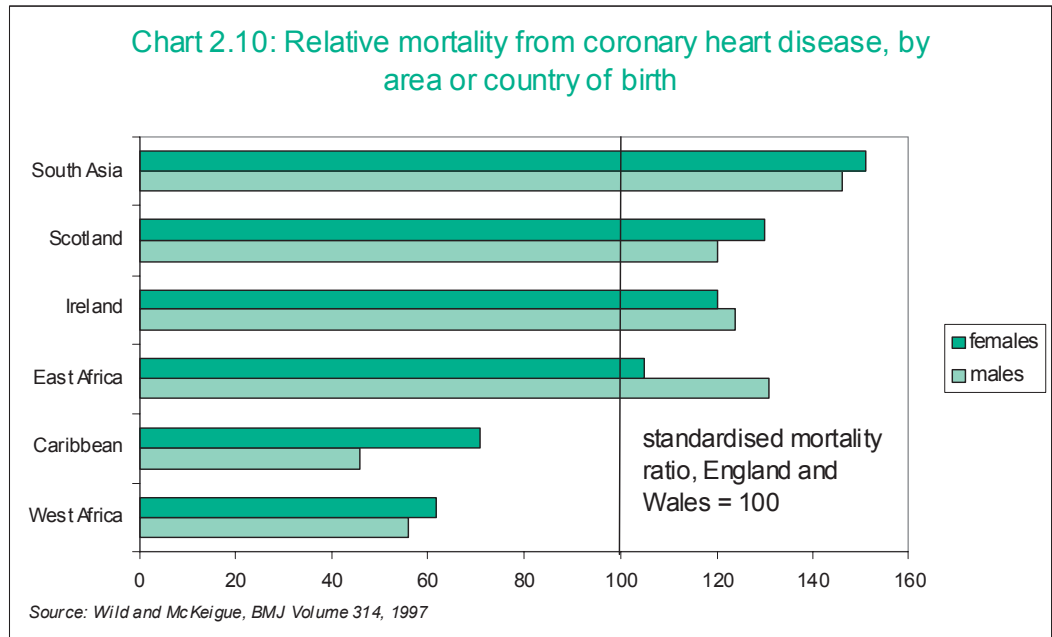
2.10 Inequalities in mortality rates for specific diseases are also apparent. For example, mortality from coronary heart disease, lung cancer and accidents are greatest among men in lower socio-economic groups (charts 2.7, 2.8 and 2.9).



¹ Life expectancy at birth by health and local authorities in England and Wales, 2000-2002, NAO, 2003

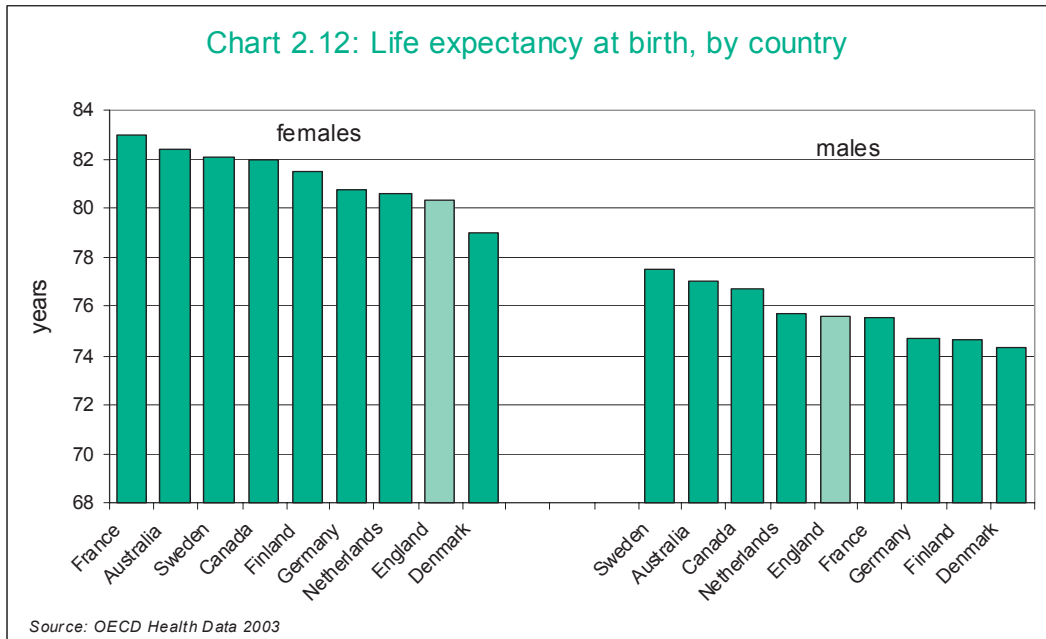


2.11 Ethnic differences in mortality are also found for some diseases. Charts 2.10 and 2.11 illustrate mortality rates for those dying in England and Wales but who originate from other countries of birth.

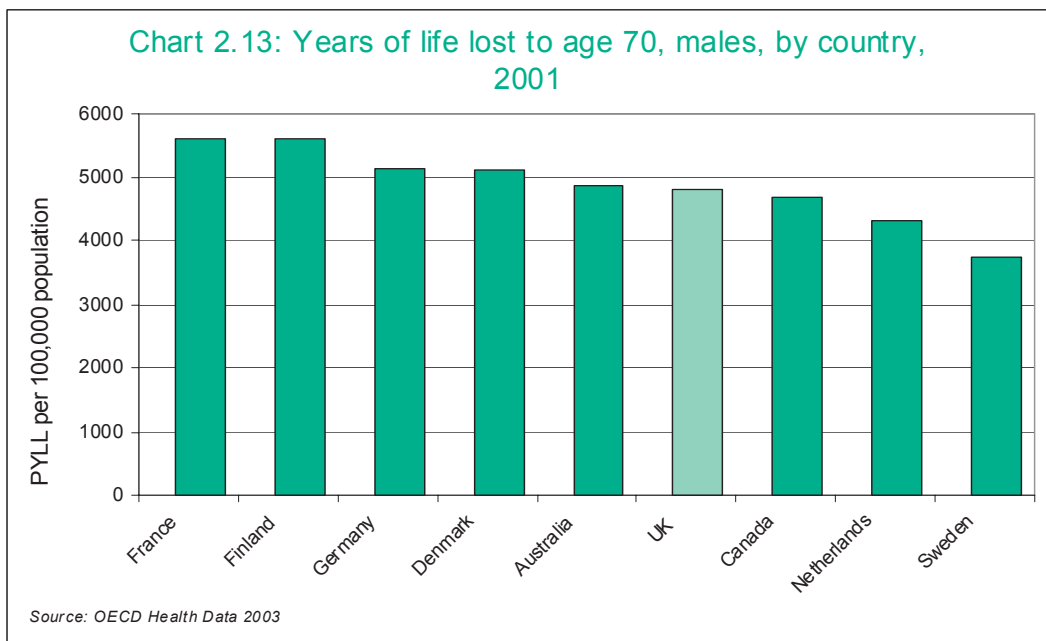


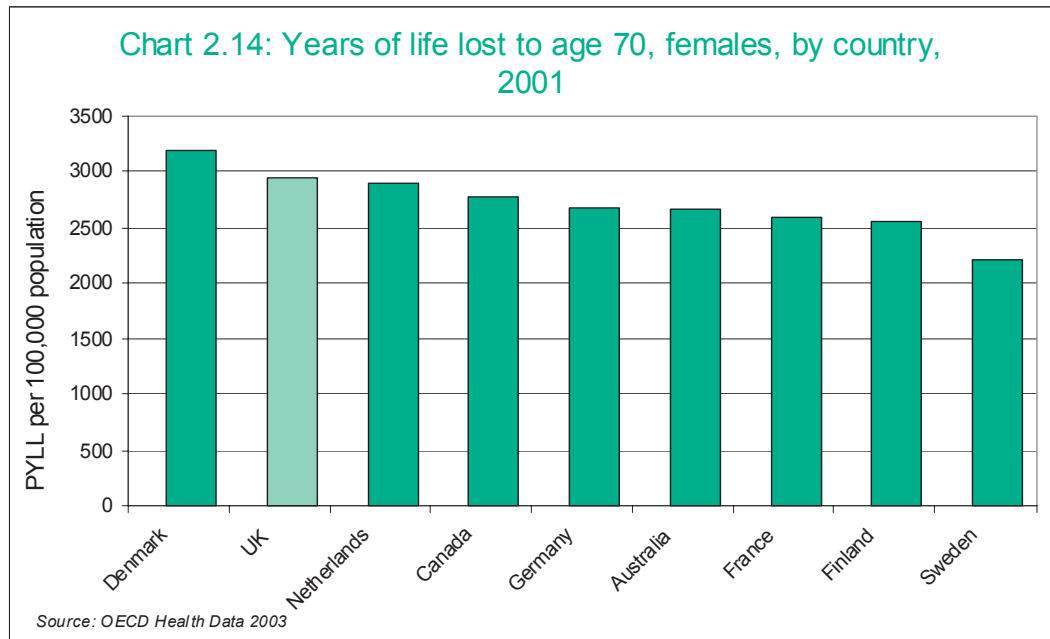
International Comparisons Of Mortality

2.12 Life expectancy at birth provides one of the broadest indicators of the overall health of a population. In 2001, life expectancy at birth in England was lower for women than any of the comparator countries except Denmark. For men, England fared relatively better in terms of life expectancy at birth, coming in slightly above Denmark, Finland and Germany, but below Sweden, Australia and Canada (chart 2.12).



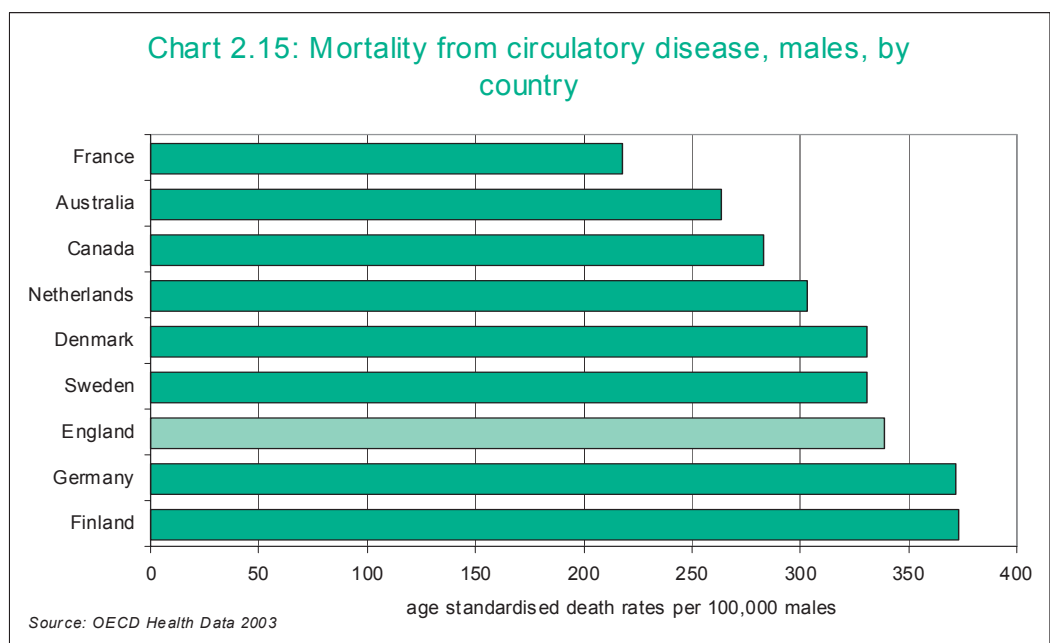
2.13 In the United Kingdom, PYLL before age 70 in men is greater than Sweden, the Netherlands and Canada. For women, PYLL before age 70 is greater than all comparator countries except Denmark (charts 2.13 and 2.14).

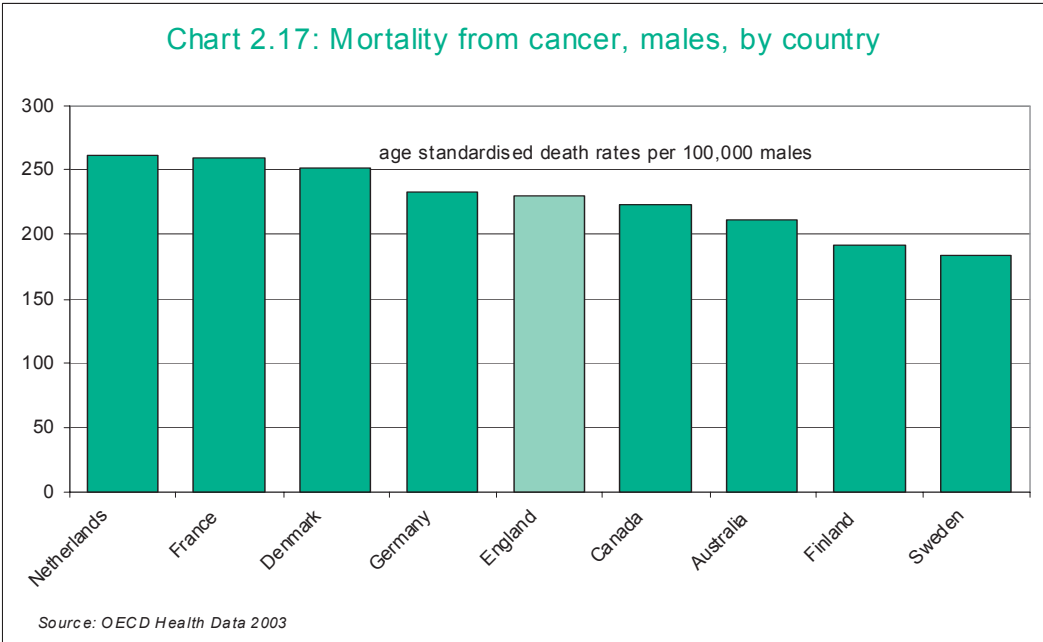
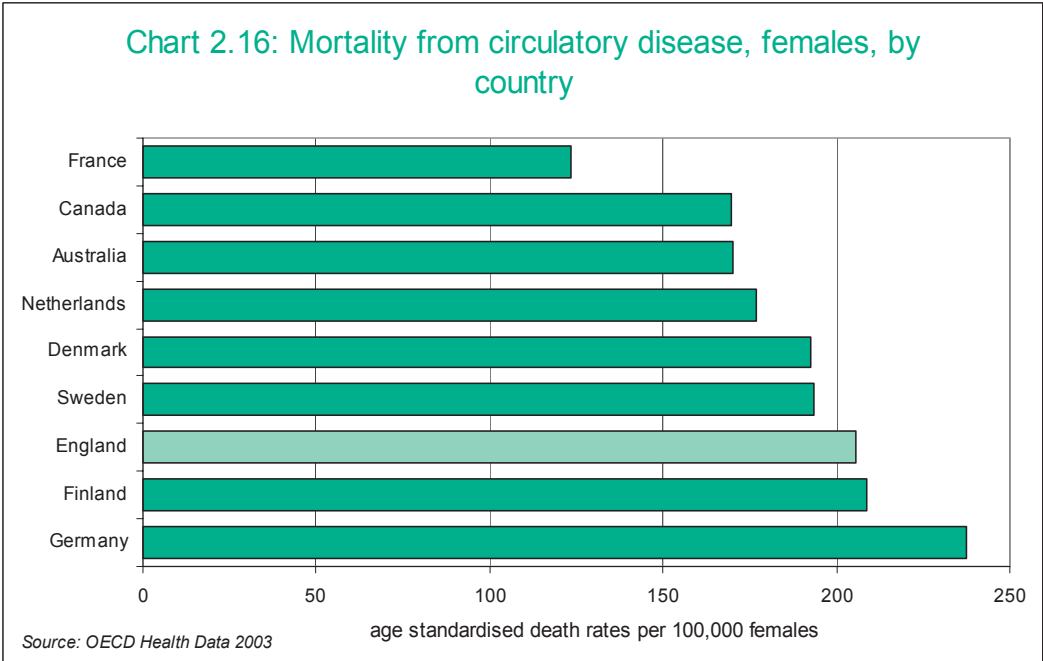


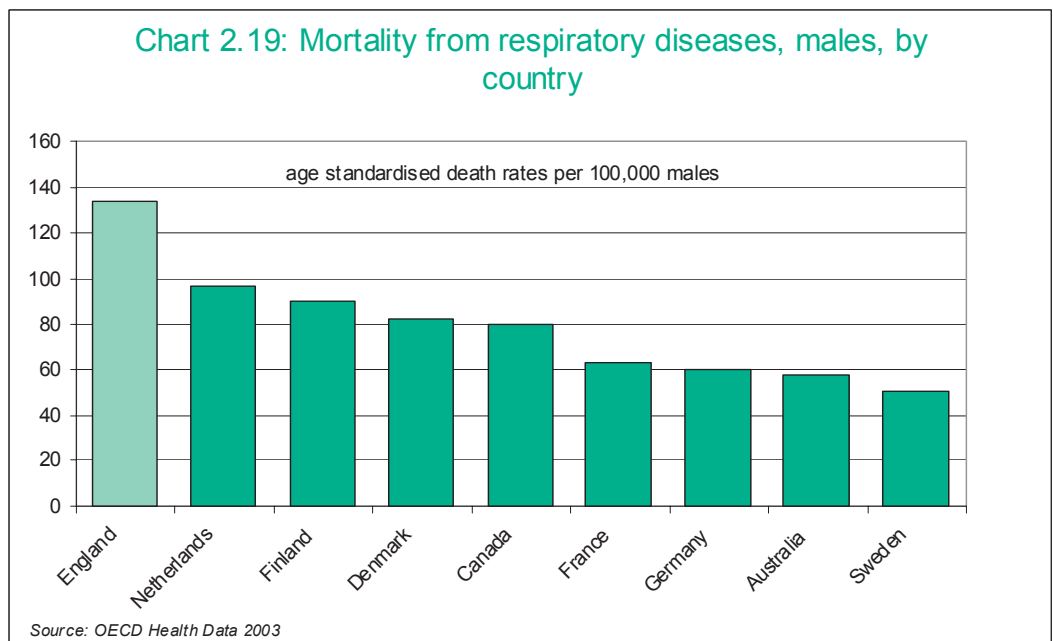
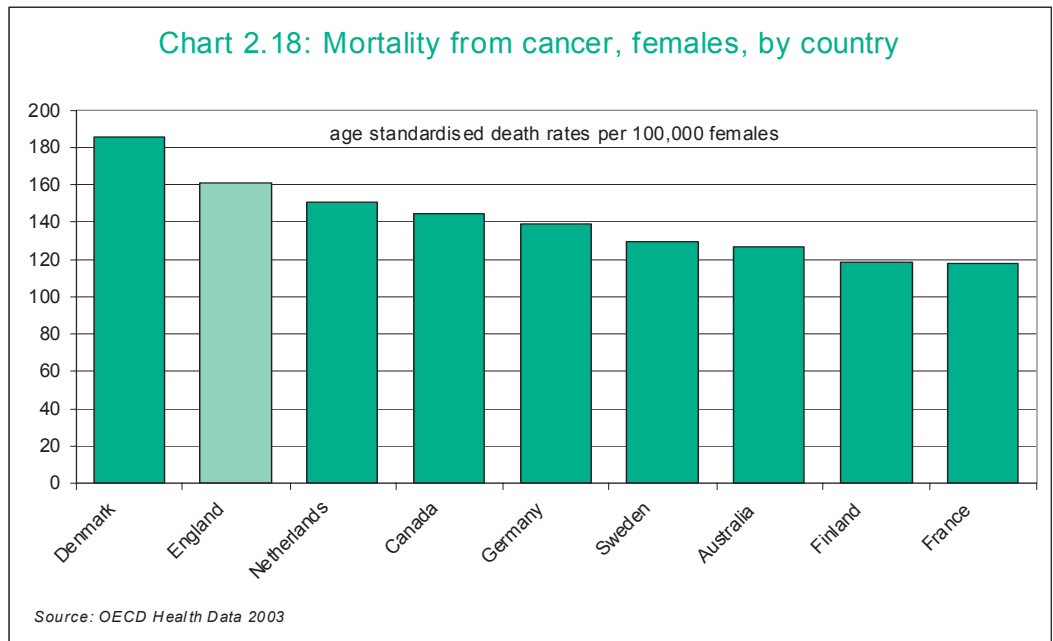


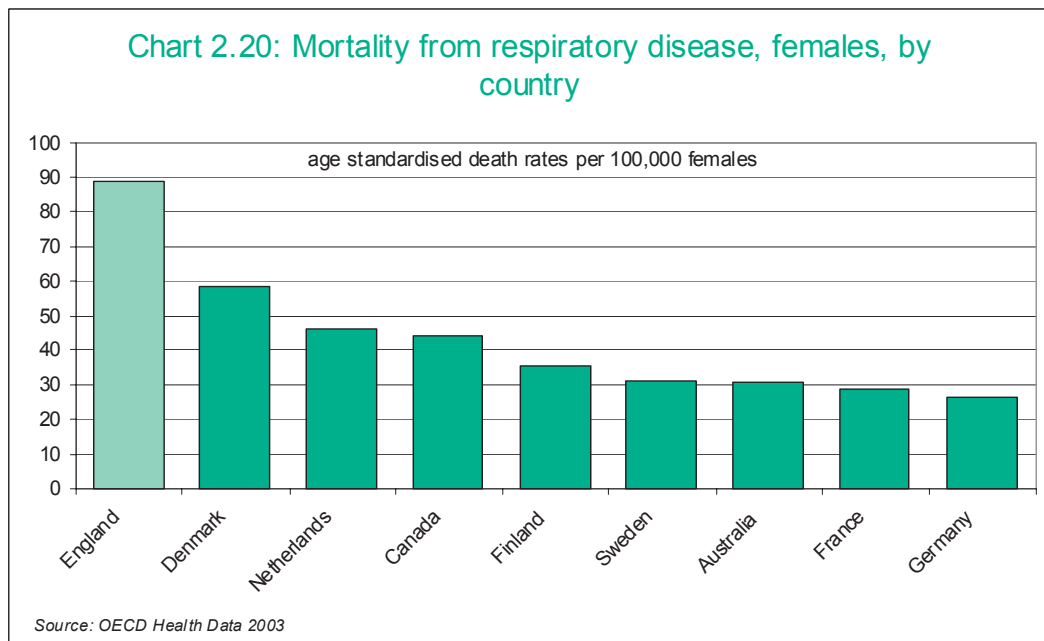
International comparison of causes of death

2.14 In most developed countries the major causes of death from diseases are cancer and cardiovascular disease. Compared to other developed countries, England has relatively high rates of death from respiratory disease, circulatory disease and, in women, cancer. England performs particularly badly in the case of mortality from respiratory diseases (Charts 2.15 – 2.20).







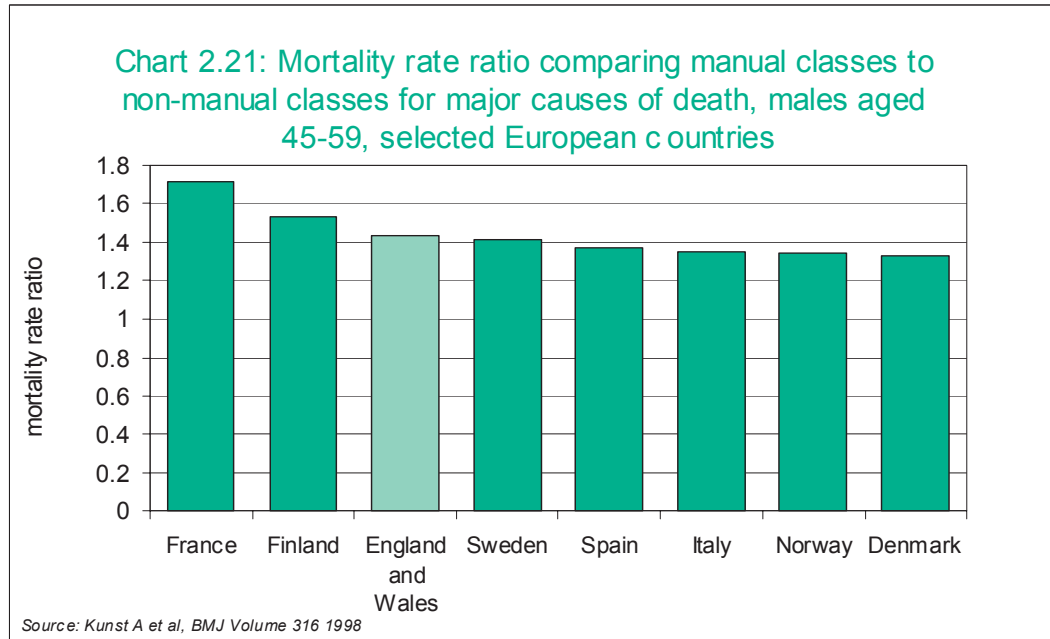


2.15 As well as looking at the current position with regard to comparator countries, it is also relevant to look at how mortality trends over time compare. This shows that the rate of decline in premature mortality (under the age of 65) from cancers and CHD has been rapid in the UK. The decline in all cause mortality in the UK between 1990 and 1999 – just over 10 per cent – is slightly less than the decline in the EU average, rather better than the decline in France and the Netherlands, but well short of reductions achieved in Finland (17 per cent) and Germany (18 per cent)².

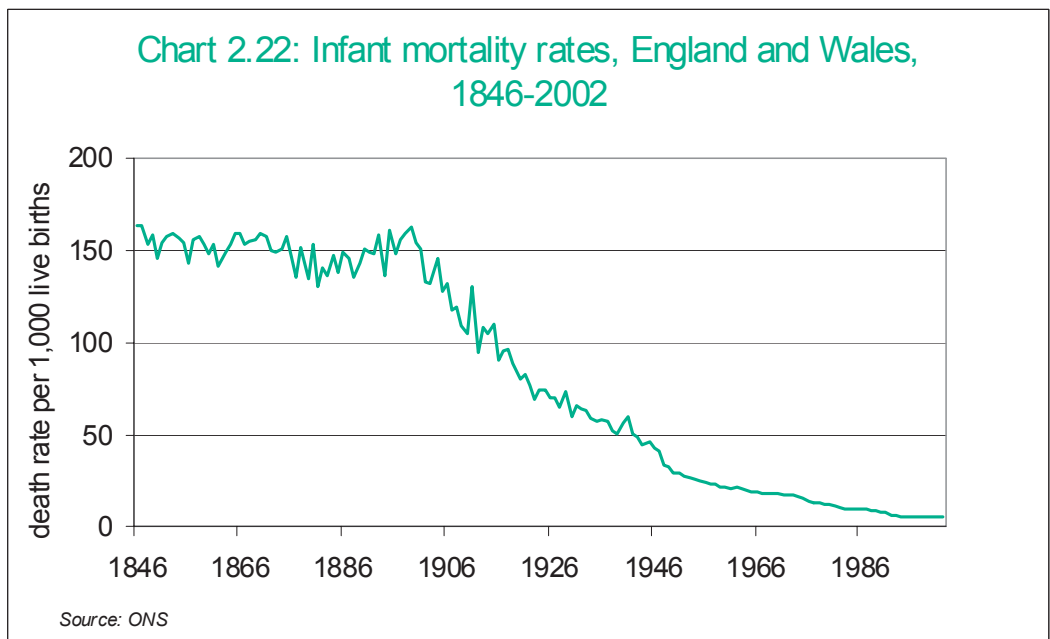
International comparisons of inequalities in mortality

2.16 There are relatively few internationally comparable measures of health inequalities. One indicator that has been reported for selected countries only is the ratio of mortality rates among men aged 45 to 65 for manual and non-manual occupations. Using this indicator, France has the highest inequality in mortality rates, whilst Denmark has the lowest (chart 2.21) but all countries selected show significant inequalities between these groups.

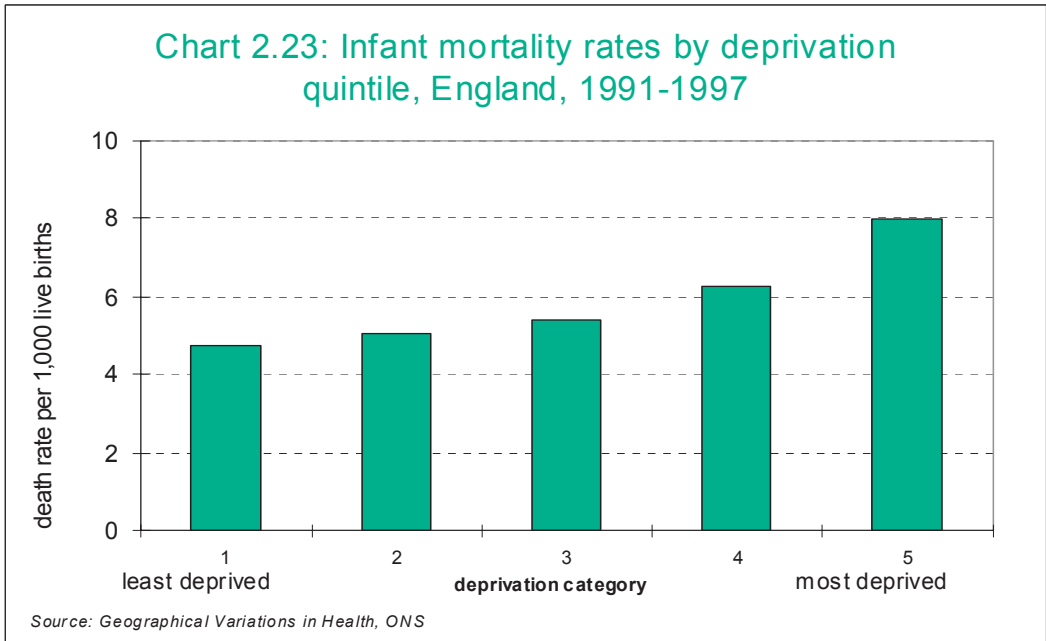
² European Health for All Database, WHO, 2002



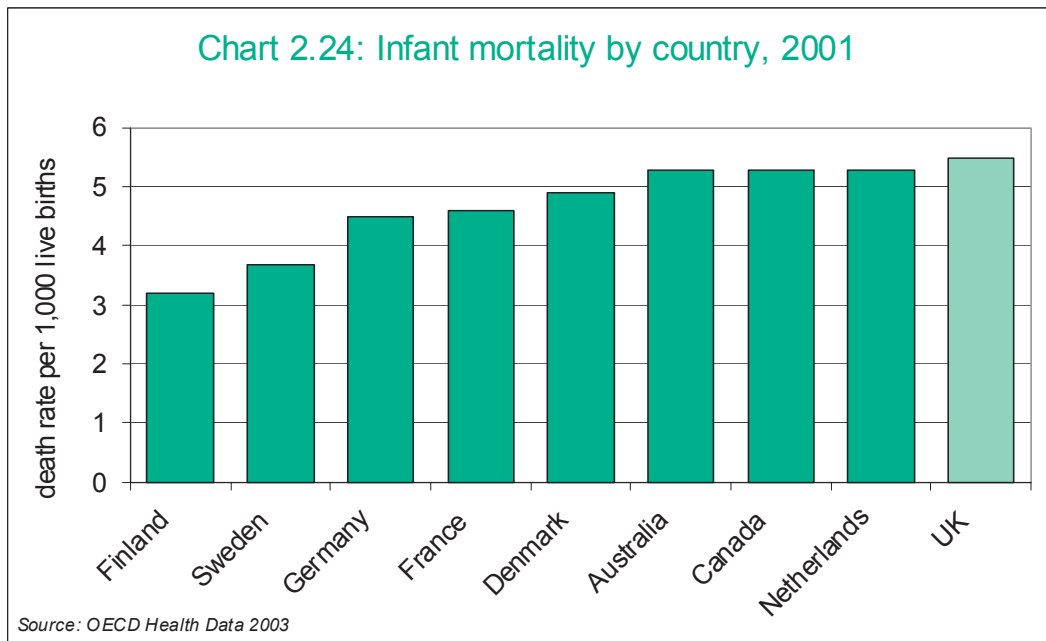
Infant mortality 2.17 Over the last century the risk of dying in infancy has dramatically fallen (chart 2.22). In 2002, the infant mortality rate (the number of deaths of children under one year of age per 1,000 live births) in England and Wales was 5.3 per 1,000 live births.



2.18 However, significant inequalities still exist in infant mortality rates in different areas and between different groups. Infant mortality rates are 70 per cent higher in the most deprived areas than the most affluent areas (chart 2.23).



2.19 In 2001, infant mortality rates in the UK were higher than in any of the comparator countries (chart 2.24).



Summary

Morbidity is an alternative indicator of the health of a population, which measures the frequency of ill health.

- Healthy life expectancy at birth has been increasing;
- But self-rated good health is low in the UK compared to the comparator countries;
- The causes of morbidity, and the 'burden of disease' in economic terms, are not necessarily the same as the causes of mortality; and
- The main causes of self-rated long-standing conditions are musculoskeletal conditions, followed by heart and circulatory conditions.

3.1 In addition to measures of mortality, measures of morbidity and the burden of disease in a population are highly relevant. Whether people are living in good physical and mental health, or in ill health, is important in assessing a population's overall health status.

3.2 A simple measure of the health status of a population is the proportion of the population who rate their general health as 'good'. Although this is a subjective measure there is evidence that this measure, asking how individuals rate their own health, correlates with other more complex measures and objective assessments of health including the uptake of health services and the risk of dying in a subsequent, and defined, future period. Indeed the World Health Organisation (WHO) argues that despite its apparently subjective character, self rated or 'perceived' health is a very useful public health measure¹.

Healthy life expectancy **3.3** A measure of self reported health status can be used to calculate healthy life expectancy. Healthy life expectancy is an indicator combining mortality and morbidity into a single figure. Whereas life expectancy is the expected total number of years of life, healthy life expectancy is the expected number of years in good health.

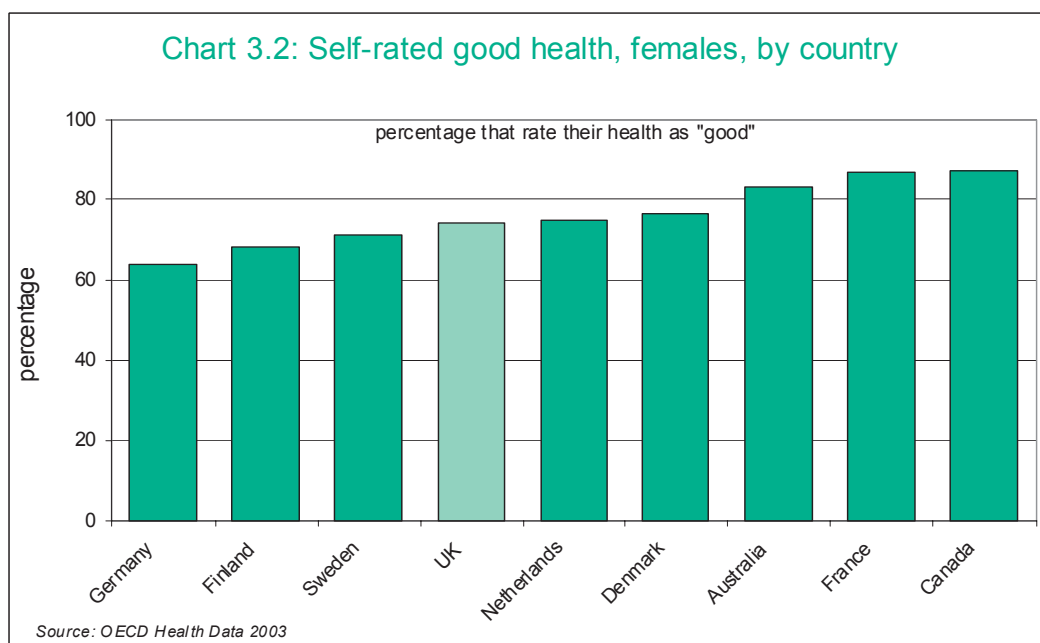
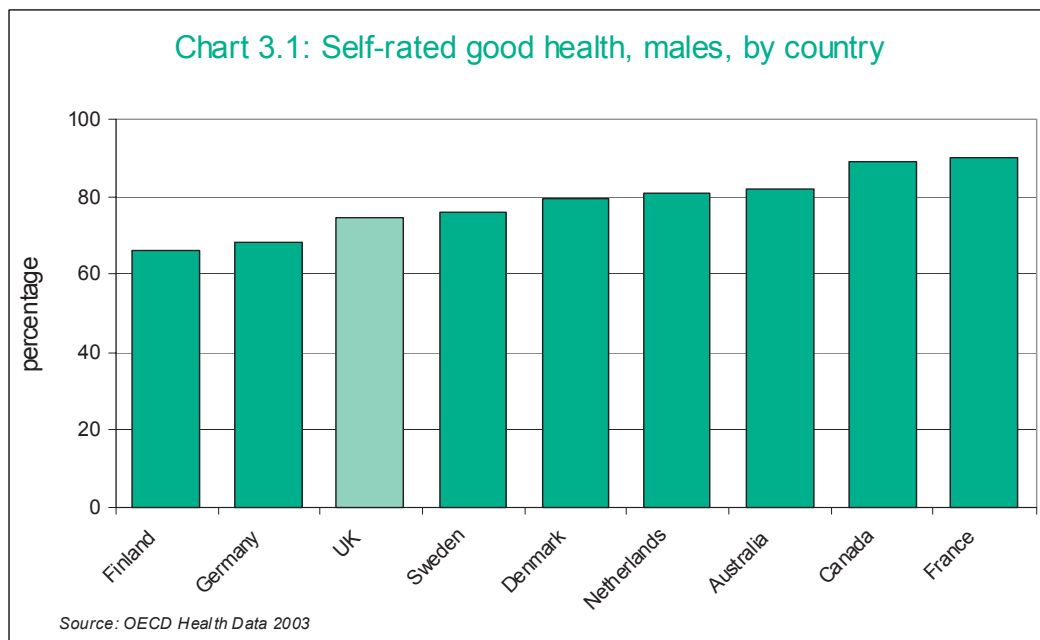
3.4 In the UK healthy life expectancy at birth is increasing. In 1999, the number of years males could expect to live in good or fairly good health was 66.6 years, compared to 64.4 years in 1981. For females, the equivalent figures were 68.9 and 66.7 years².

International comparisons of self reported health **3.5** Self-rated health status has also been used to compare morbidity across countries. Cross-country comparisons using this indicator need to be interpreted with particular caution. Survey variations and, more importantly, people's overall assessment of their own health is subjective and will be influenced by many factors, some of which will be country specific, such as cultural background and access to health services.

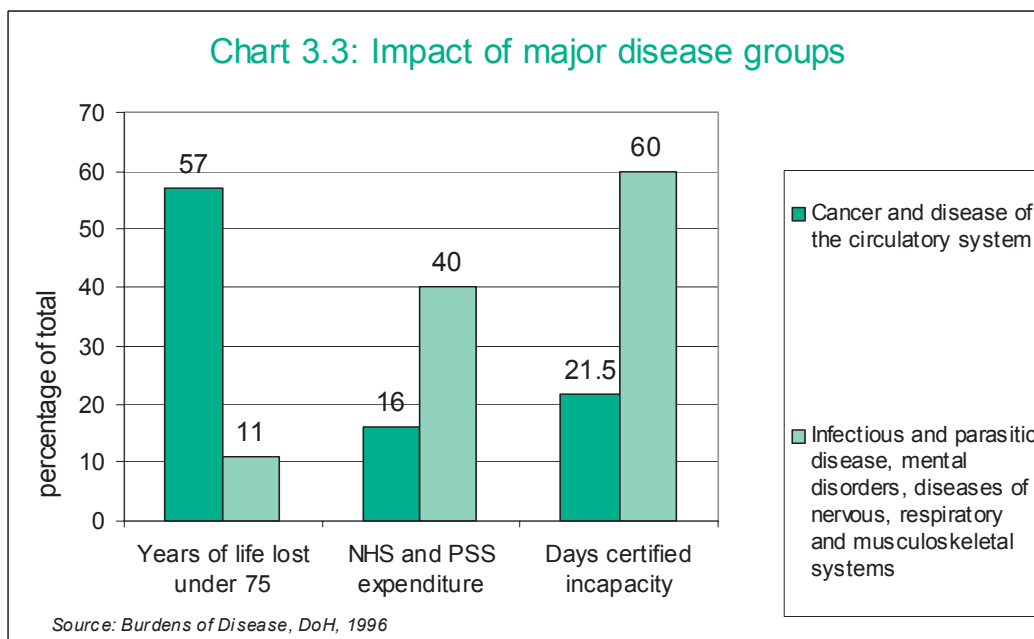
¹ *European Health for All Database*, WHO, 2002

² *Expected Years of Healthy Life*, General Household Survey, 1999

3.6 Bearing these caveats in mind, figures for 2001 show that the proportion of men reporting their health as ‘good’ was lower in the UK than all comparator countries except Finland and Germany, and for women was lower in the UK than all comparator countries except Finland, Germany and Sweden (charts 3.1 and 3.2).

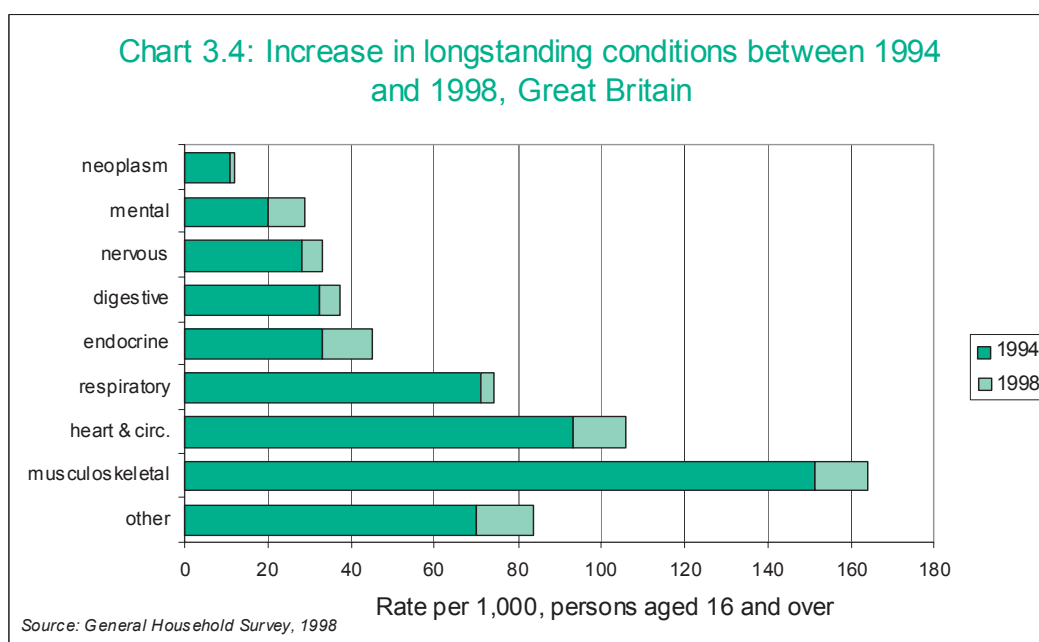


The burden of disease 3.7 Those illnesses with the greatest burden in terms of mortality are not necessarily the same as those with the largest burden in terms of morbidity. For example, mental disorders, infectious diseases and musculoskeletal problems account for a small proportion of years of life lost to age 75 compared to circulatory diseases but much greater morbidity, and a large share of health and personal social services expenditure and incapacity benefit (chart 3.3). A recent national survey found that one in six of the adult population suffer from a common mental health problem, such as depression or anxiety, at any given period in time³.



Impact of major disease groups 3.8 The main cause of self-rated longstanding conditions in the UK is musculoskeletal disorder, followed by heart and circulatory disease and respiratory disease. Chart 3.4 shows that all of these conditions increased in prevalence between 1994 and 1998 according to the General Household Survey. This may be as a result of an ageing population, or of more people having multiple long-standing conditions.

³ Psychiatric Morbidity Survey, Office of Population, Censuses and Surveys, 2000.



3.9 Another chronic disease of increasing prevalence and cause of morbidity in England is diabetes. It has been estimated that 3.2 per cent of the adult population (around 1.3 million people), have diagnosed diabetes. Approximately 15 per cent have Type 1 diabetes, and 85 per cent Type 2 diabetes. Type 2 diabetes is associated with resistance to insulin. It is often hereditary, and risk increases with age, weight and obesity, physical inactivity, and is higher among some ethnic minority groups, for example, South Asians and African Caribbeans. In addition, it is estimated that between 600,000 and 1 million people have diabetes but remain undiagnosed. Long-term complications of diabetes, particularly when poorly controlled, include blindness, renal disease and cardiovascular disease. Life expectancy is reduced by around ten years in those people with Type 2 diabetes. The prevalence of Type 2 diabetes is increasing⁴.

3.10 The most deprived fifth of the population have a 50 per cent increased risk of Type 2 diabetes and there is a much higher risk of complications in social class V than social class I. The prevalence of Type 1 diabetes does not vary by socio-economic group.

⁴ National Service Framework for Diabetes, Department of Health, 2001

4

DETERMINANTS OF HEALTH

Summary

The determinants of poor health include individual risk factors such as smoking, physical inactivity and obesity. There are also wider determinants such as income, employment, education and other social and environmental factors that contribute to poor health.

- Smoking, diet and physical inactivity are particularly important determinants of chronic diseases such as CHD, cancer and diabetes;
- Some improvements in determinants have been observed, for example, reductions in smoking and some improvement in diet and physical activity;
- But obesity has increased, even among children;
- There are inequalities in the prevalence of some key risk factors – most notably smoking – that can be expected to contribute to inequalities in health over time; and
- The relationship between wider determinants and health is well established but complex. Further research in this area would be beneficial in order to fully understand the determinants of health and health inequalities.

4.1 Wider social and environmental factors such as sanitation, housing conditions and education, individual lifestyle factors such as smoking, poor diet and lack of physical activity, and the effectiveness of healthcare interventions all influence the extent of premature mortality (table 4.1). The total burden of disease in society depends not only on the factors listed above but also on the age structure of the population. As the number and proportion of older people increases, the prevalence of chronic disease also increases.

Table 4.1: Lifestyle and environmental determinants of observed mortality and morbidity

Health problem	Main determinants
Circulatory disease	Smoking, alcohol abuse, nutrition, obesity, exercise, access to quality healthcare
Cancer	Smoking, nutrition, obesity, exercise, alcohol abuse, access to quality healthcare
Asthma and other respiratory problems	Environmental conditions, smoking, access to quality healthcare
Accidents and injuries	Inappropriate use of alcohol and drugs, lack of exercise, road traffic speed, unsafe housing design, inadequate supervision of young children, access to emergency care
Neuropsychiatric disorders	Alcohol abuse, drug abuse
Infections	Nutrition, food and water safety, drug abuse, sexual behaviours, travel, access to quality healthcare
Low birth weight	Smoking, nutrition, alcohol abuse, drug abuse, access to quality healthcare, prematurity

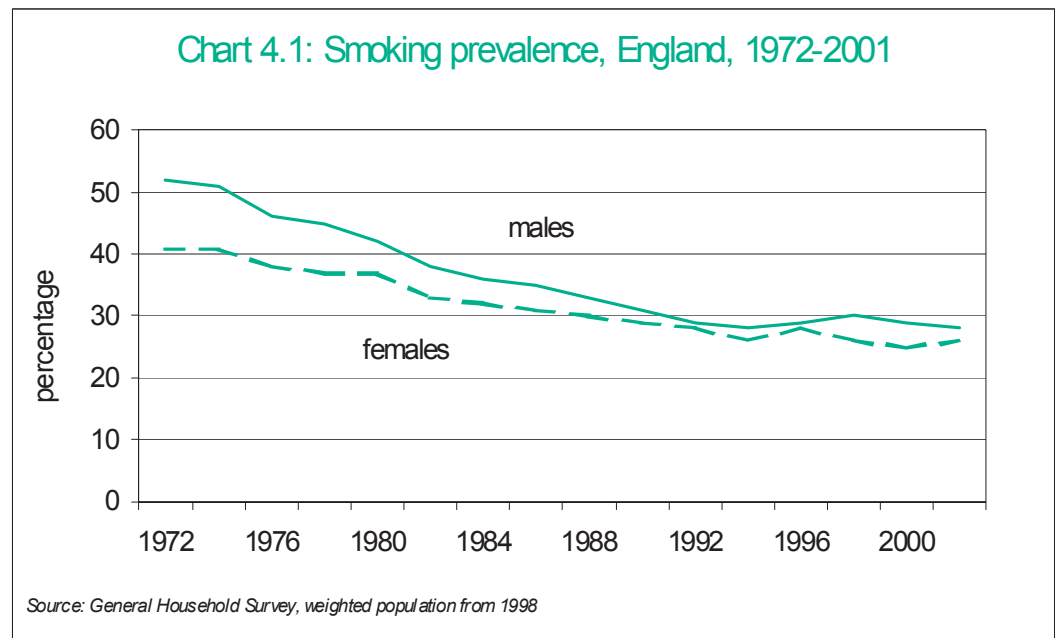
Source: *The Health Status of the European Union: Narrowing the Health Gap*, European Commission, 2003 and the Department of Health.

4.2 These determinants are well known. For some, the Government already has plans in place to target and tackle them. The Review will look at current Government plans and implementation to see how well overall objectives are being met, and whether or not the fully engaged scenario is achievable on this basis. A description of the latest data on key health determinants follows in this chapter.

4.3 Table 2.1 showed the main causes of life years lost up to age 75 in the UK. Additional analysis has calculated the contribution of specific risk factors to years of life lost for each of these causes. For example, smoking is estimated to account for 30 per cent and dietary factors for 25 per cent of life years lost due to cancer¹. High cholesterol accounts for 26 per cent and smoking for 10 per cent of life years lost due to CHD².

Smoking

4.4 Smoking has been identified as the single greatest cause of preventable illness and premature death in the UK. In 1995, it was estimated that over 120,000 people died because of smoking³. In 2001, 27 per cent of people aged 16 and over in England were smokers⁴. The prevalence of cigarette smoking among adults in England fell substantially in the 1970s and the early 1980s – from 45 per cent in 1974 to 35 per cent in 1982. The rate of decline then continued more slowly until the early 1990s, since then it has levelled out at 27-28 per cent (chart 4.1). The rate of decline has levelled out primarily because of the high uptake of smoking among young adults despite a reduction in prevalence in some other groups.



Smoking in pregnancy

4.5 Smoking in pregnancy is associated with a range of adverse outcomes including low birthweight, prematurity and increased risk of infant mortality. A survey in 2000 found that in England 19 per cent of mothers smoked throughout pregnancy, with 45 per cent of mothers who smoked giving up smoking in the year before, or during pregnancy⁵.

¹ *Oxford Textbook of Medicine, Epidemiology of Cancer*, R. Doll and R.Peto, 1995

² *Monitoring the progress of the 2010 target for Coronary Heart Disease mortality: Estimated consequences on CHD incidence and mortality from changing prevalence of risk factors*, A. Britton and K. McPherson, 2000

³ *The UK Smoking Epidemic, Deaths in 1995*, Health Education Authority, 1998

⁴ *Living in Britain, Results from the 2001 General Household Survey*, ONS, 2003

⁵ *Infant Feeding Survey 2000*, B. Hamlyn et al, Department of Health, 2002

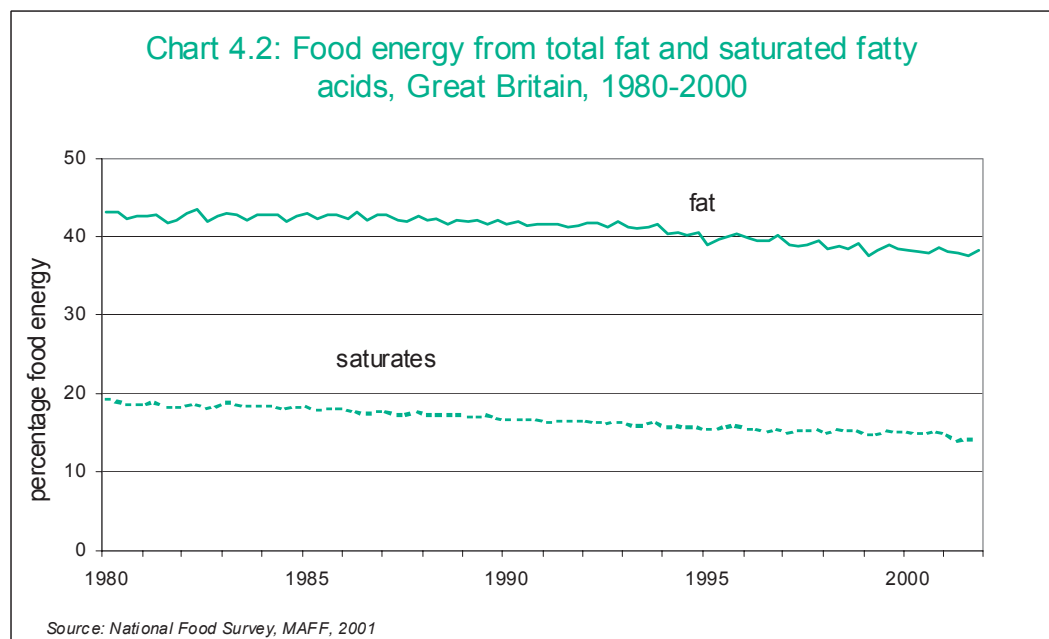
Diet

4.6 Poor diet contributes to both CHD and cancer. Current recommendations are that a maximum of 35 per cent of energy intake is derived from dietary fat, and no more than 11 per cent from saturated fatty acids. Additionally, it is recommended that at least five portions of fruit or vegetables are consumed each day⁶.

4.7 A survey of adults aged 19 to 64 found that the average consumption of fruit and vegetables among adults in England was less than three portions per day⁷. Only 13 per cent of men and 15 per cent of women consumed 5 or more portions a day. There are wide social class differences in fruit and vegetable consumption, with those in lower social class groups consuming about 50 per cent less than those in professional groups. Consumption is also found to increase with age.

4.8 Children's consumption of fruit and vegetables is particularly low. For example, research has suggested that in a typical week, one in five children aged 4 to 18 years ate no fruit⁸.

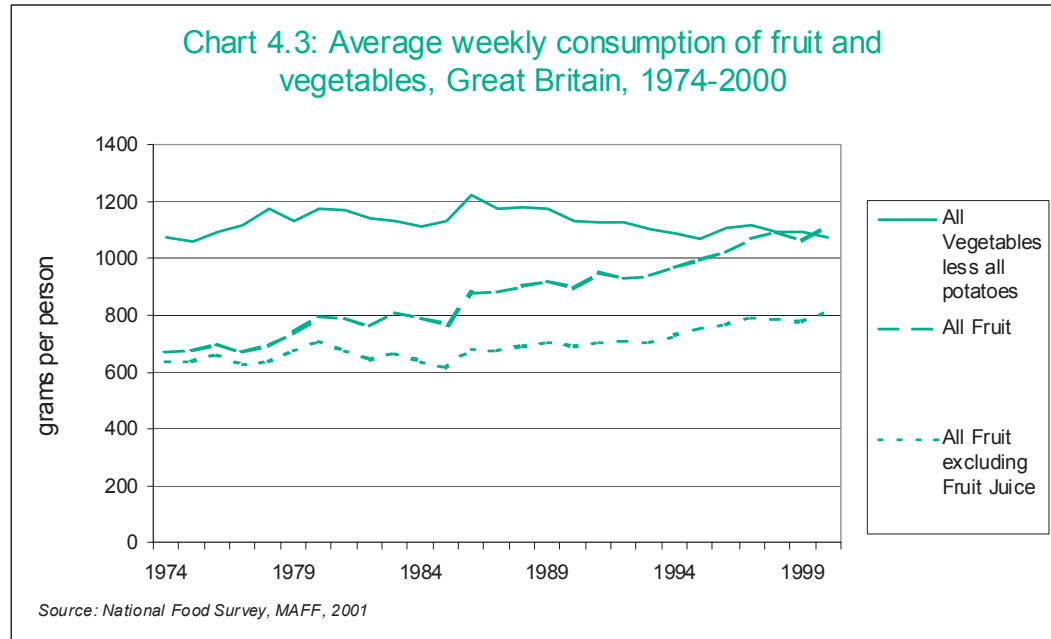
4.9 The consumption of total fats and saturated fatty acids is decreasing in the UK, however, levels are still higher than recommended (chart 4.2). The consumption of vegetables has remained relatively constant, but fruit and fruit juice intake is increasing (chart 4.3).



⁶ *Nutritional aspects of cardiovascular disease; Report of the cardiovascular disease group*, Committee on Medical Aspects of Food Policy, 1994 and *Nutritional aspects of the development of cancer*, Committee on Medical Aspects of Food Policy, 1998

⁷ *The National Diet and Nutrition Survey*, Department of Health, 2002

⁸ *The National Diet and Nutrition Survey*, Department of Health, 2000



Physical activity

4.10 There is strong evidence to suggest that there are many potential health benefits from being active. Adults who are physically active have 20 to 30 per cent reduced mortality risk compared to those who are inactive⁹. Current recommendations are that adults should participate in 30 minutes of moderate physical activity on at least 5 days per week¹⁰. In 1998, 37 per cent of men and 25 per cent of women met this recommendation. Since 1994, there has been a small increase in the proportion of women meeting recommended activity levels (from 22 per cent to 25 per cent), but there has been no change among men¹¹, although trends need to be interpreted with caution due to changes in definitions. It is recommended that all young people should participate in physical activity of at least moderate intensity for one hour per day¹². In 1997, 61 per cent of boys and 42 per cent of girls aged 7 to 18 were active at this level in the UK¹³.

⁹ *Physical activity and all-cause mortality: what is the dose-response relation?*, Medicine and Science in Sports and Exercise, I. Lee and P. Skerret, 2001

¹⁰ *How much physical activity should we do? The case for moderate amounts and intensities of physical activity*, Health Education Authority and Strategy Statement on Physical Activity, Department of Health, 1995

¹¹ *Health Survey for England*, National Centre for Social Research, 1998

¹² *Young and Active? Young people and health-enhancing physical activity – evidence and implications*, Health Education Authority, 1998

¹³ *Health Survey for England: the health of young people, 1995-97*, Department of Health, 1999

Obesity

4.11 Obesity contributes to a range of diseases including cardiovascular disease, diabetes and cancer. The National Audit Office estimates that over 30,000 deaths were attributable to obesity in 1998 and that obesity reduces life expectancy on average by 9 years¹⁴. The prevalence of obesity is increasing. In 2001, 24 per cent of women and 21 per cent of men were obese¹⁵, compared to 8 per cent of women and 6 per cent of men in 1980¹⁶. This is due largely to less active lifestyles and changes in dietary habits. In 2001, 47 per cent of men and 33 per cent of women were overweight but not obese.

4.12 Obesity is also increasing in children. In 2001, 8.5 per cent of 6 year olds and 15 per cent of 15 year olds were obese. Between 1996 and 2001 the proportion of overweight or obese children (aged 6 to 15 years) increased by 7 per cent (from 24.6 per cent to 31.6 per cent) and the proportion of obese children by 3.5 per cent (from 12.1 per cent to 15.6 per cent)¹⁷.

Alcohol

4.13 Alcohol consumption is generally measured in terms of units consumed. In the UK, a unit is defined as 8 grams of alcohol, which is equivalent to half a pint of ordinary strength beer, a small glass of wine or one measure of spirits. In 1992, the Government recommended that men should consume no more than 21, and women no more than 14, units a week. In 1995, this was amended: men were recommended to consume no more than 3 to 4 units per day and women 2 to 3, with two non-drinking days after an episode of heavy drinking. Consistent consumption at the upper limit is not advised.

4.14 In 2001, 39 per cent of men aged 16 and over drank more than 4 units on at least one day in the last week and 22 per cent of women drank more than 3 units on at least one day in the last week¹⁸. No long-term trend data is available on the new recommended levels. However, 27 per cent of men and 15 per cent of women now exceed the 1992 guidelines of 21 and 14 units per week respectively.

4.15 The proportion of women who drink more than the recommended weekly guidelines has increased since 1986. In men, the prevalence has been relatively constant (chart 4.4).

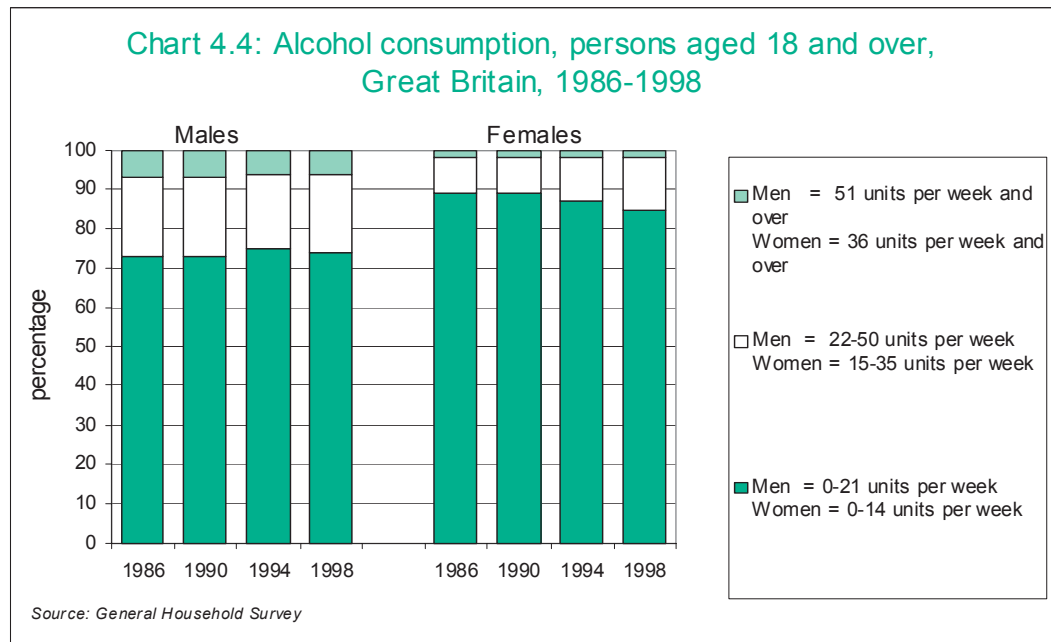
¹⁴ *Tackling Obesity in England*, National Audit Office, 2001

¹⁵ *Health Survey for England 2001*, National Centre for Social Research, 2003

¹⁶ *The management of obesity and overweight, an analysis of reviews of diet, physical activity and behavioural approaches*, C. Mulvihill and R. Quigley, 2003 and *The Heights and Weights of Adults in Great Britain*, ONS, 1980

¹⁷ based on a body mass index equal to or greater than the 95th BMI centile of the 1990 BMI reference data

¹⁸ *Living in Britain, Results from the 2001 General Household Survey*, ONS, 2003



Blood Pressure

4.16 High blood pressure – hypertension – is a major risk factor for stroke, coronary heart disease and other illnesses such as kidney disease and aortic aneurysm. Estimating the occurrence of high blood pressure is dependent on the precise definition used. Until recently, hypertension was defined as blood pressure greater than or equal to 160/95mmHg, and based on that definition, about one in five of the adult population were classified as hypertensive.

4.17 More recent guidance defines hypertension as blood pressure greater than or equal to 140/90mmHg. In 2001, based on the new definition, over one third of the population (37.5 per cent) were hypertensive – of these, one-third were receiving treatment. The proportion of the population with high blood pressure remained largely constant between 1998 and 2001, but there has also been a small (though probably not significant) increase in the recorded proportion of people with hypertension being given treatment¹⁹.

¹⁹ Health Survey for England, 1998, 2000 and 2001.

Inequalities In Risk Factors

4.18 The social class gradient in risk factors is strongest for smoking. It is also evident for the consumption of fruit and vegetables. Among women there is additionally a social class gradient in obesity but an inverse gradient in alcohol consumption (tables 4.2 and 4.3). Smoking in pregnancy is also more common among lower social classes (chart 4.5).

Table 4.2: Social class differences in risk factor prevalence, males

Risk Factor	Social Class					
	I	II	III(n)	III(m)	IV	V
Current smoking %	15	22	28	34	38	42
Alcohol > 21 units %	28	35	32	30	31	29
Overweight or obese %	58	63	60	64	59	57
Obesity %	12	16	16	20	16	18
High waist-hip ratio %	20	24	23	31	28	29
Untreated hypertension %	28	31	30	33	28	33
Low physical activity %	33	33	36	32	34	29
Consumption of less than 5 portions of fruit and vegetables* %	64	71	79	80	78	83
Consumption of 5 or more portions of fruit and vegetables* %	36	29	21	20	22	17

*Source: Health Survey for England, 1998 *Health Survey for England, 2001*

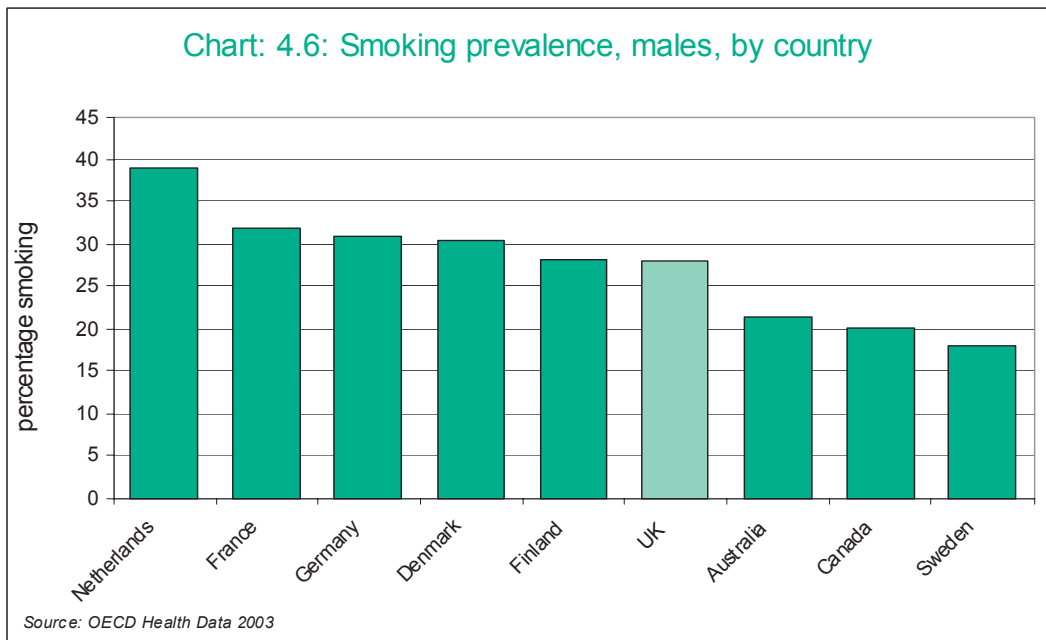
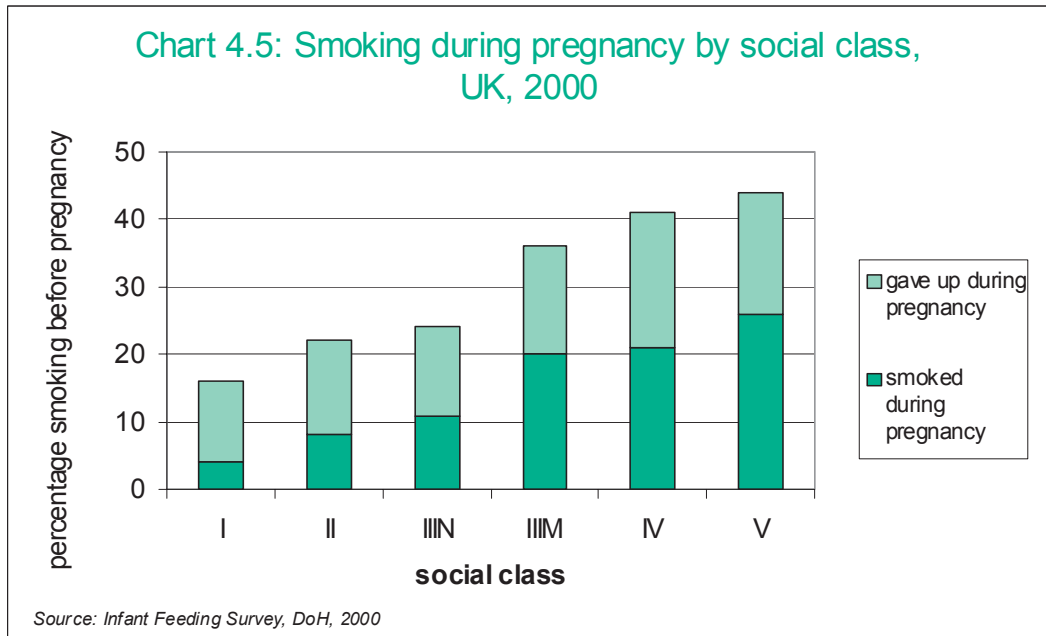
Table 4.3: Social class differences in risk factor prevalence, females

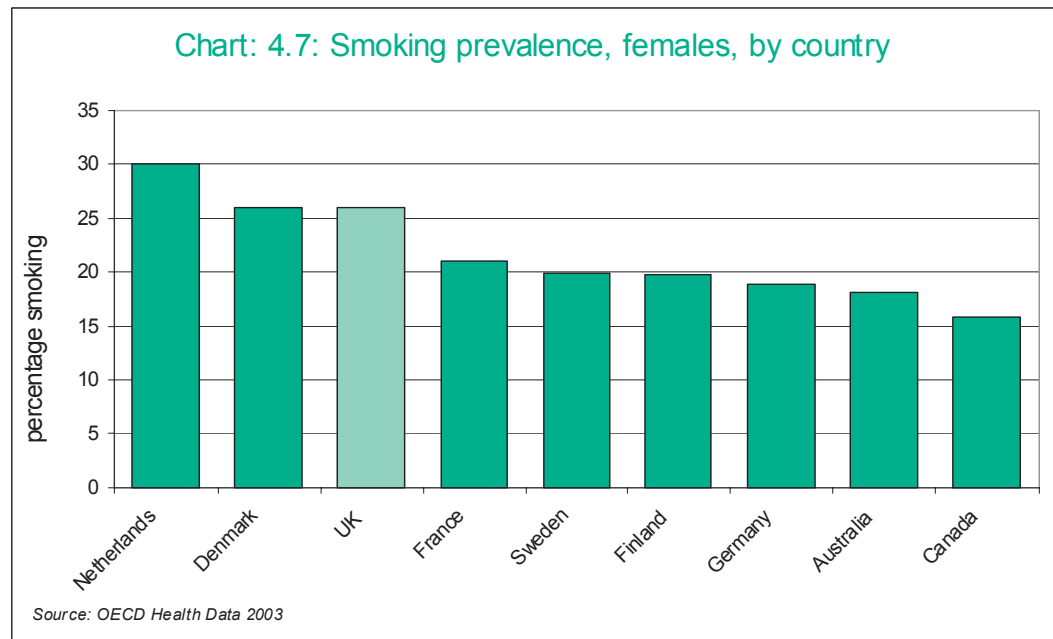
Risk Factor	Social Class					
	I	II	III(n)	III(m)	IV	V
Current smoking %	14	21	29	28	36	37
Alcohol > 14 units %	20	22	20	15	13	12
Overweight or obese %	45	51	49	56	57	60
Obesity %	14	18	18	24	25	28
High waist-hip ratio %	18	18	18	22	24	27
Untreated hypertension %	23	22	23	23	23	26
Low physical activity %	37	40	41	42	43	40
Consumption of less than 5 portions of fruit and vegetables* %	60	66	73	76	77	81
Consumption of 5 or more portions of fruit and vegetables* %	40	35	27	24	23	19

Source: Health Survey for England, 1998 *Health Survey for England, 2001

International comparisons of risk factor prevalence

4.19 Among women, the prevalence of smoking in the UK is higher than in any comparator country except the Netherlands and Denmark. Among men, smoking prevalence in the UK is higher than in Sweden, Canada and Australia, but lower than the other comparator countries (charts 4.6 and 4.7).





4.20 Obesity is an international problem – virtually all population surveys have shown an increase over the last two decades. However, it is difficult to compare the prevalence of obesity across countries. On some measures, the prevalence of obesity in England is rising faster than in other European countries. The International Obesity Taskforce estimated that, in the late 1980s, the prevalence of obesity in England was towards the lower end of the range for European countries but by the late 1990s, it had moved to near the top of the range²⁰. Whilst there is a robust and frequent measure of obesity recorded in the Health Survey for England, many countries rely on self-reported values, which may underestimate the true prevalence of obesity and make comparisons difficult.

The wider determinants of health

4.21 In addition to the individual lifestyle factors discussed above, the role of wider determinants on health is well established. Of particular importance is the impact such wider determinants have on inequalities in health status. These factors were highlighted in the Acheson Report into Inequalities²¹, which concluded, “The weight of scientific evidence supports a socio-economic explanation of health inequalities”. This traces the roots of ill health to determinants such as income, education and employment, as well as to the environment and lifestyle. For example, an analysis of over 100 local authority areas found educational attainment at age 15-16 to be significantly associated with both coronary heart disease and future infant mortality²². A long-term study of Whitehall civil servants has found CHD to be more prevalent in lower socio-economic groups, and suggested that this may be explained by work-related stress, particularly where there is high demand and low control at work²³.

²⁰ *Tackling Obesity in England*, National Audit Office, 2001

²¹ *Independent Inquiry into Inequalities in Health Report*, Acheson et al, 1998

²² *Levels of mortality, education, and social conditions in the 107 local education authority areas of England*, *Journal of Epidemiology and Community Health*, J. Morris et al., 1996

²³ *Low job control and the risk of coronary heart disease in the Whitehall II (prospective cohort) Study*. *British Medical Journal*, H. Bosma et al, 1997

4.22 The impact of socio-economic inequalities on health is evident throughout the life course and between generations. For example, babies born to poorer families are more likely to be born prematurely, are at greater risk of dying in infancy, and have a greater likelihood of poverty, impaired development and chronic disease in later life. This sets up an inter-generational cycle of health inequalities. Research shows that low birth weight is closely associated with death in infancy, and with coronary heart disease, diabetes and hypertension in later life. Lower birth weight and father's social class can both increase the risk of dying of CHD over and above the impact of the individual's income and social class.

4.23 The Acheson Report identified a range of policy areas that would impact on health including poverty, income, tax and benefits, education, employment, housing and environment, mobility, transport and pollution, and nutrition. A detailed analysis of these wider determinants is beyond the scope of this paper. However, the Review will look at current Government plans and implementation to address these wider issues to see whether they are consistent with achieving the fully engaged scenario.

Summary

This chapter explores the key drivers of life expectancy and morbidity in the long term.

- Big gains in life expectancy were achieved by addressing environmental factors such as sanitation and housing in the first half of the twentieth century;
- In recent years the role of medical interventions has become more important;
- But as people are living longer, chronic diseases are becoming more prevalent;
- Significant inequalities exist in mortality rates from the chronic diseases;
- One reason is access to services and medical interventions but there are also big differences in the prevalence of some key lifestyle risk factors;
- Moreover, much wider determinants such as socio-economic circumstances, early life experiences, geography and ethnicity are also driving trends in the health of the population over the longer-term;
- This may mean that, because of past behaviour and circumstances now, some health inequalities are 'in-built' and will persist in the future.

Changes in life expectancy over time

5.1 In the early part of the last century public health interventions addressing social and environmental factors were the main contributors to the considerable improvements in life expectancy¹, while the importance of healthcare interventions has increased during the latter half of the century².

5.2 Healthcare, after problems occur, has an important role to play, but action to address individual risk factors is also vital. Plausible reductions in risk factors could account for a 30 per cent reduction in death rates from coronary heart disease³.

¹ *Historical and Policy Approaches to the Evaluation of Health Promotion. Evaluating Health Promotion: Practice and Methods*, V. Berridge, 2000

² *Public Health – The Visions and the Challenge*, W. Holland and S. Stewart, 1998

³ *Monitoring the progress of the 2010 target for coronary heart disease mortality: estimated consequences on CHD incidence and mortality from changing prevalence in risk factors*, K. McPherson et al., 2000

5.3 For cancer mortality, evidence suggests that primary prevention could achieve three-fifths of the national target to reduce mortality rates by 20 per cent in those aged under 75 by 2010. In comparison, better screening and improved treatment could each achieve a further fifth of the target reduction⁴.

Changes in the burden of disease over time

5.4 Over time, mortality from infectious diseases has fallen, but disability caused by chronic diseases has increased. Most diseases are caused by the interaction of biological, lifestyle and environmental factors. The number and proportion of elderly people has risen and the ageing process results in biological degeneration, which in turn increases vulnerability to disease. As a person ages their cumulative exposure to environmental and lifestyle risks increases, resulting in a higher probability of succumbing to chronic disease. So the age structure of the population is one of the most important factors in determining the pattern of morbidity.

Inequalities in life expectancy and the burden of disease

5.5 Women's mortality advantage over men is seen broadly across all disease groups, but particularly in circulatory disease, where female gender confers protection. Some of women's advantage is related to (past) lifestyle, for example, in the case of smoking, where lung cancer mortality in females is falling from a peak in the late 1980s. Male lung cancer mortality is falling faster and peaked in about 1970, reflecting the fact that the peak in male smoking occurred earlier in the last century than the peak in female smoking.

5.6 Factors such as access to and uptake of services are also likely to be relevant, and the fact that the gender difference in life expectancy is greater in deprived than in affluent areas suggests that males may be more susceptible than females to the wider determinants of health and health inequalities.

5.7 Excess rates of coronary heart disease, cancer and stroke among low-income groups largely account for overall health differentials in life expectancy and these in turn are strongly linked to lifestyle factors. The social class gradient in smoking has been shown, on certain assumptions, to account for more than half the difference in mortality between the highest and the lowest social classes amongst working age men. However, even without smoking, the differential in premature mortality rates would remain significant.

Table 5.1: The role of smoking in the social class mortality gradient, males

Proportion of males dying under age 70			
	Social class I	Social class V	Difference
Actual proportion	22%	48%	26%
Actual proportion predicted if all the population were non smokers	15%	27%	12%
Estimated proportion attributed to smoking	7%	22%	15%

Source: Department of Health analysis

⁴ Oxford Textbook of Medicine, Epidemiology of Cancer, R.Doll and R. Peto, 1995

5.8 Other risk factors such as poor diet and obesity (among women) show similar social class gradients and contribute to the differences in mortality rates and life expectancy.

5.9 Lifestyle alone, however, cannot account for the entire gradient in mortality by social class. In addition to the psychosocial factors such as degree of control over one's work, access to or quality of health care treatment may also play a role in the social class gradient in mortality. Cancer survival rates, for example, are worse in more deprived areas for a range of cancers.

5.10 Those in greatest need of public services often have the lowest levels of use and the poorest access to these services. Fewer GPs tend to serve the most disadvantaged communities, the rates of hospital admission for coronary artery bypass grafts and coronary angioplasty are not generally higher in areas with the greatest need (i.e. those in areas with the highest coronary heart disease mortality), and rates of consultation for preventative care are 37 per cent lower in men aged 16 to 24 years from social classes IV and V than for those in social classes I and II. For men aged 25-39 years, preventative care consultation rates are 31 per cent lower for social classes IV and V⁵.

5.11 A significant proportion of avoidable ill health is also related to socio-economic deprivation. Major diseases such as cancer, coronary heart disease and stroke are linked to socio-economic factors, partly because of the social class gradient in smoking (which is steepening). In addition, certain mental health problems are associated with deprivation⁶.

5.12 Some diseases show a different pattern. For example, there is a strong inverse pattern in the incidence of malignant melanoma of the skin and deprivation in England and Wales, with higher rates in the more affluent groups.

5.13 There are wide geographical differences in mortality rates and the burden of disease across England. The factors underlying this are complex, but evidence suggests that where you live is a predictor of poor health over and above personal and social characteristics such as employment history⁷. The reasons underpinning this are poorly understood but may include factors such as climate, economic structure and strength of the local community⁸. This is an example of an area where better knowledge from research may be productive in tackling the issue.

5.14 Rates of death among unskilled working men vary greatly between areas in the north and the south of England. A poor physical environment itself has a negative impact on health. Physical and mental health are influenced by the stress associated with living in neighbourhoods where the environment is seen as threatening, where the quality of the housing is poor and transport facilities are lacking. The social support networks, relationships, and levels of participation and trust in a community are important influences on the health of individuals in that community and on local capacity to address health problems⁹.

⁵ *Tackling Health Inequalities: Summary of the 2002 Cross-Cutting Review*, Department of Health, 2002

⁶ *Psychiatric morbidity among adults living in private households*, N. Singleton et al, 2000

⁷ *Geographical Variations in Health*. C. Griffins, J. Fitzpatrick (eds), 2001

⁸ *Who you are or where you live, which matters more for your health?* Health variations, issue 6, H. Joshi, 2000.

⁹ *Tackling health Inequalities: A summary of the 2002 Cross-Cutting Review*, Department of Health, 2002

5.15 Ethnic differences in mortality rates are also observed. Those born in East Africa and South Asia have slightly higher mortality (men aged 20-69), whereas those born in the Caribbean have lower mortality. One explanation is that South Asians have up to 50 per cent higher CHD mortality than the general population whilst those of Caribbean and West African origin have much lower CHD mortality. The reasons for this are not totally clear since both groups have, for example, high rates of diabetes, a risk factor for CHD.

5.16 Additionally, evidence points to people from minority ethnic groups experiencing worse health status on a number of measures¹⁰. In some instances, these differences are driven by underlying socio-economic inequalities, as many minority ethnic groups have above average levels of poverty and unemployment. The Acheson Report concluded that “The diversity of experience of health between different ethnic groups may reflect different causes of poor health; differential susceptibility to these causes; differential access to factors which ameliorate cause or susceptibility, for example preventive health care services; or a combination of these”. To plan public health and healthcare services more productively, the relevance of these different causes of ill health and inequalities needs to be better understood.

Inequalities in infant mortality

5.17 Infant mortality consists of neonatal and post-neonatal mortality, the latter showing the larger social class gradient. Many deaths in the neonatal period are related to prematurity and poor foetal growth in pregnancy, and in the post-neonatal period sudden infant death syndrome is a significant cause. Cigarette smoking contributes to both neonatal and post-neonatal deaths and also shows a relationship to social class and deprivation. The family and social environment: poverty, lack of social support, parental mental health problems, parental drug and alcohol problems, all increase the risk of ill-health directly or indirectly. The quality of health care available is particularly important in preventing some deaths due to problems during labour and delivery, and also influences the outcome for babies born prematurely, and for those suffering from acute life-threatening illness.

International differences in mortality and morbidity

5.18 The health of a country’s population is the result of a complex mix of influences. In addition to health care, factors affecting health outcomes include socio-economic, lifestyle and environmental variables, such as the age structure of the population, income levels and education, the degree of inequality in society and consumption of tobacco and alcohol, and diet.

5.19 While England is achieving steady increases in life expectancy and reducing premature deaths, it performs less well than comparator countries, particularly on those outcome measures most affected by healthcare expenditure. For example, it performs badly on the few specific measures of quality medical intervention that are available, such as survival rates for cancers.

5.20 International differences in mortality rates and life expectancy are driven by lifestyle factors, such as diet – coronary heart disease mortality rates, for instance, are related to dietary differences between northern and southern Europe, as well as by medical intervention. The causes of Britain's high levels of respiratory disease are inadequately understood, but our lifestyle reactions, for example home insulation, to unchangeable climatic factors may be important.

¹⁰ *Independent Inquiry in Inequalities in Health*, Acheson et. al, 1998

6

CONCLUSIONS AND NEXT STEPS

Securing good health for the whole population

6.1 The main trends examined here show that over the last century there has been a big shift in the burden of disease – from infectious diseases of the nineteenth and early twentieth centuries to chronic diseases in the twentieth century and now. Chronic diseases, such as CHD and cancer, are also strongly related to lifestyle factors such as smoking, poor diet, physical inactivity and alcohol. There is a strong social gradient to the prevalence of many of these risk factors, particularly for smoking. It is estimated that half the difference in survival to 70 years of age between social class I and V is due to higher smoking prevalence in class V.

6.2 There are also wider health determinants that play a significant role in driving the health of the population, such as socio-economic and environmental factors, but these relationships are not fully understood. It is difficult to disentangle, for example, to what extent local characteristics such as environment, housing or unemployment influence poor health independently of their influence on risk factors such as poor diet. Further work to fully understand the drivers of good health would be very productive in trying to tackle some of these issues.

6.3 Public health is concerned with improving the health of the population, not just treating the diseases of individual patients. This paper has described the wide range of factors that determine the health of the population. As such, responsibility for public health lies with a wide range of individuals and organisations.

Next steps

6.4 In order to address the issues raised by the terms of reference and against the background of health trends described in this report, work is being undertaken in the following areas:

- Further *analysis of the fully engaged scenario* to forecast what the biggest risk factors to health are likely to be over the next 20 years, and which population groups are likely to be most at risk;
- A situation analysis of *public health delivery* in England at present, which will consider how public health is organised and how decisions are taken at the national and local level;
- The *methodology of public health evidence and evaluation* and how it could be improved – this will consider the different processes that are used across Government in making public health decisions, and will examine the extent to which these processes are consistent across different parts of the public sector;
- *International comparisons* of public health systems – what can we learn from other countries about the way in which they organise the public health function and use evidence of the cost-effectiveness of alternative public health measures?;
- The *use of economic instruments* in public health policy to consider what levers the Government has over individual and collective behaviour in order to improve the health of the population; and
- A *case study* (type 2 diabetes) which will consider the whole pathway of that one disease, how the Government could invest most cost-effectively in preventing and managing the disease, and the extent to which more information might help improve such decisions.

6.5 In undertaking the different workstreams above, some specific questions are already being raised, including:

- What are the different decision making processes used across Government in making public health decisions?
- To what extent are these processes consistent across different organisations, e.g. the National Institute for Clinical Excellence (NICE), the Health Development Agency (HDA), the Health Protection Agency (HPA) and the Department of Health?
- For example, to achieve reductions in smoking levels, how are local smoking cessation services resourced and integrated with other anti-tobacco measures such as national health promotion or the banning of tobacco advertising?
- What has been the rationale underpinning objective setting, both to reduce key risk factors, and on the wider determinants of health?
- What would a fully engaged scenario look like? What does this mean for public health in 20 years time?
- To what extent could health inequalities be set to widen given current trends in risk factor prevalence?
- How were the current targets on health inequalities set and to what extent do they take into account the trends described above?
- Do Primary Care Trusts (PCTs) have the capacity (or levers) to deliver on preventative measures and public health?
- How are gaps in knowledge identified and tackled? How are research budgets, including the Department of Health's research budgets, currently directed? How are priorities set?
- How are individuals and communities encouraged to think about the impact of their lifestyles on their future health and the health of their children? Are the messages clear, and who can deliver them most effectively?

6.6 The Review will report to the Prime Minister, the Secretary of State for Health and the Chancellor early in 2004.

A

ANNEX A: LIST OF TABLES

Table 2.1	Top causes of years of life lost up to age 75 in England (1999)
Table 4.1	Lifestyle and environmental determinants of observed mortality and morbidity
Table 4.2	Social class differences in risk factor prevalence, males
Table 4.3	Social class differences in risk factor prevalence, females
Table 5.1	The role of smoking in the social class gradient, males

B

ANNEX B: LIST OF CHARTS

Chart 2.1	Life expectancy at birth, England, 1900-2001
Chart 2.2	Life expectancy at age 65, England and Wales, 1970-2000
Chart 2.3	The rectangularisation of life curve
Chart 2.4	Selected causes of death at the start, middle and end of the last century
Chart 2.5	Gap in life expectancy at birth between social class I and V, England and Wales, 1972-1999
Chart 2.6	Life expectancy by social class, males
Chart 2.7	Coronary heart disease mortality in males, by social class, England and Wales
Chart 2.8	Lung cancer mortality in males aged 20-64, by social class
Chart 2.9	Standardised mortality ratio from accidents, by social class, males aged 20-64
Chart 2.10	Relative mortality from coronary heart disease, by area or country of birth
Chart 2.11	Relative mortality from stroke, by area or country of birth
Chart 2.12	Life expectancy at birth, by country
Chart 2.13	Years of life lost to age 70, males, by country, 2001
Chart 2.14	Years of life lost to age 70, females, by country, 2001
Chart 2.15	Mortality from circulatory disease, males, by country
Chart 2.16	Mortality from circulatory disease, females, by country
Chart 2.17	Mortality from cancer, males, by country
Chart 2.18	Mortality from cancer, females, by country
Chart 2.19	Mortality from respiratory diseases, males, by country
Chart 2.20	Mortality from respiratory diseases, females, by country

Chart 2.21	Mortality rate ratio comparing manual classes to non-manual classes for major causes of death, males aged 45-59, selected European countries
Chart 2.22	Infant mortality rates, England and Wales, 1846-2002
Chart 2.23	Infant mortality rates by deprivation quintile, England, 1991-1997
Chart 2.24	Infant mortality by country, 2001
Chart 3.1	Self-rated good health, males, by country
Chart 3.2	Self-rated good health, females, by country
Chart 3.3	Impact of major disease groups
Chart 3.4	Increase in long standing conditions between 1994 and 1998, Great Britain
Chart 4.1	Smoking prevalence, England, 1972-2001
Chart 4.2	Food energy from total fat and saturated fatty acids, Great Britain, 1980-2000
Chart 4.3	Average weekly consumption of fruit and vegetables, Great Britain, 1974-2000
Chart 4.4	Alcohol consumption, persons aged 18 and over, Great Britain, 1986-1998
Chart 4.5	Smoking during pregnancy by social class, UK, 2000
Chart 4.6	Smoking prevalence, males, by country
Chart 4.7	Smoking prevalence, females, by country
Chart 5.1	The role of smoking in the social class mortality gradient, males

C

ANNEX C: LIST OF ABBREVIATIONS

BMJ	British Medical Journal
CHD	Coronary Heart Disease
COMA	Committee on Medical Aspects of Food and Nutrition Policy
DH	Department of Health
EU	European Union
GAD	Government Actuary's Department
GHS	General Household Survey
HEA	Health Education Authority
HDA	Health Development Agency
HIDS	Health Inequalities Decennial Supplement
HPA	Health Protection Agency
HSE	Health Survey for England
HSQ	Health Statistics Quarterly
ICT	Information and communication technologies
MAFF	Ministry for Agriculture, Fisheries and Food
NAO	National Audit Office
NICE	National Institute for Clinical Excellence
NHS	National Health Service
NSF	National Service Framework
OECD	Organisation for Economic Cooperation and Development
OPCS	Office of Population, Census and Surveys
ONS	Office of National Statistics
PCT	Primary Care Trust
PSS	Personal Social Services
PYLL	Potential years of life lost
WHO	World Health Organisation

D

ANNEX D: GLOSSARY

Acute care	Medical treatments given to individuals whose illnesses are short-term or episodic. Care given during stays in hospital with an average length of stay of 30 days or less.
Age standardised death rate	A summary measure of the death rate that a population would have if it had a standard age structure.
Aortic aneurysm	Localised ballooning of the aorta or an artery, potentially causing pressure on adjacent structures and liability to rupture.
Atrial fibrillation	An irregular heartbeat in which the upper two chambers of the heart beat very rapidly and the heart ventricles beat quickly and irregularly.
Body Mass Index	A formula relating body weight to height, calculated by dividing weight in kilograms by height in metres squared.
Burden of disease	Population level data, which combines mortality and morbidity data to measure all damage to the population's well being that results from disease.
Cause-specific mortality rates	The incidence of death from specific causes or diseases.
Chronic care	Treatment or services necessary to treat a medical condition that lasts a lifetime or recurs.
Chronic diseases	A condition that will not improve, that lasts a lifetime or recurs and usually requires a long period of supervision, observation or care. Examples include diabetes and coronary heart disease.
Circulatory disease	Disease affecting the circulation of the blood in the heart, arteries, capillaries or veins.
Coronary heart disease	Disease of the heart that occurs when the walls of the coronary arteries become narrowed by a gradual build-up of fatty material (atheroma). Examples of CHD include heart attack and angina.

Cost effectiveness	A type of economic analysis comparing interventions or programmes having a common measurement of health outcome in a situation where, for a given level of resources, the decision maker wishes to maximise the benefits conferred to the population of concern.
Endocrine	Of or belonging to the endocrine glands or their secretions.
Fully engaged scenario	A scenario described in <i>Securing our Future Health: Taking a Long-Term View</i> , where levels of public engagement in relation to their health are high: life expectancy increases go beyond current forecasts, health status improves dramatically and people are confident in the health system and demand high quality care. The health service is responsible with high rates of technology uptake, particularly in relation to disease prevention. Use of resources is more efficient.
Health inequalities	Differences in health outcomes attributable to differences between groups in the population that are inequitable, such as differences in socio-economic status or race.
Healthy life expectancy	A population based measure of the number of years of life that can be expected to be healthful and fulfilling, or free of illness, disease and disability, in a given population.
Hypertension	Blood pressure greater than or equal to 140/90mmHg.
Incidence	The rate at which new cases of disease occur in a population during a specified period.
Infant mortality	The number of deaths of children under one year of age per 1000 live births.
Ischaemic heart disease	Disease of the heart, caused by narrowed heart arteries which restrict the blood and oxygen available to the heart muscle.
Life expectancy at birth	The number of years of life, from birth, that can be expected on average in a given population.
Life expectancy at age 65	The number of years of life, from age 65, that can be expected on average in a given population

Lifestyle factors	Cultural and societal factors associated with health outcomes. Examples include levels of physical activity and alcohol consumption.
Low birth weight	Weight at birth less than 2500g
Morbidity	The frequency of disease in a population.
Mortality	The incidence of death from disease in a population.
Neonatal	An infant in the first four weeks after birth.
Neoplasm	A tumor, an abnormal new mass of tissue which has no physiological purpose.
Neuropsychiatric disorders	Mental disorders attributable to diseases of the nervous system, such as anxiety or depression.
Obese	Description of individual with Body Mass Index of equal to or greater than 30.
Overweight	Description of individual with Body Mass Index of between 25 and 30.
Potential years of life lost	Measure of the years of life lost due to premature death, calculated by measuring the gap between age at death and a specified age limit (often 70 or 75 years).
Premature	An infant born before 37 completed weeks gestation.
Prevalence	The proportion of a given population that are affected by disease at a point in time.
Primary care	Essential health care accessible to individuals and families in the community. The first level of contact with people taking action to improve health in a community including all initial (non-emergency) consultations with doctors, nurses or other health staff.
Public health	The science and art of preventing disease, prolonging life and promoting health through organised efforts of society, inclusive of all interventions designed to improve the health of the public. Interventions to prevent disease include those which address specific health risk factors (such as diet, lifestyle and physical exercise), infectious disease control and interventions which address the wider economic and societal determinants of health such as the environment, education and housing

Respiratory disease	Disease affecting the group of organs responsible for carrying oxygen from the air to the bloodstream and for expelling carbon dioxide. Examples include asthma, bronchitis, pneumonia and emphysema.
Risk factors	Factors which play a part in the causation of disease.
Saturated fatty acids	A fatty acid whose carbon chain cannot absorb any more hydrogen atoms; found chiefly in animal fats
Secondary Care	Specialized ambulatory medical services and commonplace hospital care (outpatient and inpatient services). Access is often via referral from primary health care services
Self care	Care administered by the individual suffering disease, such as self-medication or self-checks.
Self-rated health	A measure of health status based on an individual's subjective perception of their own general health state. Usually rated on a scale of good, fair or bad.
Slow uptake scenario	A scenario described in <i>Securing our Future Health: Taking a Long-Term View</i> , where there is no change in the level of public engagement: life expectancy rises by the lowest amount in all three scenarios and the health status of the population is constant or deteriorates. The health service is relatively unresponsive with low rates of technology uptake and low productivity.
Social gradient	The positive association found between decreasing social class and amount of illness (i.e. the lower the social class the higher the amount of illness). A 'reverse' social gradient refers to a negative association between decreasing social class and amount of illness (i.e. the lower the social class the smaller the amount of illness).

Solid progress scenario	A scenario described in <i>Securing our Future Health: Taking a Long-Term View</i> , where people become more engaged in relation to their health: life expectancy rises considerably, health status improves and people have confidence in the primary care system and use it appropriately. The health service is responsive with high rates of technology uptake and a more efficient use of resources.
Standardised mortality ratio	The ratio of the number of events observed in a population to the number that would be expected if the population had the same structure as a standard or reference population.
Type 2 diabetes	A disease characterised by inability on the part of the body to respond to insulin and/or abnormal insulin secretion.

Securing Good Health for the Whole Population 1 C ONTENTS Page Summary 3 Chapter 1 Introduction 11 Chapter 2 Public Health Policy in England: Lessons to be Learnt 23 Chapter 3 Delivery of Public Health 39 Chapter 4 Case Studies 77 Chapter 5 Public Health Evidence 107 Chapter 6 Investing in Public Health 123 Chapter 7 Roles and Responsibilities 149 Chapter 8 Government. Levers 167 Chapter 9 Recommendations 183 Annex A Consultation 187 Annex B The Department of Health's Public Service Agreement 195 Annex C PSAs contributing to Health Inequalities Targets 197 Annex D Population Surveys 199 A Changing health behaviour While people may aspire towards a healthier lifestyle, the initiation and maintenance of health behaviours result.Â HM Treasury 2002. 2 Wanless D. Securing Good Health for the Whole Population HM. Treasury 2004. 3 West R. Obesity Reviews 8 (Suppl.1) 145-150, 2007 4 ASH Smoking Statistics: Who smokes and how much 2007.