



Deprivation and Health

A report by the National Public Health
Service for Wales



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Chapter 1

Health and deprivation

Context

The purpose of this report is to highlight the relationship between small area deprivation and health in Wales, using a large number of health indicators. The reason for doing this is to assist a wide variety of organisations and individuals in Wales to take action to improve the health of the most disadvantaged. Reducing inequality and disadvantage is a fundamental policy of the Welsh Assembly Government, as emphasised in *Wales: A Better Country - The Strategic Agenda of the Welsh Assembly Government*.¹

This report utilises a wide range of health indicators to demonstrate a substantial effect of deprivation on health, as emphasised by the ratio of health in the 20 percent most deprived electoral divisions compared with the 20 percent most affluent. This relationship is not the same for all diseases or conditions. The report should be a valuable source of information for all those hoping to tackle the major determinants and consequences of inequalities in health. The report contains data on the distribution of benefits, behavioural and physical health determinants, health status measures, illness and injury, use of health services, and deaths.

Background

Most measures of population health show that health has substantially improved over the past 150 years. For example, life expectancy in England and Wales has improved in every decade since the 1840s: from 41 years in 1841 to 75 years in 1998 for males and from 43 to 80 years for females.² However, large inequalities in the health experience of populations have persisted. Over the past two to three decades social and spatial health inequalities have widened. Improvements in health over that period have been relatively small in the most disadvantaged groups.³

Most health inequalities research has focussed on inequalities between populations defined by age, gender, ethnicity, individual socio-economic status, geography, and area deprivation.³ This report is concerned only with health variations by small area deprivation.

Methods

Geographical units

Boundaries for small administrative areas have been frequently revised in Wales. We have based our analysis on Welsh electoral

divisions as they existed in 1998, as these have frequently been used in recent population health research and several important datasets are only available with codes for these geographic units attached. There were 865 electoral divisions in Wales in 1998, with an average population size of about 3500 persons recorded on the National Health Service Administrative Register. The use of 1998, rather than more recent, boundaries is unlikely to substantially affect the relationship between the top and bottom fifths of deprivation. Analysis by more recent geographical boundaries is planned when more datasets are coded to the new geography.

Townsend index of deprivation

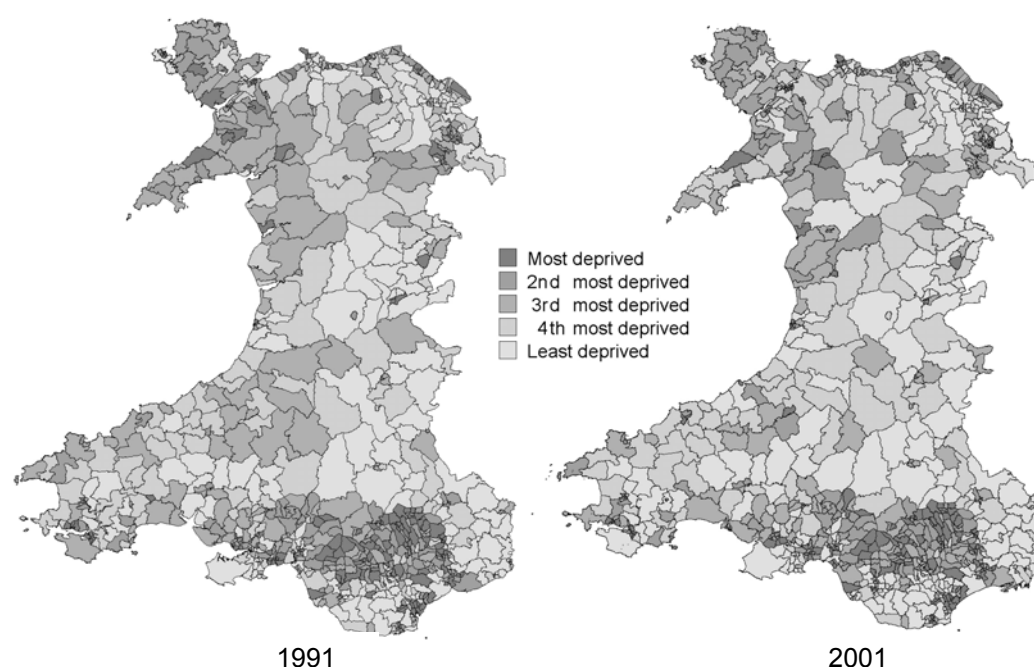
Several indicators of small area deprivation are available. We have chosen to use the 1991 Townsend index of deprivation, re-based to the 1998 electoral boundaries. This is a summary score for small areas calculated from four 1991 census-based variables:

- proportion of households with no car,
- proportion of households not owner occupied,
- proportion of unemployed economically active persons aged 16–59 years (females) and 16–64 years (males), and
- proportion of households overcrowded.

The limitations of the index are well known. In particular, the index has been criticised for lack of validity in rural areas where, unlike in urban areas, car ownership may be a necessity at all levels of deprivation.⁴ Nevertheless, we have chosen to use the Townsend index because of its frequent use in the field of population health research (and therefore comparability with other research results), its independence from health variables in its construction, and its availability at the level of electoral divisions in Wales.

Data from the 2001 census that are required for Townsend score calculation are suppressed for 13 electoral divisions in Wales, whereas equivalent 1991 census data are available for all electoral divisions. Additionally, 2001 census data cannot be re-based to 1998 electoral division boundaries. We have therefore chosen to use the Townsend index calculated from 1991 census data. Figure 1.1 shows that the geographical patterns of deprivation for the Townsend index calculated from the 1991 and 2001 censuses are very similar. Both the 1991 and 2001 Townsend scores for Welsh electoral divisions are published by the National Public Health Service for Wales.⁵

Figure 1.1 Townsend index 1991 and 2001.



Based on 1991 and 2001 census data.

Method for defining deprivation fifths

We have divided the distribution of deprivation into five groups (four cut-points) for the analysis. Our choice of the number of groups was arbitrary but was made on the expectation that five groups, however defined, are sufficiently large to avoid most small numbers problems and are sufficiently small to provide discrimination between the two extremes.

We defined cut-points for the groups so that each fifth has an equal number of electoral divisions. Alternative methods would require reclassifying fifths for each denominator population (equal population size method) or for each indicator (equal range method).⁶

Health indicators

It is beyond the scope of this analysis to investigate and summarise the association between deprivation and all the health indicators that would be of interest to policy makers, health professionals, and researchers. The indicators presented in this report were not selectively chosen to reveal inequalities; they were chosen on the basis of ready availability either of published results or of robust data suitable for analysis by deprivation. The majority of the information presented in this report has already been used in the health, social care, and well-being strategies being developed by Welsh local health boards and local authorities. The selected indicators cover commonly examined domains of population health: determinants of health (including lifestyle), health status (indicated by SF-36 scores in this report), illness and injury, benefit receipt, health service utilisation, and mortality.

We obtained data from a variety of health information sources, as specified in subsequent sections of this report.

Population

The focus of this report is on Welsh deprivation inequalities for all persons. In general, results are presented for all ages but with some exceptions, such as infant mortality. Indicators derived from the Welsh Health Survey apply only to adults over the age of 18 years and several of the Department for Work and Pensions benefits indicators are for specific age groups. Most of the indicators are for both genders combined, but again there are some exceptions, such as the gender-specific rates for all-cause hospitalisation and death. Investigation of the relationships between deprivation and health for subgroups of the population defined by age, gender, and other demographic variables is of great importance, and we plan to report on such investigations in future reports, but is largely beyond the scope of this analysis.

The age distribution of the population in each deprivation fifth is shown in Table 1.1. The largest differences are in the young adult age group 15–24 years. In the most deprived 20 percent of areas, 16 percent of the population is in that age group, compared with just 11 percent in the most affluent 20 percent of areas. Deprived areas have a smaller proportion of people in older age groups (22 percent aged 45–64 years and 15 percent aged 65 years and over) than do affluent areas (28 percent aged 45–64 and 18 percent aged 65 and over).

Table 1.1 Percentage of population by age group and deprivation fifth, mid-year 2003.

Age (years)	Deprivation fifth					Total
	1 (least deprived)	2	3	4	5 (most deprived)	
0–14	16	16	16	17	18	17
15–24	11	12	12	14	16	13
25–44	26	26	27	28	29	28
45–64	28	26	25	24	22	25
65+	18	19	20	17	15	18
All ages	100	100	100	100	100	100

Data source: NHSAR.

Statistical analysis

The comparison between the 20 percent most deprived neighbourhoods and the 20 percent most affluent neighbourhoods produces a number which is intuitively meaningful to many people. This number, which is technically referred to as a ratio, indicates the size of a comparative disadvantage. For instance, a ratio of 1 means the health of the two groups is identical, whereas a ratio of 2 means that the health of the deprived group is twice as bad as that of the affluent group. This report presents the estimate of the ratio and its 95 percent confidence interval, which is a way of showing the range of values that has a 95 percent probability of containing the true population value. We calculated confidence intervals for the

ratios using the 'Ratio of Two Standardised Ratios' module of *Confidence Interval Analysis* software.⁷ Numbers of cases or events and the denominator population are included in Appendix 2 and Appendix 3 of this report.

Chapter 2

Lifestyle health determinants

This chapter shows how determinants of health that are related to lifestyle vary with deprivation. The factors are not in themselves measures of health, but rather are indicators of behavioural and physical factors that are associated with poor health outcomes. The chapter presents information on smoking, excess alcohol consumption, diet, physical inactivity, and obesity.

Smoking and alcohol

Tobacco smoking is the leading cause of avoidable illness and premature death in the UK⁸ and other OECD countries.⁹ It is an important risk factor for coronary heart disease, stroke, respiratory diseases, many cancers, and is often related to deaths in fires. Exposure to environmental tobacco smoke is a major risk factor for conditions such as sudden infant death syndrome and respiratory childhood diseases. The most common population-level smoking indicator is the proportion of the population smoking ('smoking prevalence'), whereas most indicators in this report are presented as standardised ratios; for comparability we present both the smoking prevalence and the smoking standardised morbidity ratio (SMR) indicators.

Alcohol is an important cause of disease and death. Recognised adverse effects include diseases of the liver and pancreas, some cancers, high blood pressure, stroke, intentional and unintentional injuries (including road traffic injury), unsafe sexual behaviour, and mental disorders.⁸

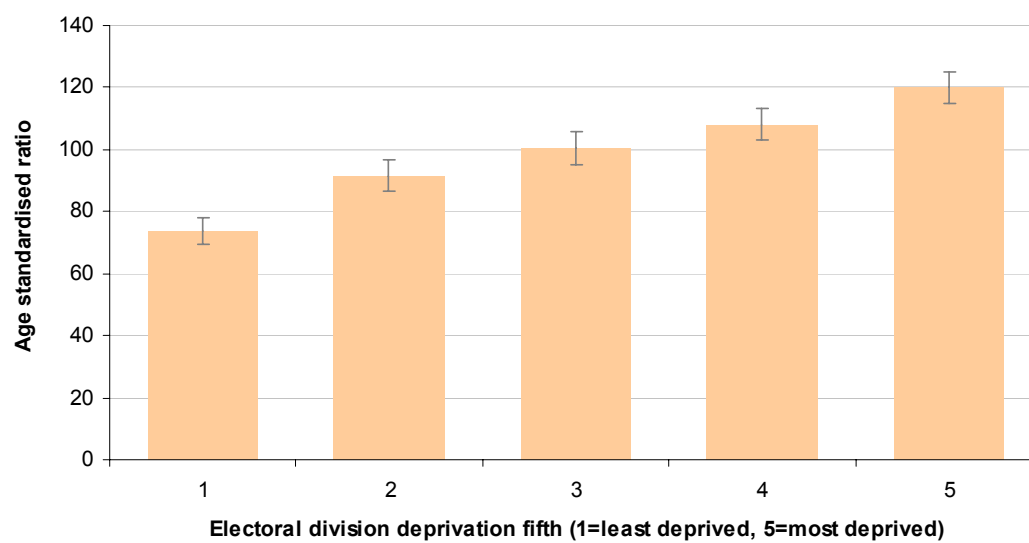
We derived the smoking and alcohol indicators from the 1998 Welsh Health Survey.¹⁰ In this analysis smoking is defined as daily or occasional smoking and excess alcohol consumption is defined as greater than 14 units of alcohol per week for women and greater than 21 units per week for men. As with all population surveys, these data may be subject to some degree of non-response and reporting bias.

Table 2.1. Smoking^{*}, excess alcohol consumption[†], persons aged 18 years and over, 1998.

Deprivation fifth	Smoking: percent (95%CI)	Smoking: SMR (95%CI)	Excess alcohol consumption: SMR (95%CI)
1 (least deprived)	19.9 (18.8, 21.0)	74 (69, 78)	100 (93, 107)
2	24.4 (23.2, 25.6)	91 (86, 97)	102 (94, 109)
3	26.6 (25.4, 27.8)	100 (95, 106)	96 (89, 104)
4	29.1 (27.9, 30.2)	108 (103, 113)	96 (89, 103)
5 (most deprived)	32.7 (31.6, 33.8)	120 (115, 125)	105 (98, 112)
Overall	26.9 (26.4, 27.4)	100	100
Rate ratio 5:1	1.64 (1.54, 1.75)	1.63 (1.51, 1.76)	1.05 (0.95, 1.16)

Data source: WHS98.

Figure 2.1 Smoking, persons aged 18 years and over, 1998.

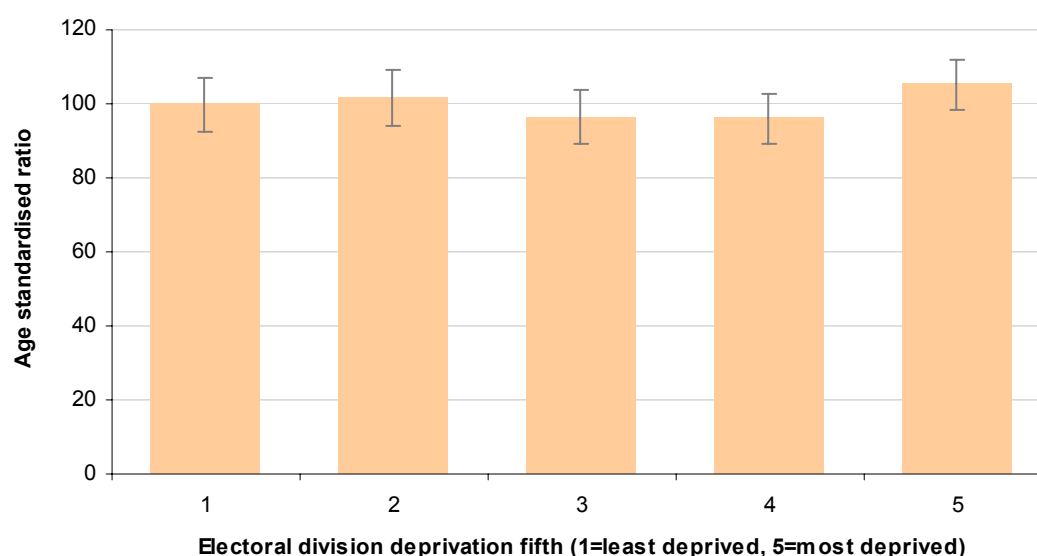


Data source: WHS98.

^{*} Daily or occasional smoking.

[†] Greater than 14 units per week for women; greater than 21 units per week for men.

Figure 2.2 Excess alcohol consumption, persons aged 18 years and over, 1998.



Data source: WHS98.

- Smoking prevalence was two-thirds higher among residents of the most deprived than the least deprived fifth.
- We found that excess alcohol consumption was not significantly related to deprivation. In none of the fifths was the indicator significantly different to the Welsh average.

Diet, physical inactivity, obesity

Many people in the UK have a diet that increases the risk of coronary heart disease and stroke.⁸ Physical inactivity is a risk factor for heart disease, stroke, high blood pressure, diabetes and some cancers.⁸

Obesity is associated with cardiovascular disease, stroke, and diabetes. High body mass index has also been associated with high blood pressure, high cholesterol levels, some cancers, osteoarthritis, and gallbladder disease.⁸ The definition of obesity used for this analysis is body mass index greater than 30.

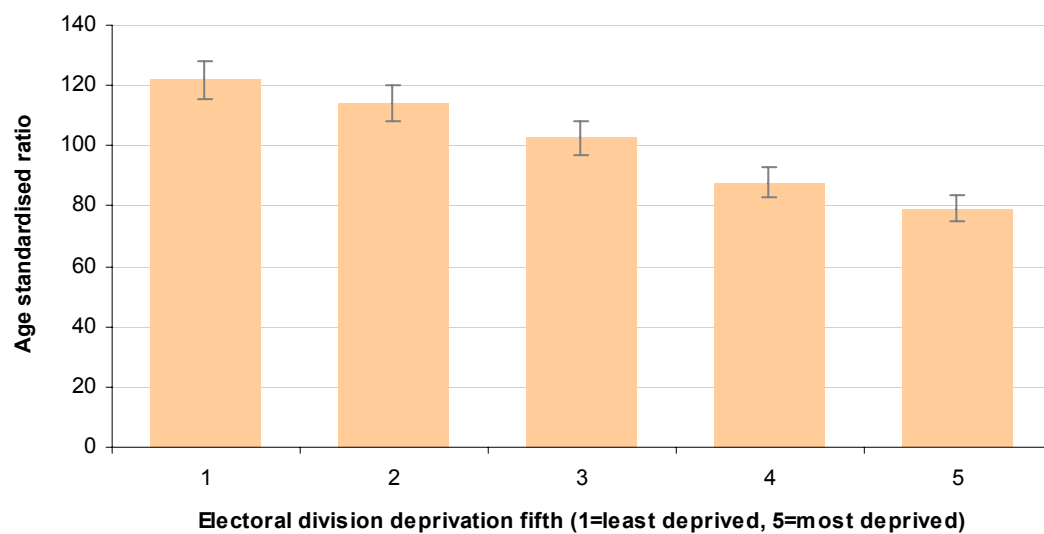
We derived the diet, physical activity, and obesity indicators from the 1998 Welsh Health Survey.¹⁰

Table 2.2. Healthy diet^{*}, physical inactivity[†], obesity[‡], standardised ratio (95%CI), persons aged 18 years and over, 1998.

Deprivation fifth	Healthy diet [*]	Physical inactivity [†]	Obesity [‡]
1 (least deprived)	122 (116, 128)	61 (55, 68)	78 (72, 84)
2	114 (108, 120)	82 (75, 90)	94 (87, 101)
3	103 (97, 108)	97 (89, 105)	102 (95, 109)
4	88 (83, 93)	126 (117, 135)	108 (101, 115)
5 (most deprived)	79 (75, 84)	127 (118, 136)	114 (108, 121)
Overall	100	100	100
Rate ratio 5:1	0.65 (0.60, 0.70)	2.08 (1.83, 2.37)	1.47 (1.33, 1.62)

Data source: WHS98.

Figure 2.3 Healthy diet^{*}, persons aged 18 years and over, 1998.



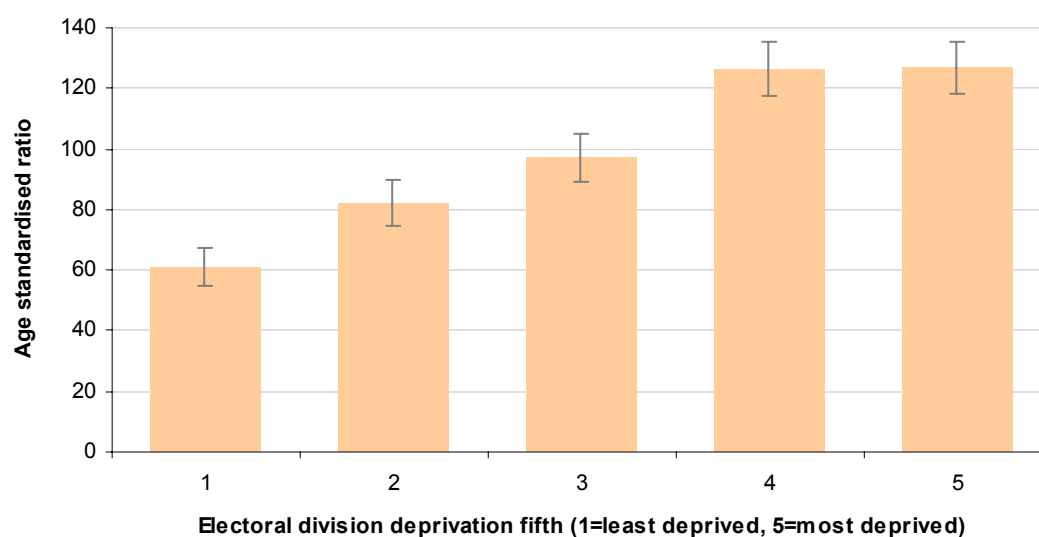
Data source: WHS98.

* Defined here as green vegetables or salad consumed six or seven days per week.

† No weekly exercise.

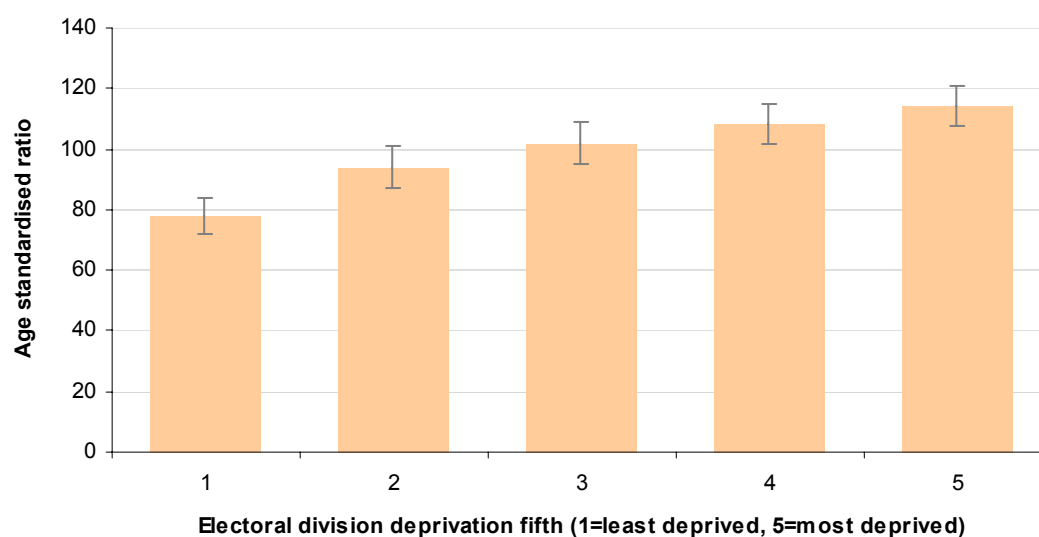
‡ Defined here as body mass index greater than 30.

Figure 2.4 Physical inactivity, persons aged 18 years and over, 1998.



Data source: WHS98.

Figure 2.5 Obesity, persons aged 18 years and over, 1998.



Data source: WHS98.

- Consumption of green vegetables or salad on six or seven days per week was one-third less likely in deprived areas compared with the most affluent areas.
- Physical inactivity was twice as common in deprived areas.
- Obesity was one-and-a-half times more common in deprived areas.

Chapter 3

Health status

There are several different measures used to define and capture measures of health status. One of these is the SF-36, the short form 36 item health status questionnaire.

SF-36 measures of health status

The indicators presented in this section are the eight dimension scores (four refer to physical health and four to mental health) and the physical and mental health domain summary scores from the SF-36, which was included in the 1998 Welsh Health Survey.¹⁰ The SF-36 produces two summary scores, one for physical health called the PCS, and the other for mental health, called the MCS. In both cases a higher score represents better health. The survey dataset gives scores on a scale from zero to 100 (approximately). For consistency with other indicators in this report we present the scores as standardised ratios with 100 as the Welsh average, as well as scores on the zero to 100 scale for the PCS and MCS.

Physical and mental health summary scores

Table 3.1. PCS^{*}, MCS[†], score and standardised ratio (95%CI), persons aged 18 years and over, 1998.

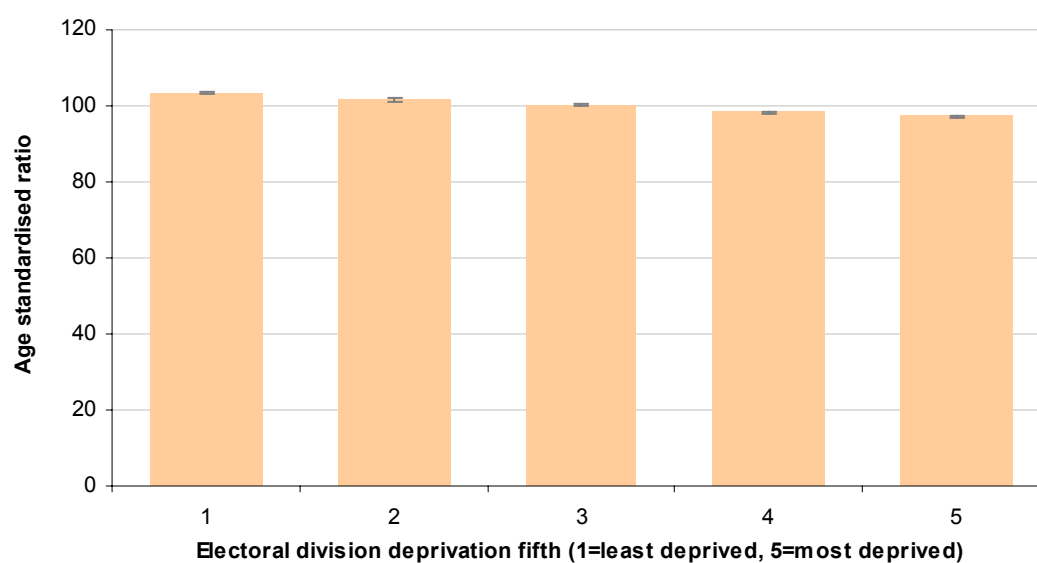
Deprivation fifth	PCS [*]		MCS [†]	
	Score	Standardised ratio	Score	Standardised ratio
1 (least deprived)	49.7	103 (103, 104)	50.7	102 (102, 103)
2	48.6	102 (101, 102)	50.1	101 (101, 101)
3	47.9	100 (100, 101)	50.0	101 (100, 101)
4	47.5	98 (98, 99)	49.0	99 (99, 99)
5 (most deprived)	47.4	97 (97, 98)	48.1	97 (97, 98)
Overall	48.2	100	49.5	100
Rate ratio 5:1	0.94 (0.93, 0.94)	0.94 (0.93, 0.94)	0.95 (0.94, 0.96)	0.95 (0.94, 0.96)

Data source: WHS98.

^{*} SF-36 physical component summary.

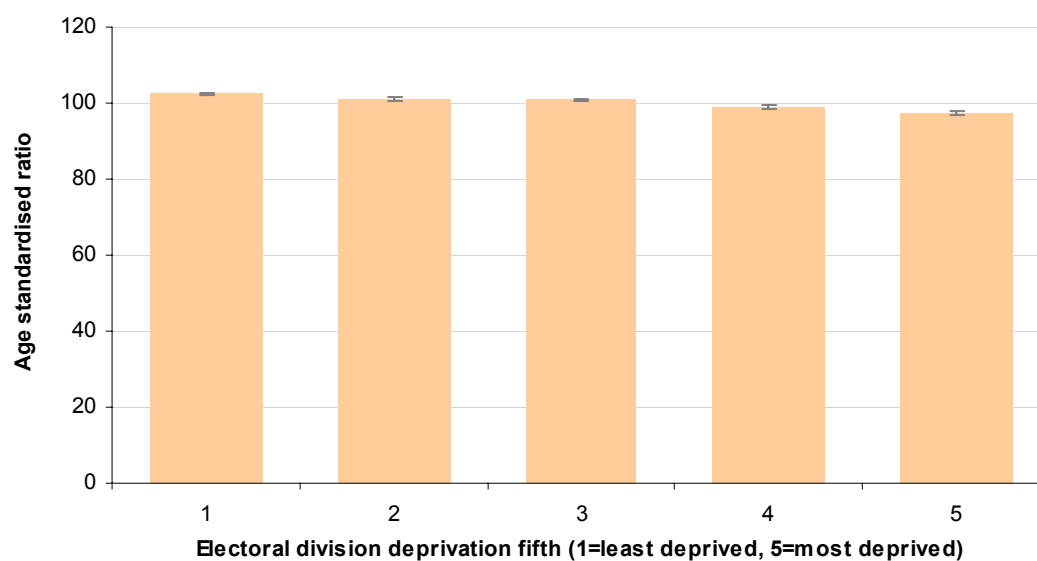
[†] SF-36 mental component summary.

Figure 3.1 PCS, persons aged 18 years and over, 1998.



Data source: WHS98

Figure 3.2 MCS, persons aged 18 years and over, 1998.



Data source: WHS98

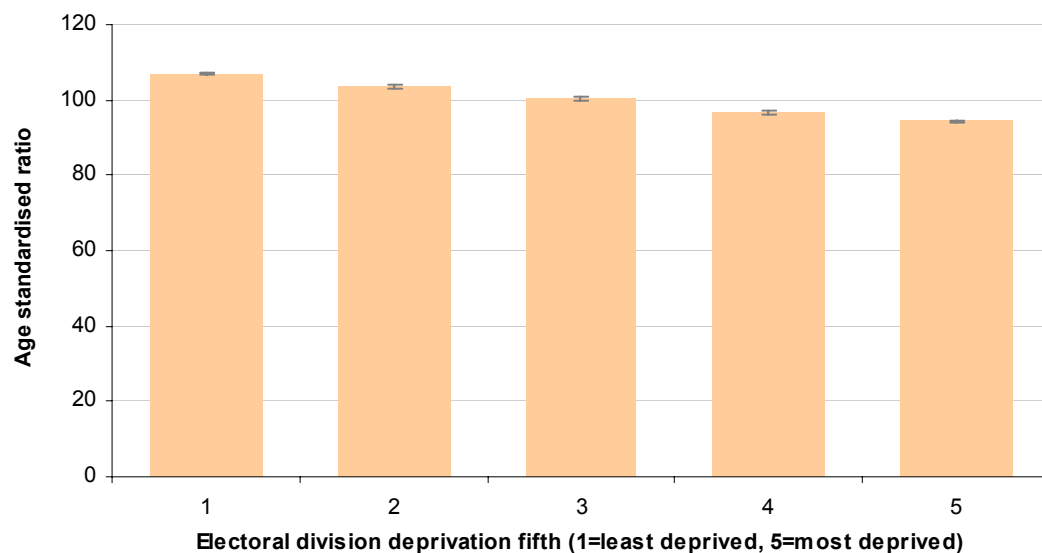
Physical health dimension scores

Table 3.2. SF-36 physical health dimensions, standardised ratio (95%CI), persons aged 18 years and over, 1998.

Deprivation fifth	Physical functioning	Role – physical	Bodily pain	General health
1 (least deprived)	107 (106, 107)	107 (107, 107)	106 (106, 106)	106 (105, 106)
2	104 (103, 104)	104 (103, 104)	104 (104, 105)	103 (103, 103)
3	100 (100, 101)	101 (101, 102)	101 (100, 101)	101 (101, 102)
4	97 (96, 97)	96 (95, 96)	96 (96, 96)	97 (97, 97)
5 (most deprived)	94 (94, 95)	94 (94, 94)	95 (94, 95)	95 (94, 95)
Overall	100	100	100	100
Rate ratio 5:1	0.88 (0.88, 0.89)	0.88 (0.88, 0.88)	0.89 (0.89, 0.90)	0.89 (0.89, 0.90)

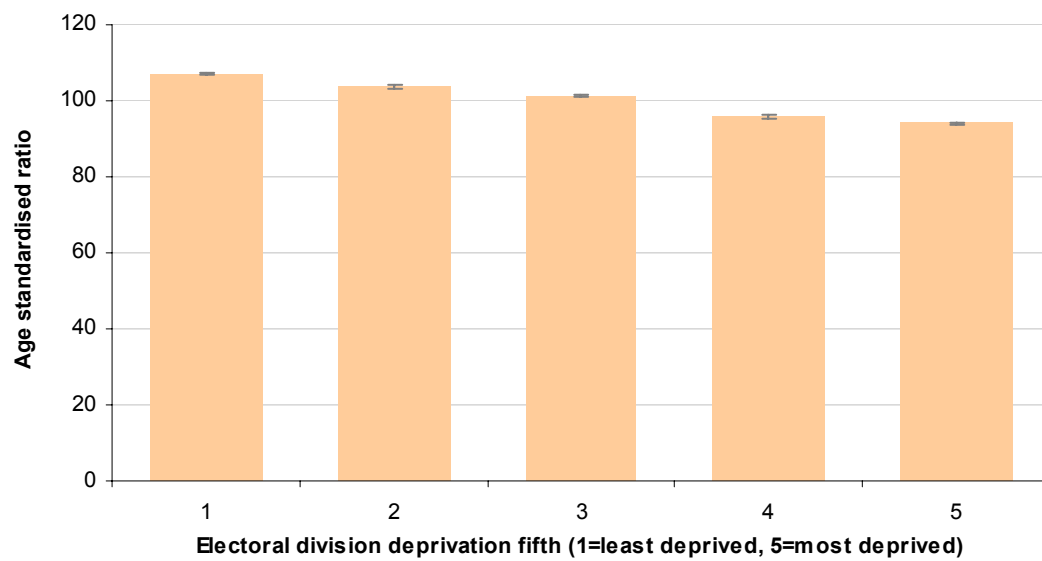
Data source: WHS98.

Figure 3.3 Physical functioning, persons aged 18 years and over, 1998.



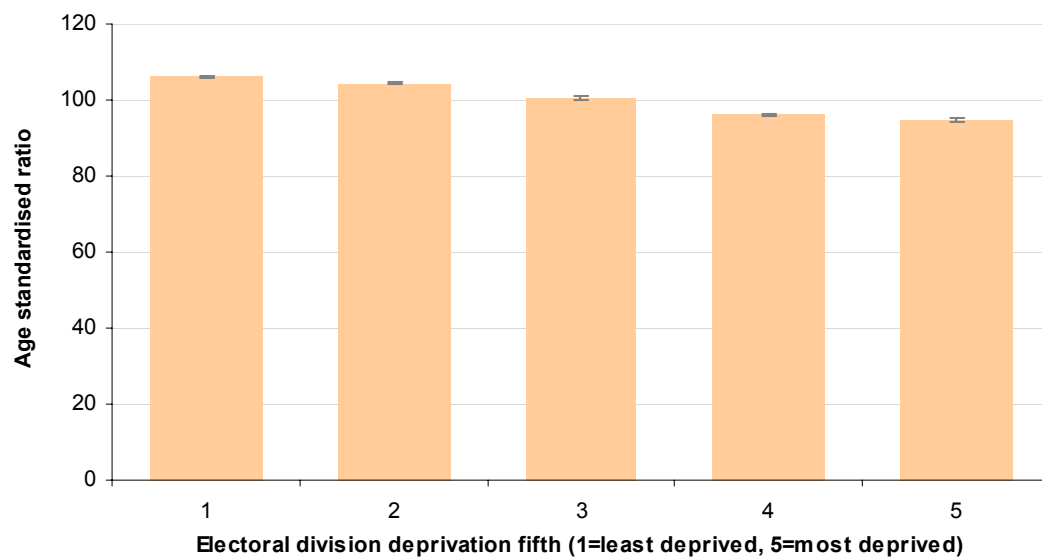
Data source: WHS98

Figure 3.4 Role – physical, persons aged 18 years and over, 1998.



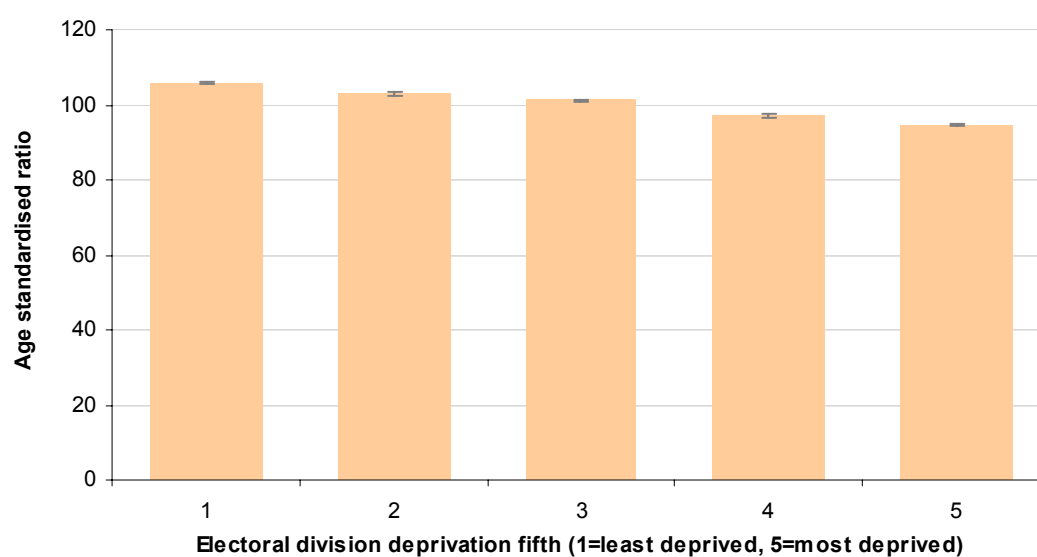
Data source: WHS98

Figure 3.5 Bodily pain, persons aged 18 years and over, 1998.



Data source: WHS98

Figure 3.6 General health, persons aged 18 years and over, 1998.



Data source: WHS98

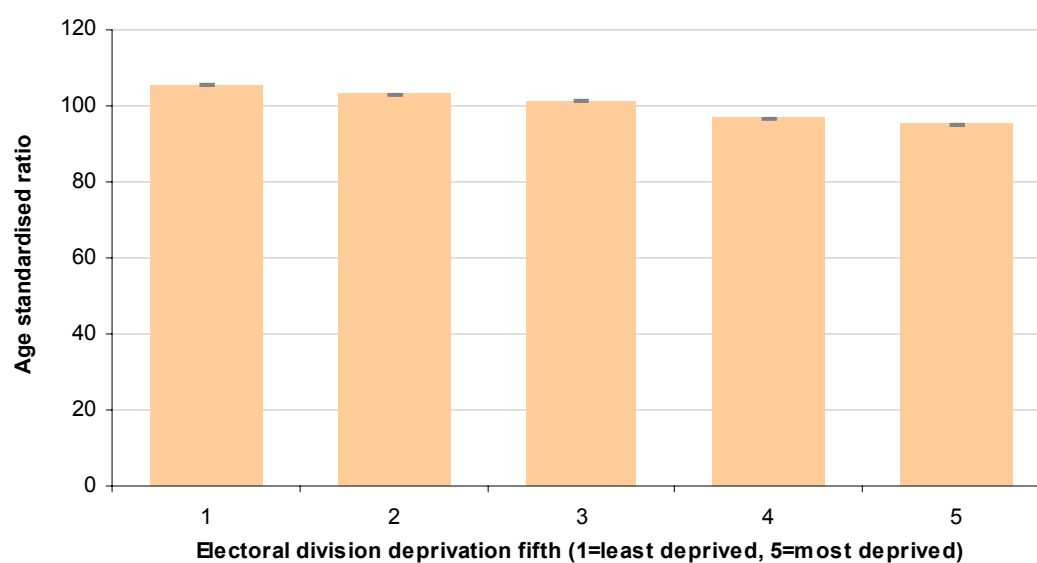
Mental health dimension scores

Table 3.3. SF-36 mental health dimensions, standardised ratio (95%CI), persons aged 18 years and over, 1998.

Deprivation fifth	Vitality	Social functioning	Role – emotional	Mental health
1 (least deprived)	105 (105, 106)	106 (106, 107)	105 (105, 105)	104 (104, 105)
2	103 (103, 103)	104 (103, 104)	103 (102, 103)	102 (102, 102)
3	101 (101, 102)	101 (101, 101)	101 (101, 101)	101 (101, 101)
4	97 (96, 97)	97 (96, 97)	98 (97, 98)	98 (98, 98)
5 (most deprived)	95 (95, 95)	94 (94, 94)	95 (94, 95)	96 (96, 96)
Overall	100	100	100	100
Rate ratio 5:1	0.90 (0.90, 0.91)	0.89 (0.88, 0.89)	0.90 (0.90, 0.91)	0.92 (0.91, 0.92)

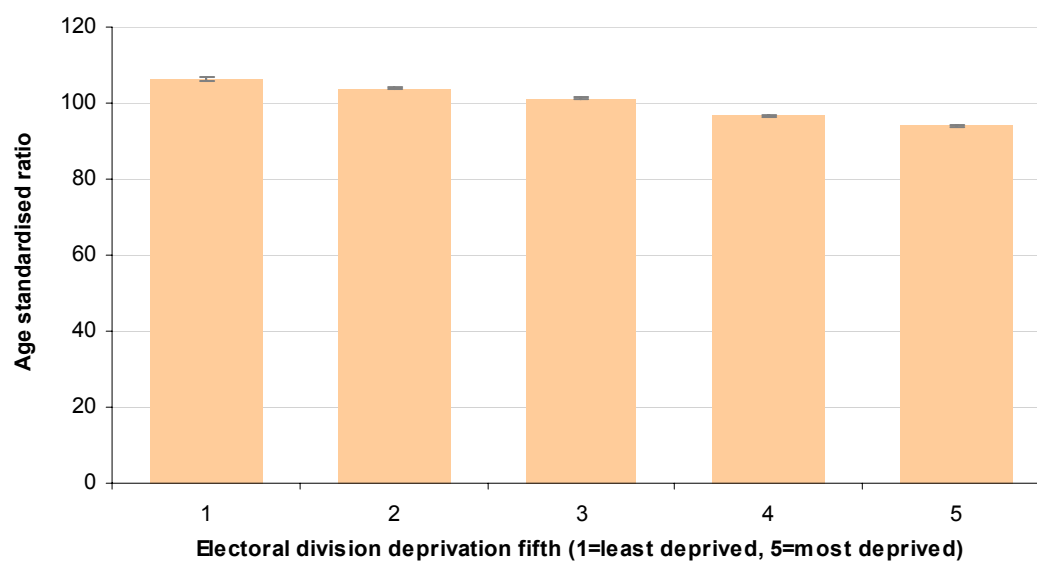
Data source: WHS98.

Figure 3.7 Vitality, persons aged 18 years and over, 1998.



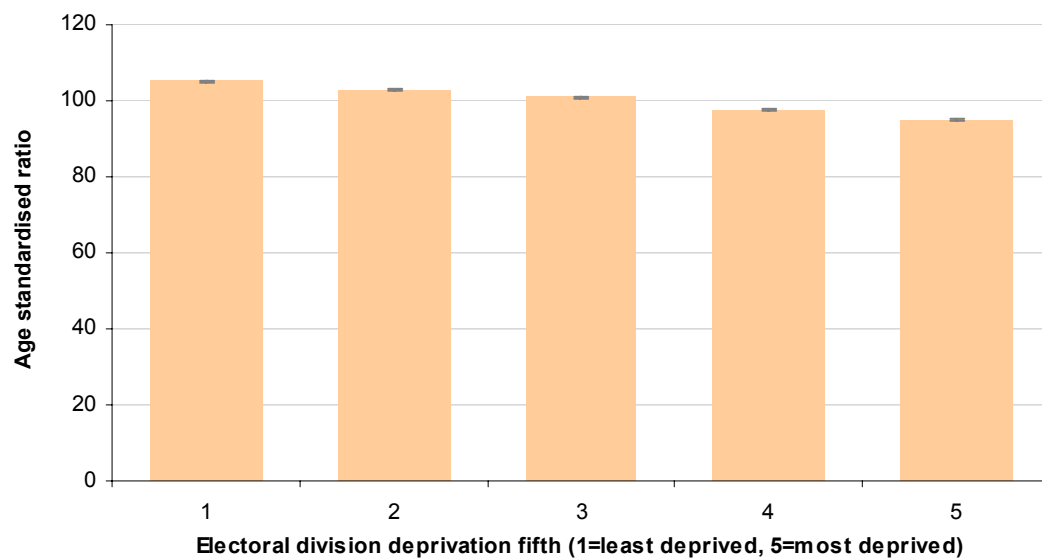
Data source: WHS98

Figure 3.8 Social functioning, persons aged 18 years and over, 1998.



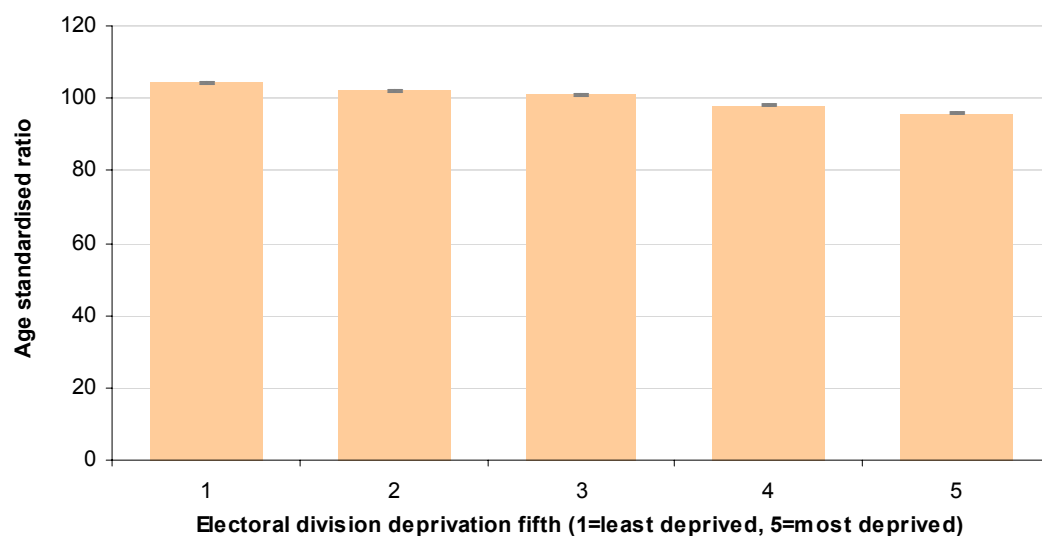
Data source: WHS98

Figure 3.9 Role – emotional, persons aged 18 years and over, 1998.



Data source: WHS98

Figure 3.10 Mental health, persons aged 18 years and over, 1998.



Data source: WHS98

- For each of the eight dimensions of health and both the physical and mental health summary scores, greater deprivation was associated with poorer health. The magnitude and ratio of indicators were very similar for each of the above indicators.

Chapter 4

Illness and injury

This section presents indicators for major categories of illness and injury, based on data from a variety of sources. Data on prevalence of mental illness lasting three or more months, sensory problems, arthritis, back pain, respiratory illness, high blood pressure, and diseases of the heart are based on self-report in the 1998 Welsh Health Survey.¹⁰ We obtained cancer indicators from the Welsh Cancer Intelligence and Surveillance Unit. Pedestrian injury indicators are derived from data collected by police attending road traffic crashes and from hospital inpatient records.

Low birth weight

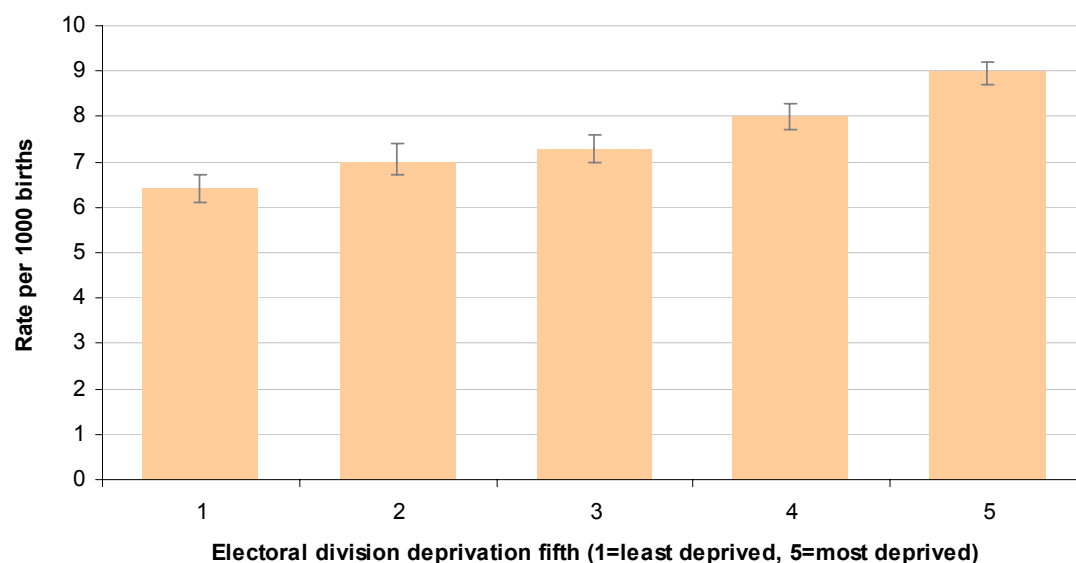
Low birth weight is associated with various poor health outcomes, including death in infancy and stroke, high blood pressure and heart disease in later life.

Table 4.1. Low birth weight (less than 2500 g), 1998–2002.

Deprivation fifth	Percentage (95%CI)
1 (least deprived)	6.4 (6.1, 6.7)
2	7.0 (6.7, 7.4)
3	7.3 (7.0, 7.6)
4	8.0 (7.7, 8.3)
5 (most deprived)	9.0 (8.7, 9.2)
Overall	7.8 (7.7, 7.9)
Rate ratio 5:1	1.37 (1.29, 1.45)

Data source: ONS.

Figure 4.1. Low birth weight (less than 2500 g), 1998–2002.



Data source: ONS

- In Wales in the period 1998–2002, the proportion of births with low birth weight was about 40 percent higher in the most deprived fifth of areas compared with the least deprived fifth. This analysis is based on all births. If the analysis were to exclude multiple births, which are known to be more common in affluent areas and which are much more likely to involve low birth weight, then the apparent excess of low birth weight in deprived areas would be greater.

Mental illness

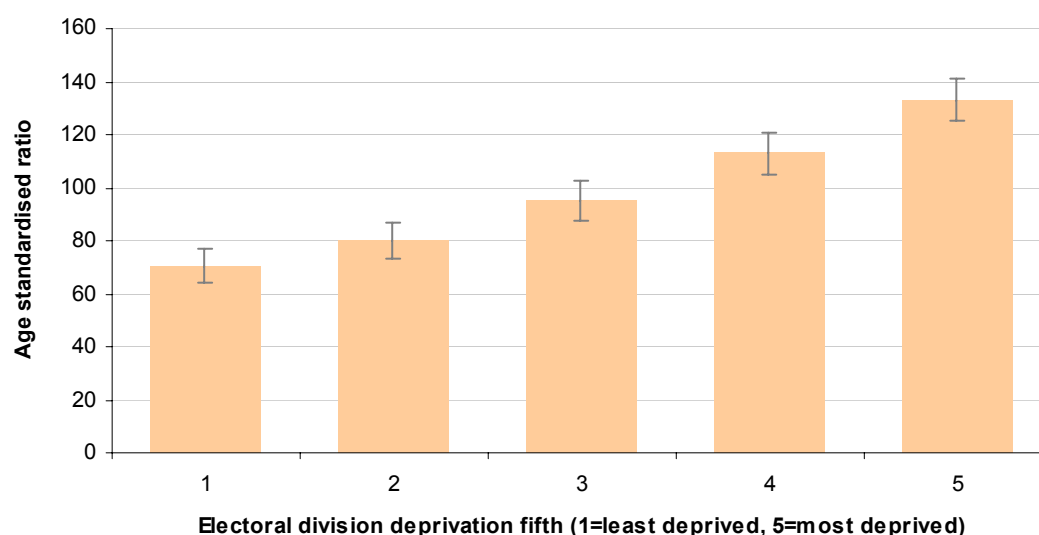
The mental illness indicator includes people suffering from anxiety or depression for three months or more and who have been treated by a doctor, as reported by respondents in the Welsh Health Survey.

Table 4.2. Depression and/or anxiety, standardised morbidity ratio (95%CI), persons aged 18 years and over, 1998.

Deprivation fifth	Depression and/or anxiety
1 (least deprived)	70 (64, 77)
2	80 (73, 87)
3	95 (88, 103)
4	113 (105, 121)
5 (most deprived)	133 (125, 141)
Overall	100
Rate ratio 5:1	1.90 (1.70, 2.12)

Data source: WHS98.

Figure 4.2. Depression and/or anxiety, persons aged 18 years and over, 1998.



Data source: WHS98.

- Based on responses obtained in the 1998 Welsh Health Survey, the prevalence of depression and/or anxiety was strongly associated with deprivation. The standardised ratio was substantially lower than the Welsh average in the least deprived areas (SMR 70) and substantially greater than

average in the most deprived areas (SMR 133). The SMR ratio between those two groups was 1.90 (95%CI 1.70, 2.12).

Sensory problems

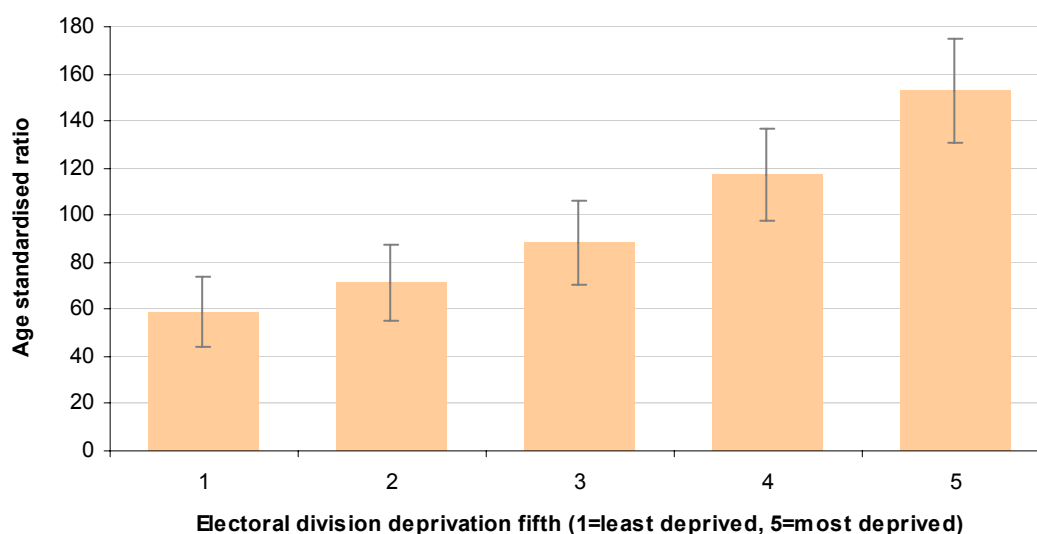
The 1998 Welsh Health Survey included questions on whether respondents had problems with hearing (difficulty hearing chat with another person, with hearing aid if usually worn) and eyesight (unable to see a face across a room, with glasses or contact lenses if usually worn).

Table 4.3. Hearing and eyesight problems, standardised morbidity ratio (95%CI), persons aged 18 years and over, 1998.

Deprivation fifth	Hearing	Eyesight
1 (least deprived)	59 (44, 74)	57 (46, 68)
2	71 (55, 87)	82 (69, 96)
3	88 (71, 106)	95 (81, 109)
4	117 (98, 137)	126 (111, 142)
5 (most deprived)	153 (131, 175)	129 (114, 144)
Overall	100	100
Rate ratio 5:1	2.60 (1.93, 3.52)	2.26 (1.80, 2.86)

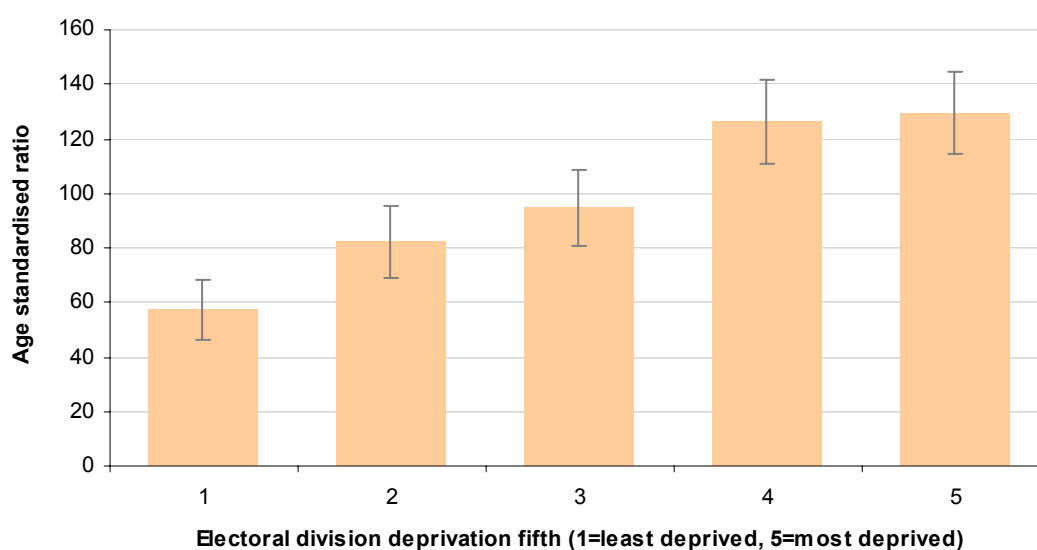
Data source: WHS98.

Figure 4.3 Hearing problems, persons aged 18 years and over, 1998.



Data source: WHS98.

Figure 4.4 Eyesight problems, persons aged 18 years and over, 1998.



Data source: WHS98.

- Both hearing and eyesight problems were much more prevalent in deprived areas. The standardised ratio was 2.6 times higher in the most deprived compared with least deprived areas for hearing problems and 2.3 times higher for eyesight problems.

Limiting long-term illness

The Welsh Health Survey also asked questions on whether the respondent had a long-term illness and whether this limited their activities in any way (LLTI). Here the rates of people with LLTI are compared.

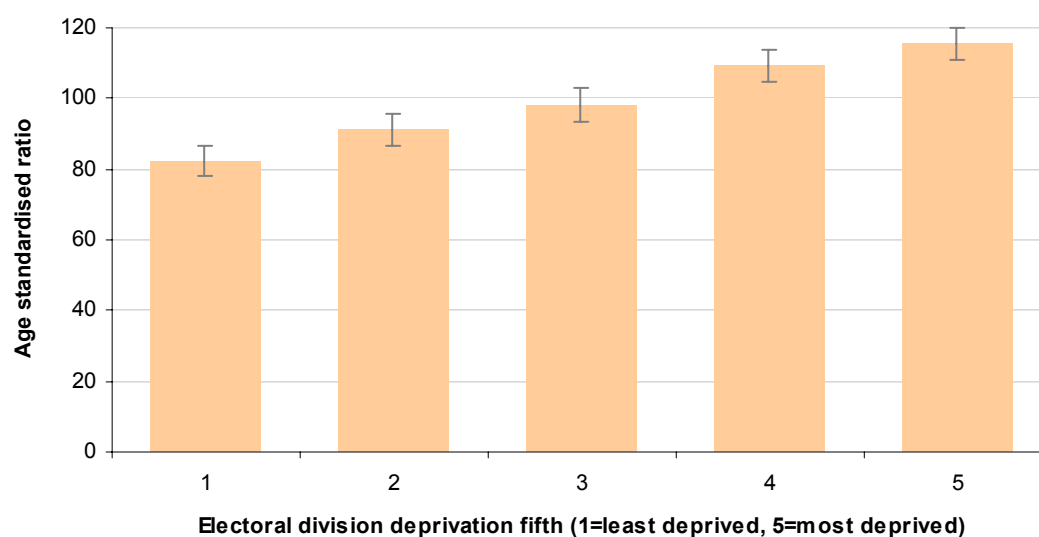
Table 4.4. LLTI*, standardised ratio (95%CI), persons aged 18 years and over, 1998.

Deprivation fifth	LLTI*
1 (least deprived)	82 (78, 86)
2	91 (87, 96)
3	98 (94, 103)
4	109 (105, 114)
5 (most deprived)	115 (111, 120)
Overall	100
Rate ratio 5:1	1.40 (1.31, 1.50)

Data source: WHS98.

* Limiting long-term illness.

Figure 4.5 LLTI, persons aged 18 years and over, 1998.



Data source: WHS98.

- LLTI was about 40 percent more common in deprived, compared with affluent, areas.

Arthritis and back pain

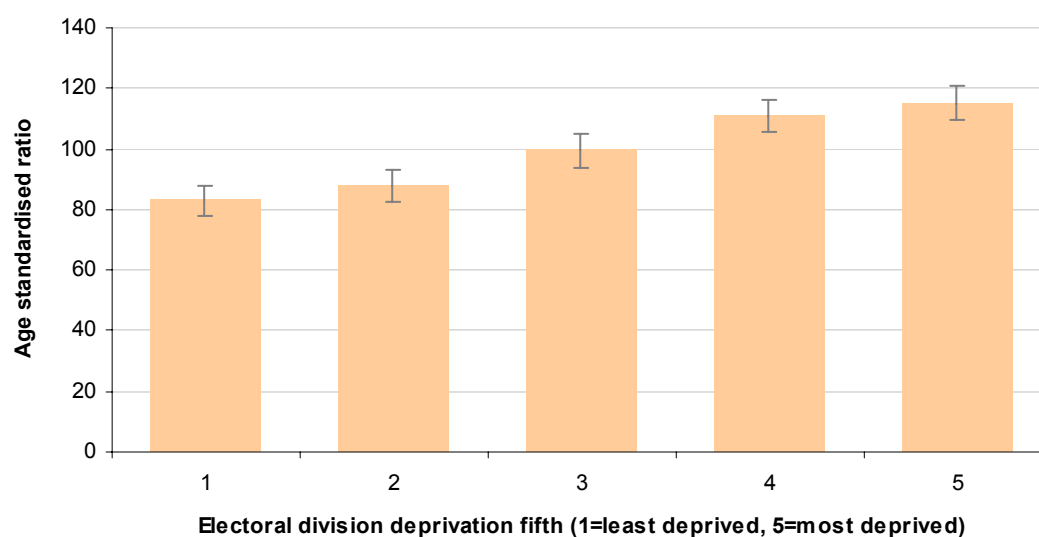
The Welsh Health Survey asked respondents whether they had arthritis or back pain that had been treated by a doctor.

Table 4.5. Arthritis and back pain, standardised morbidity ratio (95%CI), persons aged 18 years and over, 1998.

Deprivation fifth	Arthritis	Back pain
1 (least deprived)	83 (78, 88)	87 (82, 91)
2	88 (83, 93)	95 (90, 99)
3	99 (94, 105)	100 (95, 105)
4	111 (105, 116)	106 (101, 110)
5 (most deprived)	115 (110, 121)	110 (105, 115)
Overall	100	100
Rate ratio 5:1	1.39 (1.29, 1.50)	1.27 (1.18, 1.36)

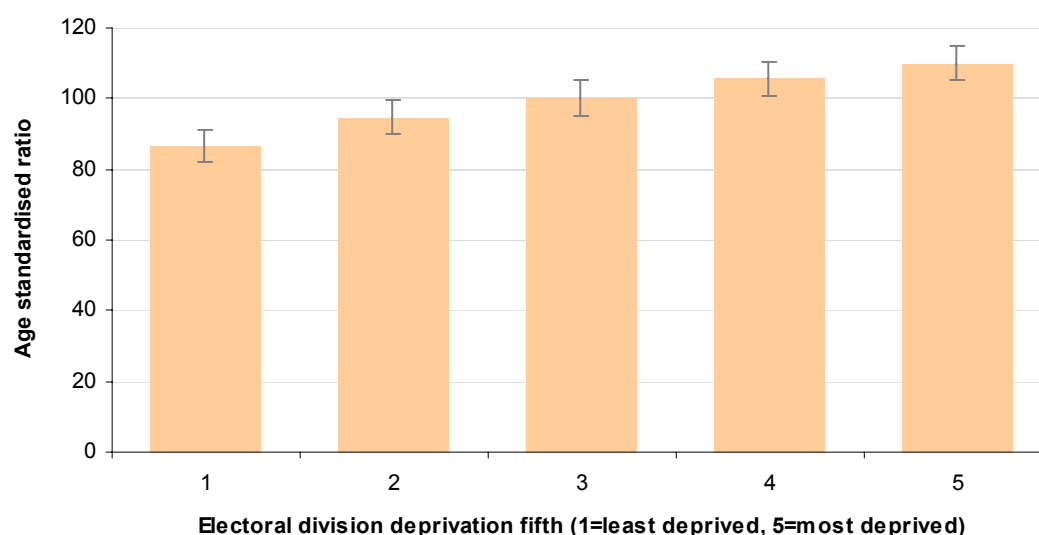
Data source: WHS98.

Figure 4.6 Arthritis, persons aged 18 years and over, 1998.



Data source: WHS98

Figure 4.7 Back pain, persons aged 18 years and over, 1998.



Data source: WHS98

- Treated arthritis and back pain were both more common in deprived areas than the Welsh average and less common in the least deprived areas.

Respiratory disease

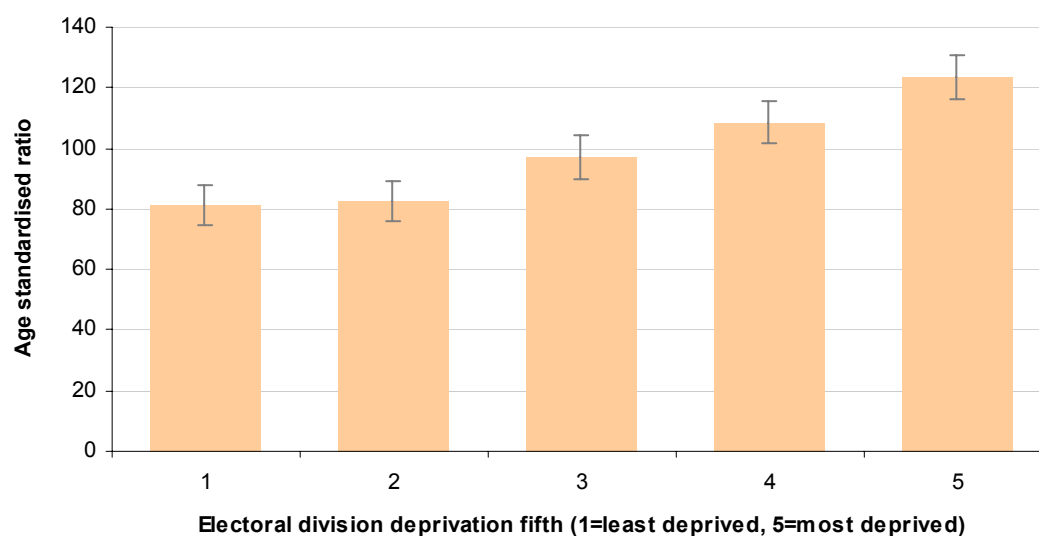
The Welsh Health Survey asked respondents about current respiratory diseases, and asthma specifically, that had been treated by a doctor. The indicator for respiratory disease includes asthma.

Table 4.6. Respiratory disease and asthma, standardised morbidity ratio (95%CI), persons aged 18 years and over, 1998.

Deprivation fifth	Respiratory disease	Asthma
1 (least deprived)	81 (75, 88)	88 (80, 96)
2	83 (76, 89)	87 (79, 95)
3	97 (90, 104)	97 (89, 106)
4	108 (101, 115)	105 (96, 113)
5 (most deprived)	124 (117, 131)	117 (109, 125)
Overall	100	100
Rate ratio 5:1	1.52 (1.38, 1.68)	1.33 (1.18, 1.49)

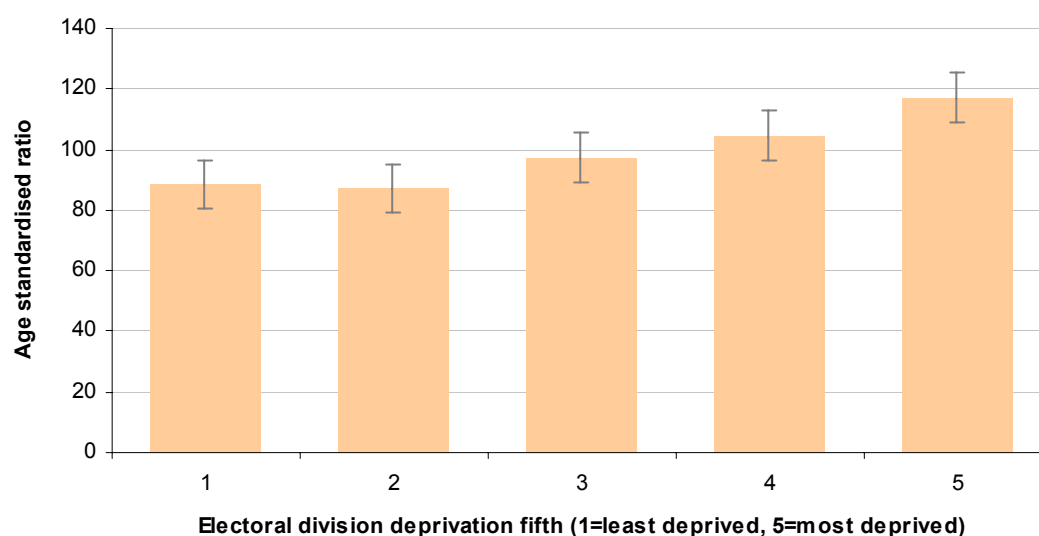
Data source: WHS98.

Figure 4.8 Respiratory disease, persons aged 18 years and over, 1998.



Data source: WHS98.

Figure 4.9 Asthma, persons aged 18 years and over, 1998.



Data source: WHS98.

- Treated respiratory disease (including asthma) and asthma specifically were associated with deprivation.
- There was around a 50 percent excess of respiratory disease in the most deprived areas compared with the least deprived areas.
- Asthma was around one-third more common in deprived areas compared with affluent areas.

Diabetes and circulatory disease

The 1998 Welsh Health Survey asked respondents whether they currently had diabetes that was treated by a doctor and whether they had ever been treated for several circulatory diseases (high blood pressure, heart disease, angina, heart failure, and heart attack). Incidence of all of these conditions were found to be greater in the more deprived areas, particularly so for diabetes. The differences in rates of disease were not statistically significant for heart failure and heart attack.

Table 4.7. Diabetes, high blood pressure, heart disease, standardised morbidity ratio (95%CI), persons aged 18 years and over, 1998.

Deprivation fifth	Diabetes	High blood pressure	Heart disease
1 (least deprived)	74 (61, 86)	86 (79, 92)	84 (75, 92)
2	81 (68, 94)	97 (90, 104)	98 (89, 106)
3	102 (87, 116)	95 (88, 101)	100 (91, 108)
4	108 (94, 122)	106 (100, 113)	104 (95, 113)
5 (most deprived)	131 (116, 146)	114 (107, 121)	112 (103, 121)
Overall	100	100	100
Rate ratio 5:1	1.78 (1.45, 2.19)	1.33 (1.20, 1.47)	1.34 (1.18, 1.53)

Data source: WHS98.

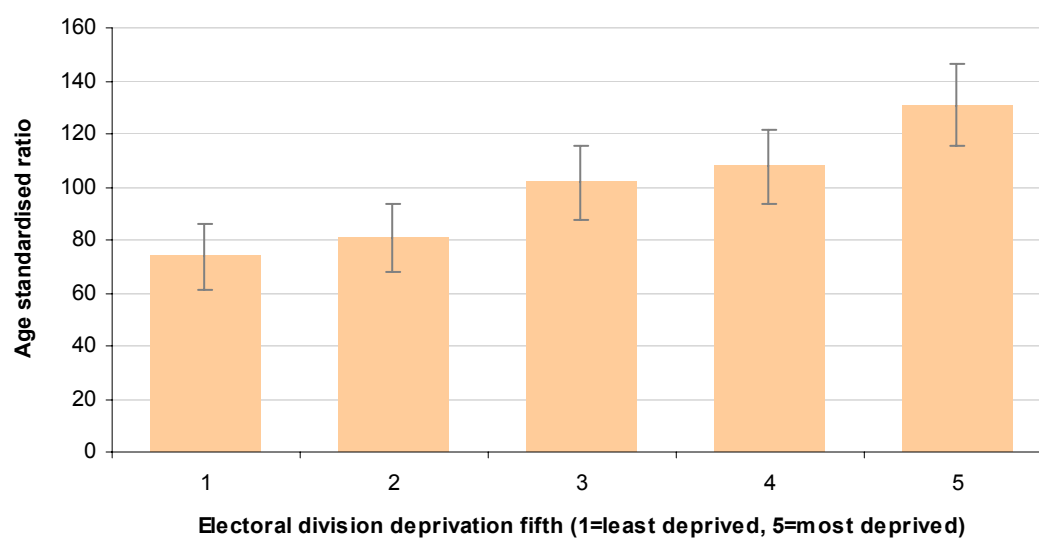
Table 4.8. Angina, heart failure, heart attack, standardised morbidity ratio (95%CI), persons aged 18 years and over, 1998.

Deprivation fifth	Angina	Heart failure	Heart attack
1 (least deprived)	81 (70, 91)	93 (63, 124)	92 (77, 107)
2	94 (83, 106)	107 (75, 139)	89 (75, 104)
3	102 (91, 113)	85 (58, 113)	106 (91, 122)
4	103 (92, 114)	102 (72, 131)	104 (89, 119)
5 (most deprived)	117 (106, 129)	111 (81, 142)	107 (91, 122)
Overall	100	100	100
Rate ratio 5:1	1.46 (1.23, 1.72)	1.19 (0.77, 1.87)	1.16 (0.93, 1.45)

Data source: WHS98.

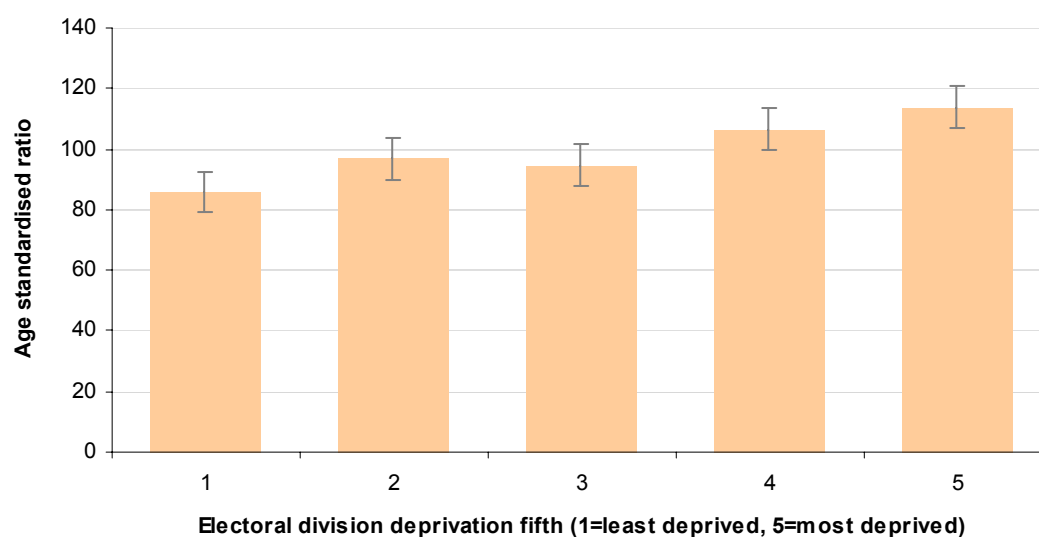
Note: 'Heart disease' treatment excludes high blood pressure.

Figure 4.10 Diabetes, persons aged 18 years and over, 1998.



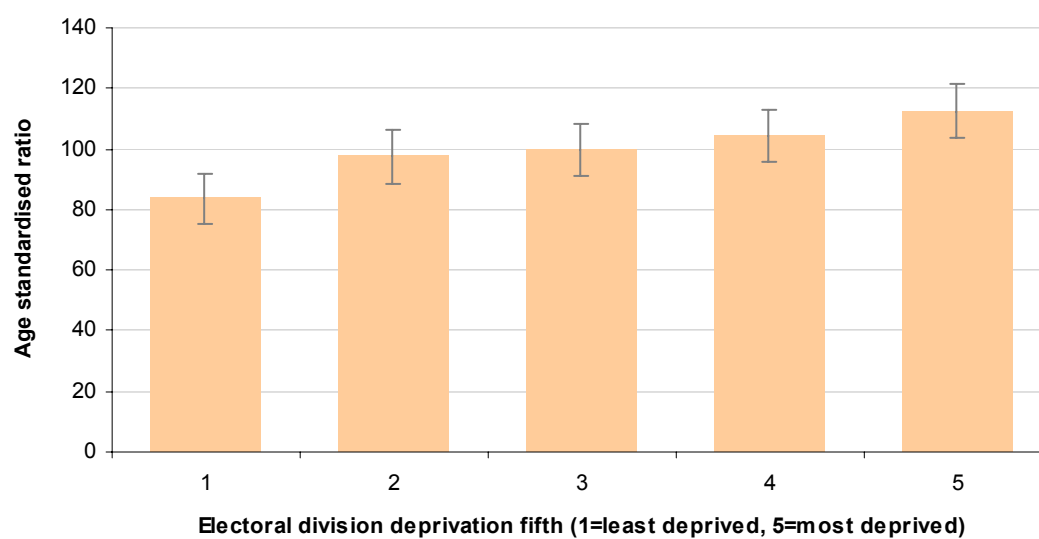
Data source: WHS98.

Figure 4.11 High blood pressure, persons aged 18 years and over, 1998.



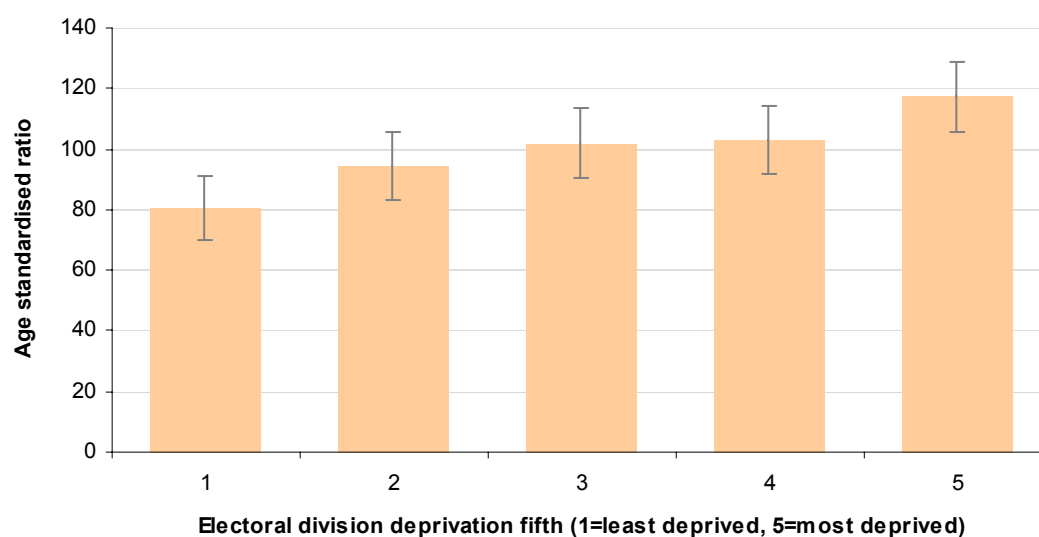
Data source: WHS98.

Figure 4.12 Heart disease, persons aged 18 years and over, 1998.



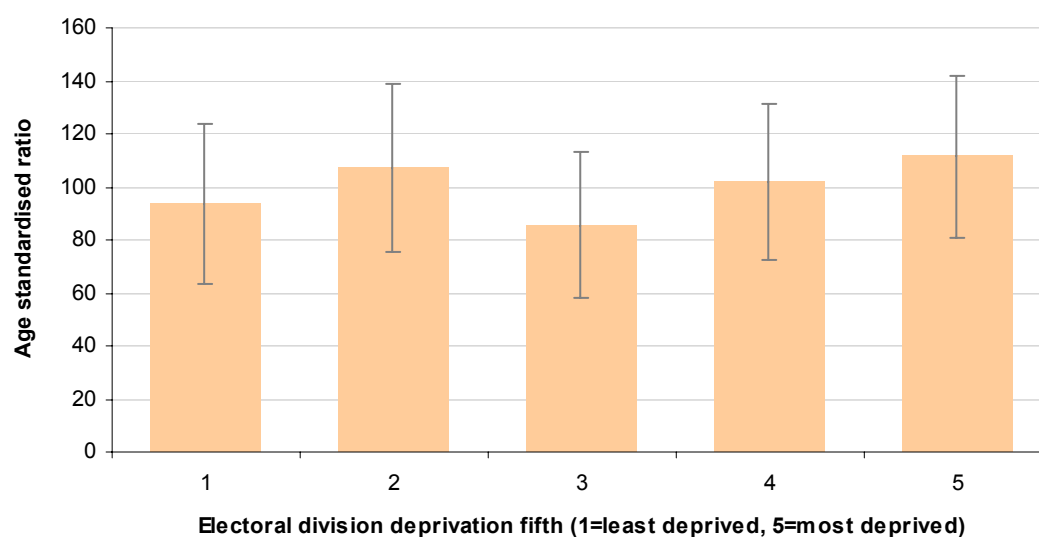
Data source: WHS98.

Figure 4.13 Angina, persons aged 18 years and over, 1998.



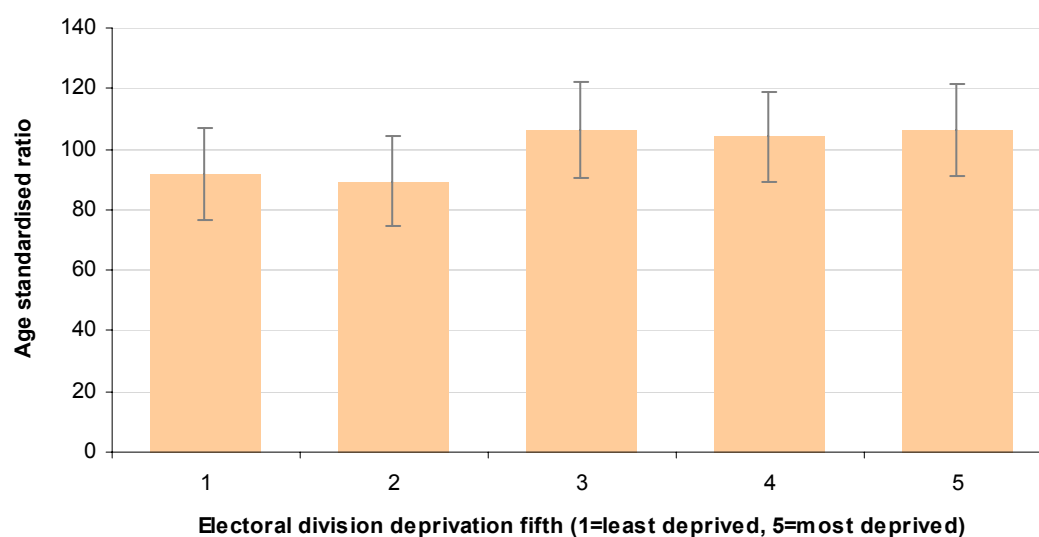
Data source: WHS98.

Figure 4.14 Heart failure, persons aged 18 years and over, 1998.



Data source: WHS98.

Figure 4.15 Heart attack, persons aged 18 years and over, 1998.



Data source: WHS98.

Cancer

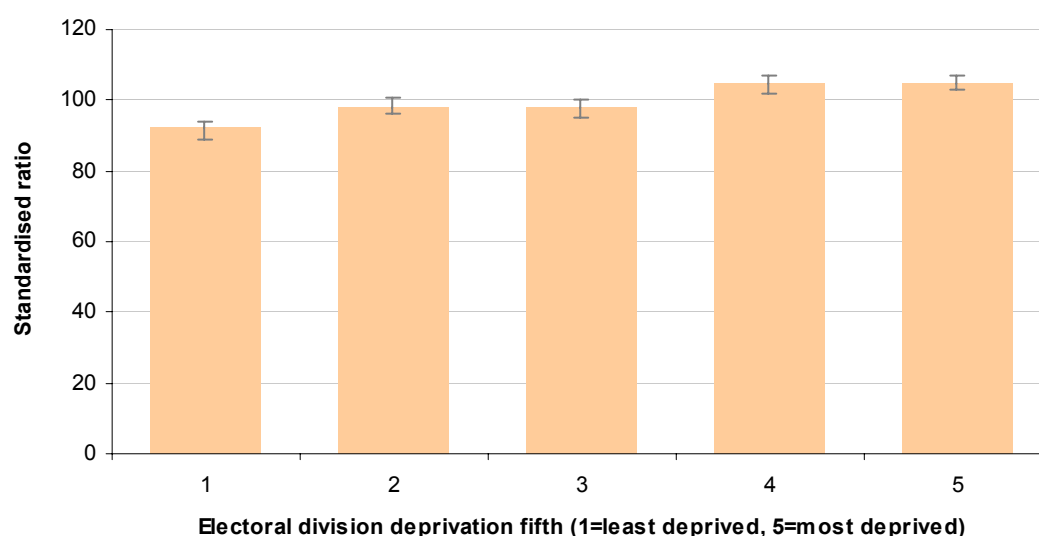
Cancer morbidity data is based on new cases registered with the Welsh Cancer Intelligence and Surveillance Unit (WCISU) during the five-year period 1997–2001.

Table 4.9. All cancer registrations, standardised incidence ratio (95%CI), 1997–2001.

Deprivation fifth	Persons	Females	Males
1 (least deprived)	93 (92, 95)	94 (91, 96)	92 (89, 94)
2	99 (97, 100)	98 (96, 100)	98 (96, 101)
3	97 (96, 99)	98 (95, 100)	98 (95, 100)
4	102 (101, 104)	101 (99, 103)	105 (102, 107)
5 (most deprived)	106 (104, 108)	107 (105, 109)	105 (103, 107)
Overall	100	100	100
Rate ratio 5:1	1.13 (1.11, 1.16)	1.14 (1.11, 1.18)	1.15 (1.11, 1.19)

Data source: WCISU.

Figure 4.16 All cancer registrations, persons, 1997–2001.



Data source: WCISU.

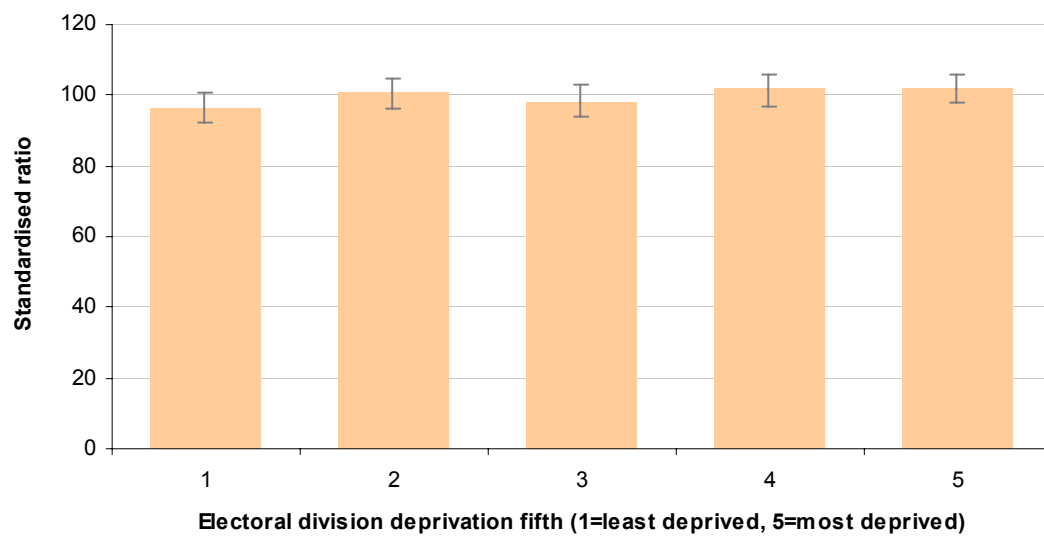
- WCISU data on cancer registrations suggest that there is a relationship between cancer incidence and deprivation, with the ratio for most compared with least deprived groups being 1.13 (95%CI 1.11, 1.16).

Table 4.10. Colorectal, lung and breast cancer standardised incidence ratio (95%CI), 1997–2001.

Deprivation fifth	Colorectal cancer	Lung cancer	Female breast cancer
1 (least deprived)	96 (92, 101)	69 (65, 73)	101 (96, 105)
2	101 (96, 105)	88 (84, 93)	102 (97, 106)
3	98 (94, 103)	93 (89, 97)	101 (97, 105)
4	102 (97, 106)	113 (108, 117)	97 (93, 101)
5 (most deprived)	102 (98, 106)	127 (123, 132)	100 (96, 104)
Overall	100	100	100
Rate ratio 5:1	1.06 (0.99, 1.13)	1.84 (1.72, 1.97)	0.99 (0.93, 1.05)

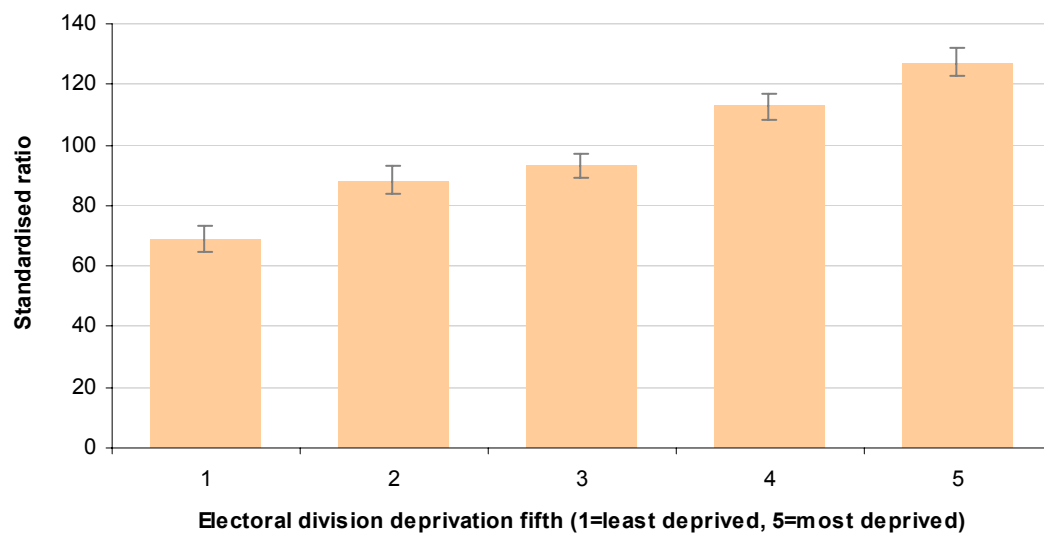
Data source: WCISU.

Figure 4.17 Colorectal cancer registrations, 1997–2001.



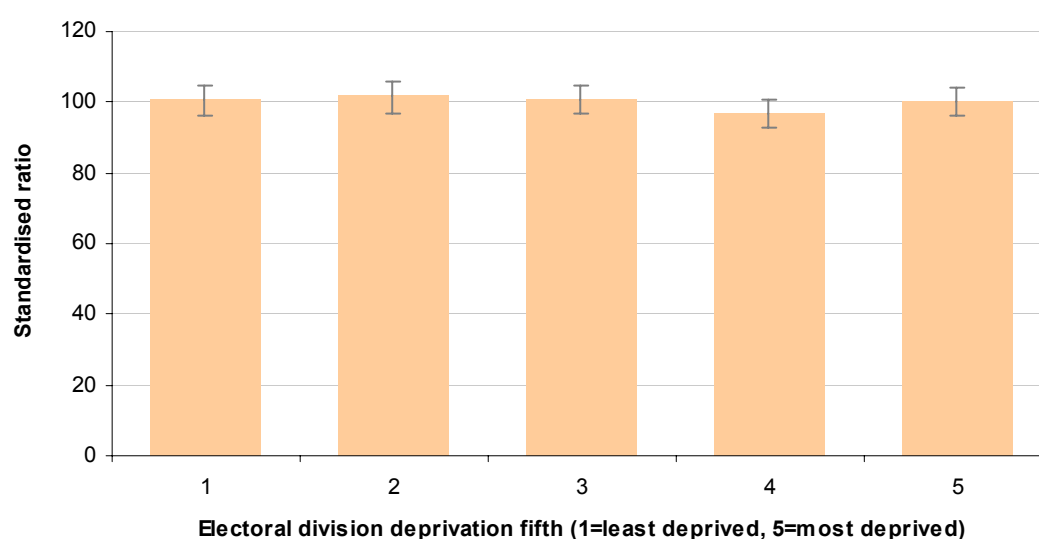
Data source: WCISU.

Figure 4.18 Lung cancer registrations, 1997–2001.



Data source: WCISU.

Figure 4.19 Female breast cancer registrations, 1997–2001.



Data source: WCISU.

- Of the three specific cancer sites included in our analysis, two (colorectal cancer and female breast cancer) were not significantly related to deprivation. Lung cancer was strongly related to deprivation, with the standardised incidence ratio being 84 percent higher in the most deprived compared with least deprived fifth.
- The patterns of cancer incidence by fifth of deprivation, and the ratios between the most and least deprived groups were similar for cancer incidence, shown above, and cancer mortality (see Table 7.3, page 49).

Pedestrian injury

This section shows pedestrian injury rates based on data from two sources: police records of attendance at road traffic crashes and hospital inpatient data, both of which have been reported by the Collaboration for Accident Prevention and Injury Control.¹¹

Deprivation scores for road traffic injuries recorded by the police depend on the place of injury occurrence, whereas deprivation scores for hospital inpatient data depend on the patient's place of residence. Many pedestrian injuries occur near the place of residence and thus the two data sources are clearly related, but because of the differences in place (and therefore deprivation score), time period and age group, the two sources do not show identical deprivation gradients.

Table 4.11. Pedestrian injuries reported to police, children and older persons, 1995–2000.

Deprivation fifth	Children aged 4–16 years*	Older persons aged 65+ years*
1 (least deprived)	82.6 (74.5, 91.3)	26.2 (22.0, 31.0)
2	119.3 (109.8, 129.3)	38.2 (33.3, 43.5)
3	161.6 (150.9, 172.3)	49.6 (44.3, 53.8)
4	178.3 (168.3, 188.6)	50.1 (44.8, 56.0)
5 (most deprived)	209.3 (199.9, 219.0)	69.9 (64.0, 76.3)
Overall	159.8 (155.3, 164.3)	48.3 (45.9, 50.8)
Rate ratio 5:1	2.52 (2.25, 2.81)	2.66 (2.20, 3.22)

*Rate per 100 000 persons per year.

Data source: Stats19.

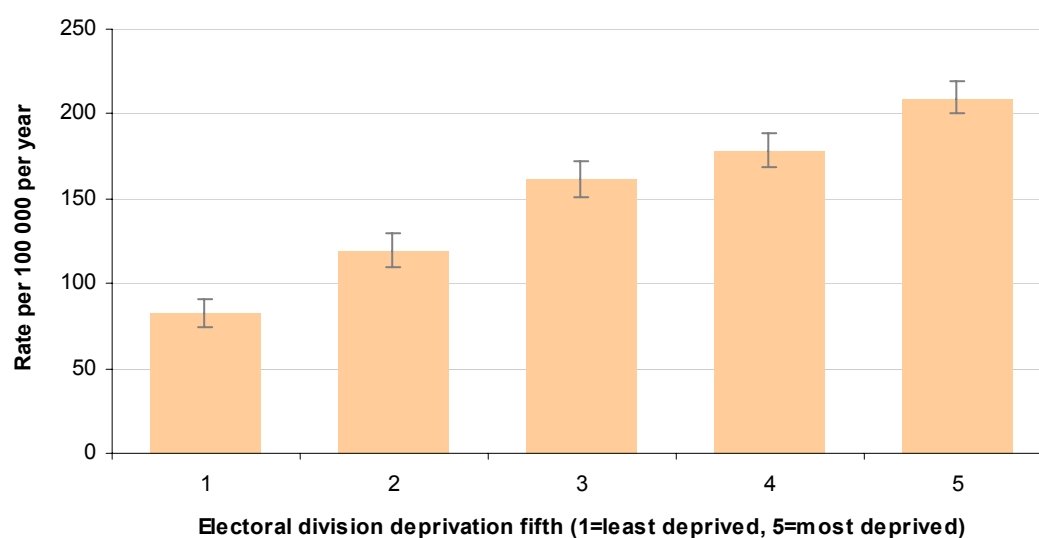
Table 4.12. Pedestrian injury hospital inpatient episodes, ages 5–14 years, 1997–2002.

Deprivation fifth	Children aged 5–14 years*
1 (least deprived)	18.3 (14.7, 22.3)
2	24.8 (20.7, 29.3)
3	26.3 (22.3, 30.7)
4	31.1 (27.2, 35.5)
5 (most deprived)	39.3 (35.5, 43.3)
Overall	29.6 (27.8, 31.5)
Rate ratio 5:1	2.15 (1.71, 2.70)

*Rate per 100 000 persons per year.

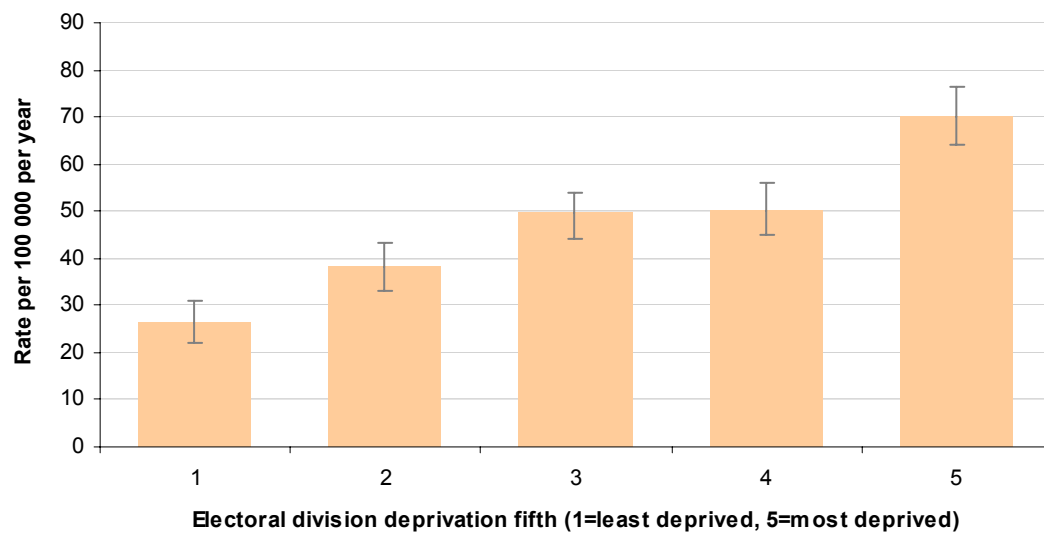
Data source: PEDW.

Figure 4.20 Pedestrian injuries reported to police, ages 4–16 years, 1995–2000.



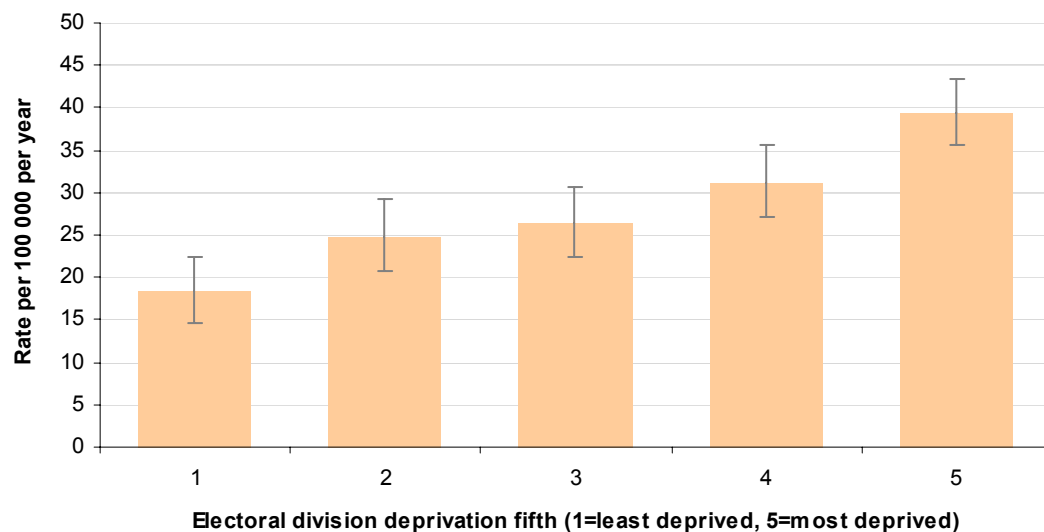
Data source: Stats19.

Figure 4.21 Pedestrian injuries reported to police, ages 65 years and over, 1995–2000.



Data source: Stats19.

Figure 4.22 Pedestrian injury hospital inpatient episodes, 1997–2002.



Data source: PEDW.

- The tables and figures above show that child pedestrian injuries in the most deprived fifth of areas occurred at 2.5 (based on place of injury occurrence) or 2.1 (based on casualty's place of residence) times the rate in the least deprived fifth. The ratio of 2.7 for older people, based on place of injury occurrence, also suggests a large inequality.

Chapter 5

Department for Work and Pensions benefits

This chapter presents information on receipt of Department for Work and Pensions (DWP) benefits. It shows how receipt of the following benefits varies by electoral division-level deprivation: Income Support (IS), Jobseeker's Allowance (JSA), Child Benefit (CB), Attendance Allowance (AA), Disability Living Allowance (DLA), Incapacity Benefit (IB), and Severe Disablement Allowance (SDA).

These data have been analysed as part of the Small Area Multi-Agency Data Atlas (SAMDA) project - a collaborative study of small area data analysis between the National Public Health Service for Wales, Local Government Data Unit-Wales, Wales Centre for Health and the Small Area Health Research Unit, Trinity College, Dublin. Further information about the SAMDA project is available at <http://www.lgdu-wales.gov.uk/eng/WorkAreas.asp>

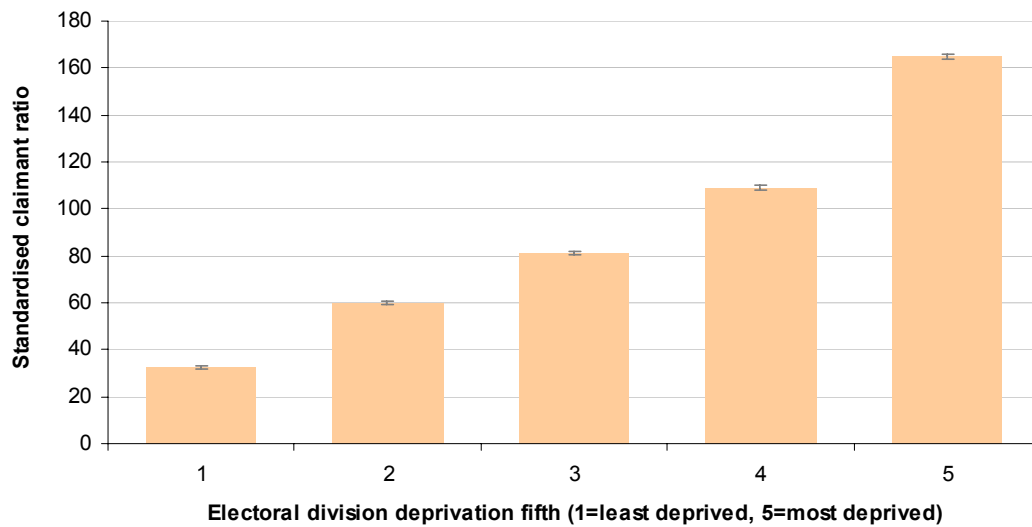
Although receipt of DWP benefits is an indicator of the social and economic conditions of populations in small areas, some people who experience difficulties of socio-economic conditions do not receive DWP benefits because of ineligibility (relating to age or residency status, for example) or lack of benefit uptake.

Means-tested benefits

Table 5.1 Children aged 0–15 years in households receiving Income Support (IS), Income Support claimants aged 16 years and over, Jobseeker's Allowance (JSA) claimants aged 16–59 years, 2001.

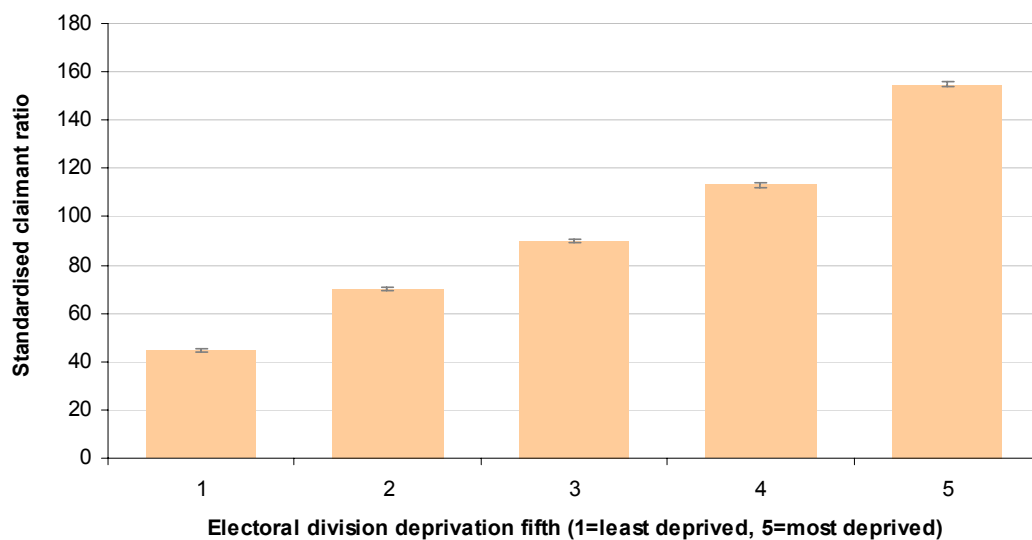
Deprivation fifth	Children in IS households ratio (95%CI)	IS ratio (95%CI)	JSA ratio (95%CI)
1 (least deprived)	33 (32, 33)	44 (44, 45)	47 (45, 48)
2	60 (59, 61)	70 (69, 71)	69 (67, 71)
3	81 (80, 82)	90 (89, 91)	94 (91, 96)
4	109 (108, 110)	113 (112, 114)	108 (105, 110)
5 (most deprived)	165 (164, 166)	155 (154, 156)	146 (144, 148)
Overall	100	100	100
Rate ratio 5:1	5.1 (4.9, 5.2)	3.5 (3.4, 3.5)	3.1 (3.0, 3.3)

Figure 5.1 Children in families receiving Income Support, ages 0–15 years, 2001.



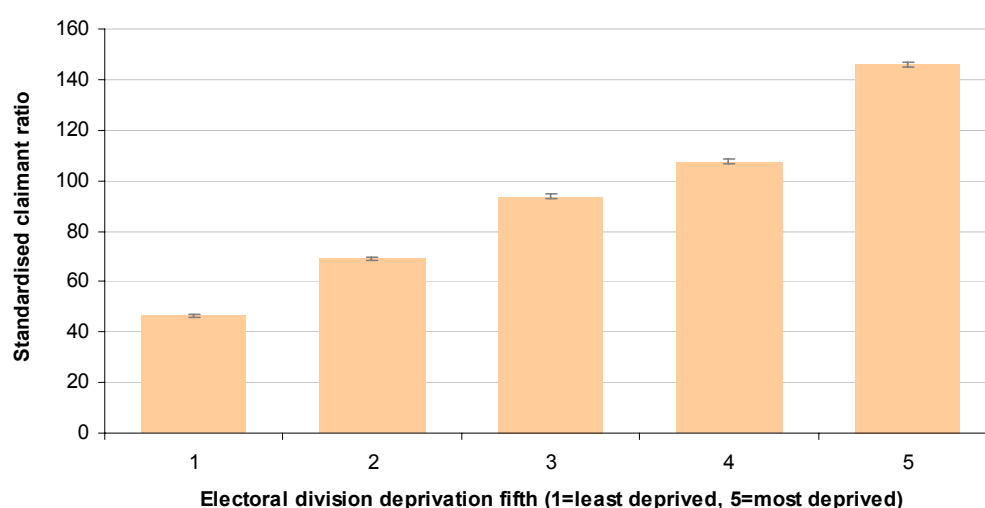
Data source: DWP.

Figure 5.2 Income Support, ages 16 years and over, 2001.



Data source: DWP.

Figure 5.3 Jobseeker's Allowance, ages 16–59 years, 2001.



Data source: DWP.

- Income Support is an income-related benefit for persons working less than 16 hours per week. This benefit is very strongly associated with deprivation. In 2001, children in the most deprived fifth of areas in Wales were five times more likely to live in households that receive Income Support.
- Among adults, both IS and JSA are strongly related to deprivation. The ratios for benefit receipt in the most deprived compared to the least deprived fifth were 3.5 for IS and 3.1 for JSA.

Non-means-tested benefits

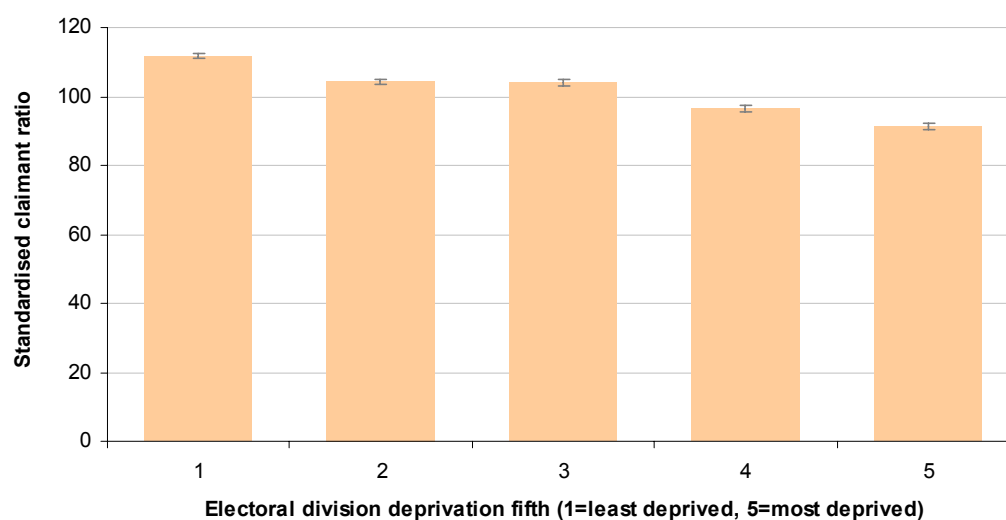
Table 5.2. Child Benefit claimants aged 15–19 years, Attendance Allowance claimants aged 65 years and over, Disability Living Allowance (DLA) claimants all ages, DLA higher care and higher mobility components claimants all ages, 2001.

Deprivation fifth	Child Benefit ratio (95%CI)	AA ratio (95%CI)	DLA ratio (95%CI)	DLA (HC&HM) ratio (95%CI)
1 (least deprived)	112 (110, 113)	79 (77, 80)	56 (55, 57)	65 (63, 67)
2	104 (103, 106)	91 (90, 92)	75 (74, 76)	81 (79, 84)
3	104 (103, 106)	98 (97, 100)	94 (93, 95)	95 (92, 97)
4	97 (95, 98)	111 (110, 112)	118 (117, 119)	117 (115, 120)
5 (most deprived)	91 (90, 92)	115 (114, 117)	139 (138, 140)	129 (126, 131)
Overall	100	100	100	100
Rate ratio 5:1	0.82 (0.80, 0.83)	1.5 (1.4, 1.5)	2.5 (2.4, 2.5)	2.0 (1.9, 2.1)

Table 5.3. Attendance Allowance and DLA claimants all ages, Incapacity Benefit and Severe Disablement Allowance claimants aged 15–59 years, 2001.

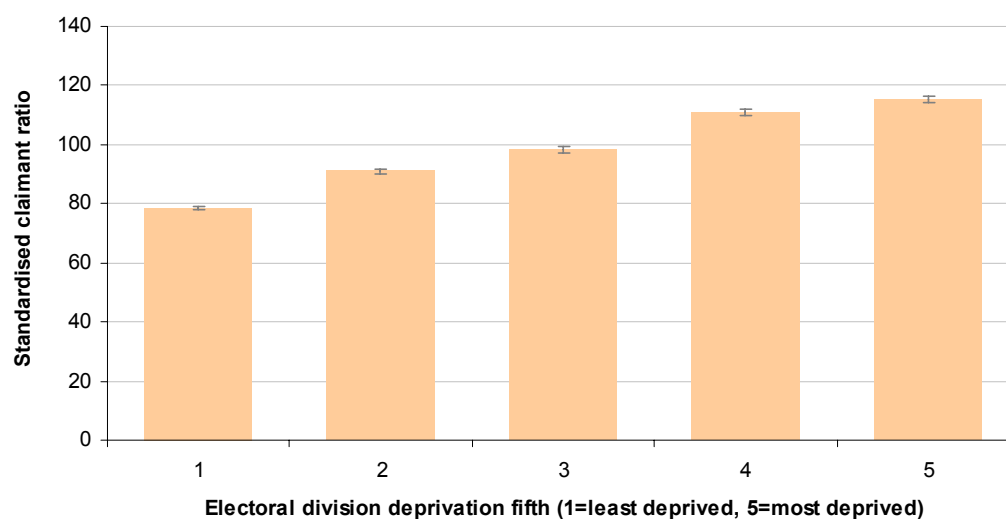
Deprivation fifth	AA & DLA ratio (95%CI)	IB & SDA ratio (95%CI)
1 (least deprived)	64 (63, 65)	51 (50, 51)
2	81 (81, 82)	73 (72, 74)
3	96 (95, 96)	97 (96, 98)
4	115 (115, 116)	115 (114, 116)
5 (most deprived)	131 (130, 132)	143 (142, 145)
Overall	100	100 (100, 100)
Rate ratio 5:1	2.0 (2.0, 2.1)	2.8 (2.8, 2.9)

Figure 5.4 Child benefit, ages 15–19 years, 2001.



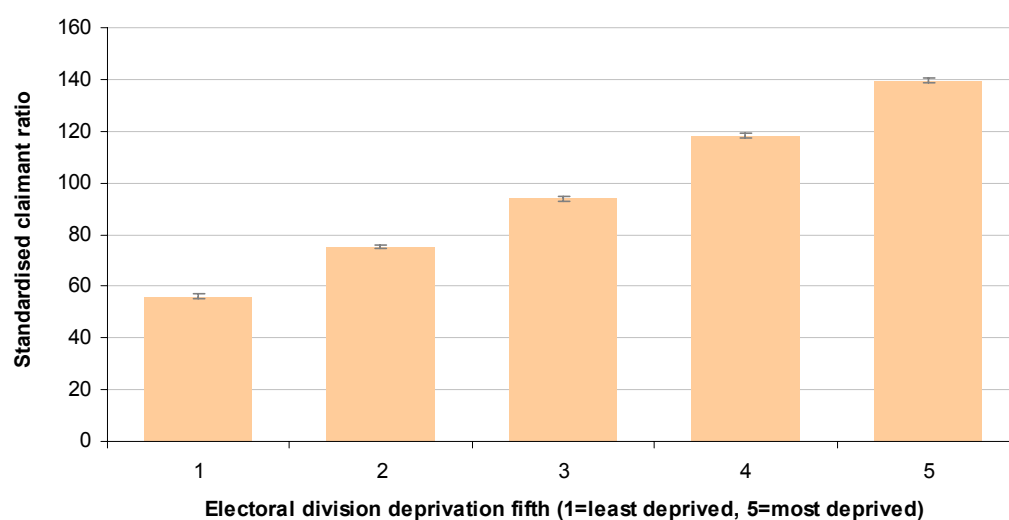
Data source: DWP.

Figure 5.5 Attendance Allowance, ages 65 years and over, 2001.



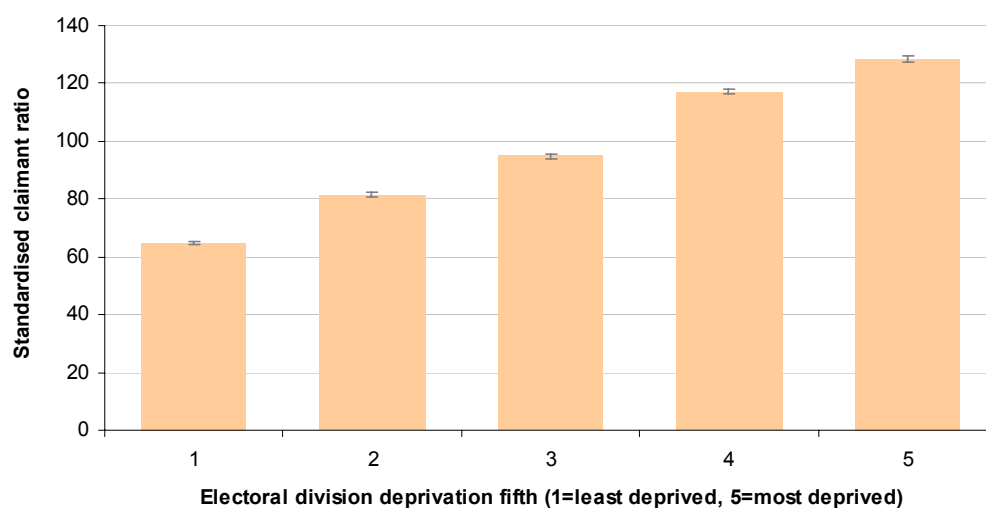
Data source: DWP.

Figure 5.6 Disability Living Allowance, all ages, 2001.



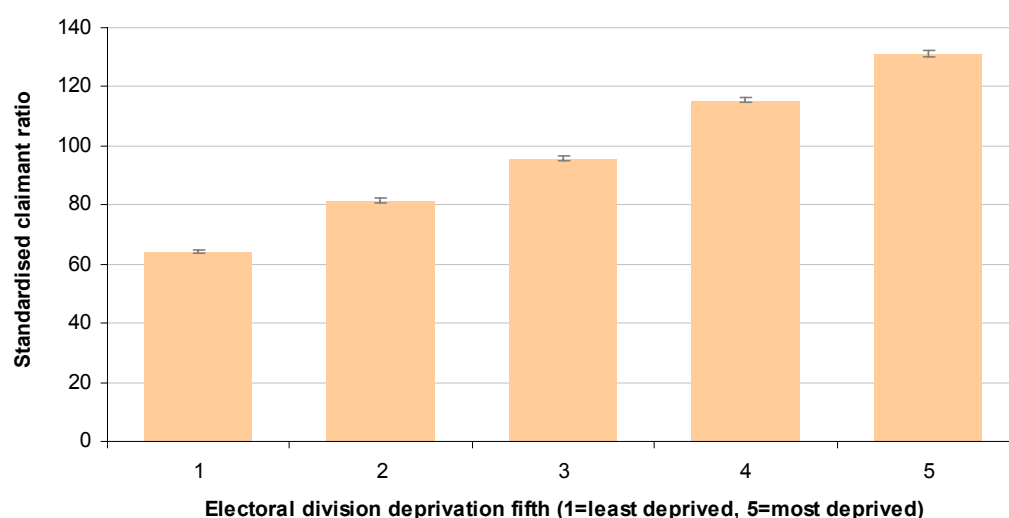
Data source: DWP.

Figure 5.7 DLA higher care and mobility, all ages, 2001.



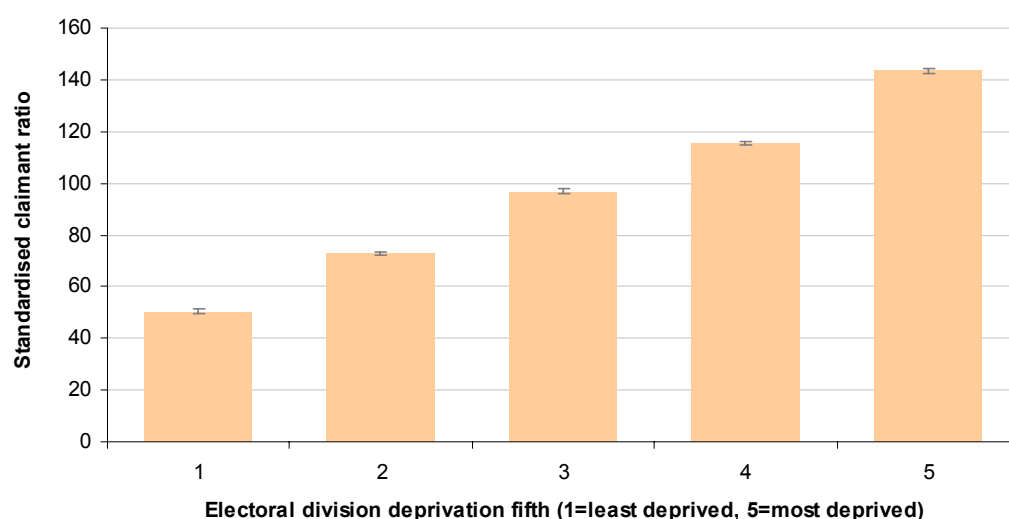
Data source: DWP.

Figure 5.8 Attendance Allowance and Disability Living Allowance, all ages, 2001.



Data source: DWP.

Figure 5.9 Incapacity Benefit and Severe Disablement Allowance, ages 15–59 years, 2001.



Data source: DWP.

- CB is a non-means-tested benefit paid to most persons bringing up children. In the 16–19 year age group, the benefit is paid to people bringing up children who are studying full-time up to A-level or Advanced Vocational Certificate of Education or equivalent. It is also paid to people bringing up children aged 16 or 17 years who have recently left school and are registered for work or training. Thus the local rate of CB receipt for the age group included in this report indicates, to a large extent, the tendency for children to remain in the education system. CB is inversely associated with deprivation; it is claimed for fewer children aged 15–19 years in deprived areas.
- DLA is a benefit for persons with long-term physical or mental illness or disability. The higher care and higher mobility components of DLA are indicative of more severe disability or

illness. DLA claims must be made before age 65 years, although receipt of the benefit may continue beyond that age.

- AA, like DLA, is paid to persons with long-term illness or disability but is paid to claimants aged over 65 years. The two benefits DLA and AA together represent income assistance for disability and long-term illness across all ages.
- IB and SDA are normally paid to persons unable to work for at least six months due to illness or disability. SDA is paid to persons who have not made sufficient National Insurance contributions to qualify for IB.
- The ratios (most deprived to least deprived fifth) for receipt of AA, DLA, the higher care and higher mobility components of DLA, AA and DLA combined, and IB and SDA combined range from about 1.5 to 2.8, indicating that these non-means-tested benefits are all claimed significantly more frequently in deprived areas.

Chapter 6

Use of health services

Use of health care services is known to be influenced by factors other than need, such as supply, demand, and accessibility factors. Utilisation for some treatments is also known to vary by factors intrinsic to individuals, such as ethnicity, age, gender, and migrant status.

Dentist

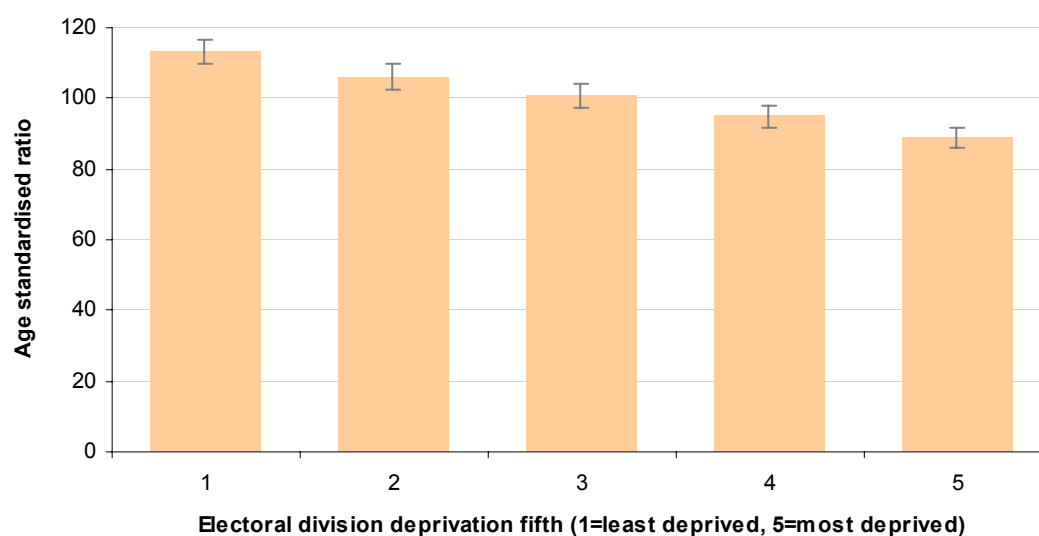
We report in this section results derived from the 1998 Welsh Health Survey¹⁰, in which respondents reported whether they had been to a dentist in the previous 12 months.

Table 6.1. Dentist consultations, persons aged 18 years and over, 1998.

Deprivation fifth	Standardised ratio (95%CI)
1 (least deprived)	113 (110, 117)
2	106 (102, 110)
3	101 (97, 104)
4	95 (92, 98)
5 (most deprived)	89 (86, 92)
Overall	100
Rate ratio 5:1	0.78 (0.75, 0.82)

Data source: WHS98.

Figure 6.1 Dentist consultations within last 12 months, persons aged 18 years and over, 1998.



Data source: WHS98.

- Dentist consultations were significantly less common in deprived areas.

Hospital activity

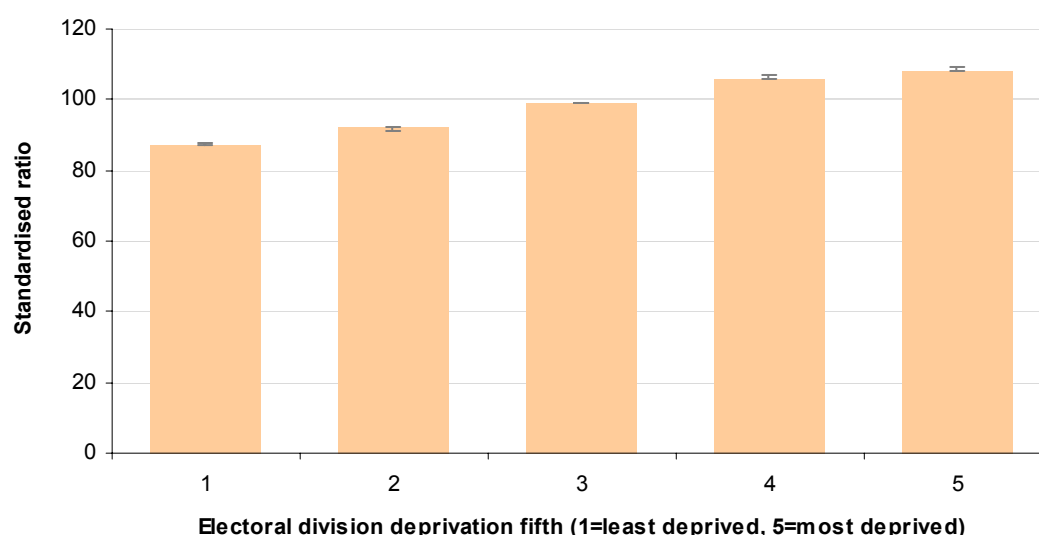
Rates of hospital discharge and procedures were derived from the Patient Episode Database for Wales (PEDW) for three years (financial years 2000/01 to 2002/03). These data include normal childbirth hospitalisations.

Table 6.2. All-cause hospital in-patient discharges standardised morbidity ratio (95%CI), persons, females and males, 2000/01 to 2002/03.

Deprivation fifth	Persons	Females	Males
1 (least deprived)	87 (87, 88)	87 (87, 87)	87 (87, 88)
2	92 (91, 92)	92 (91, 92)	91 (91, 92)
3	99 (99, 99)	99 (98, 99)	100 (99, 100)
4	106 (106, 107)	106 (106, 107)	107 (106, 107)
5 (most deprived)	108 (108, 109)	109 (109, 110)	108 (107, 108)
Overall	100	100	100
Rate ratio 5:1	1.24 (1.24, 1.25)	1.26 (1.25, 1.26)	1.24 (1.23, 1.25)

Data source: PEDW.

Figure 6.2 All-cause hospital inpatient discharges, persons, financial years 2000/01 to 2002/03.



Data source: PEDW.

- Treatment in hospital for all causes was significantly greater among residents of deprived areas. The ratios were similar for both females and males.

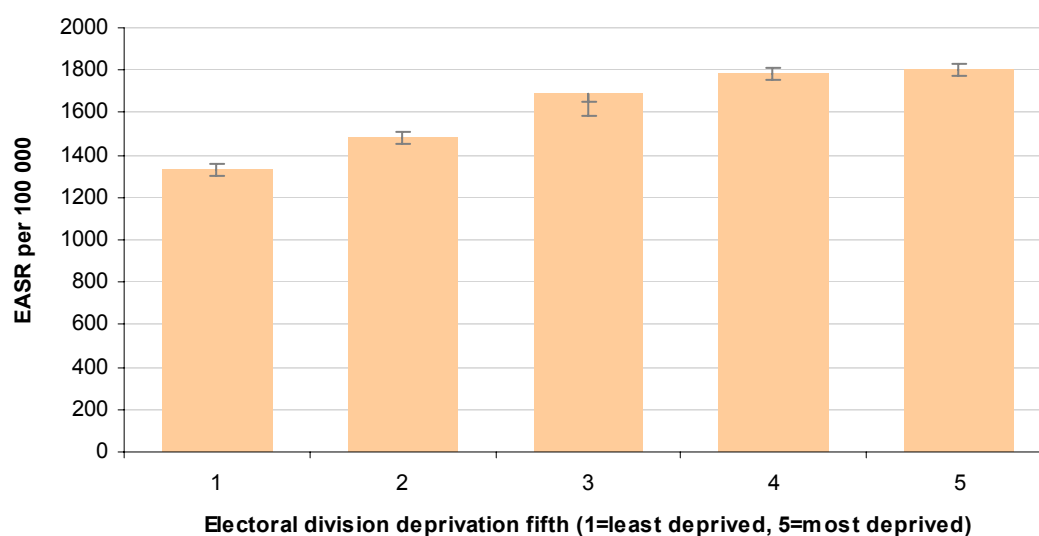
Coronary heart disease (CHD), coronary angiography, and coronary revascularisation (coronary artery bypass grafting and percutaneous coronary angioplasty) hospital admission rates have recently been reported for deprivation fifths in Wales.¹² Table 6.3 and Figures 6.3, 6.4, and 6.5 show that for each of these diseases or interventions, there is an association with deprivation. Rates are lower than expected from the general trend in the most deprived fifth.

Table 6.3. Coronary heart disease, coronary angiography, and coronary revascularisation hospital admission rate* (95%CI), 2000–2002.

Deprivation fifth	Coronary heart disease	Coronary angiography	Coronary revascularisation
1 (least deprived)	1327 (1300, 1354)	523 (505, 542)	394 (378, 410)
2	1485 (1456, 1513)	565 (546, 585)	416 (400, 433)
3	1691 (1589, 1649)	604 (585, 624)	447 (431, 464)
4	1785 (1756, 1815)	658 (639, 678)	486 (470, 503)
5 (most deprived)	1804 (1776, 1833)	620 (602, 638)	447 (432, 462)
Rate ratio 5:1	1.36	1.19	1.14

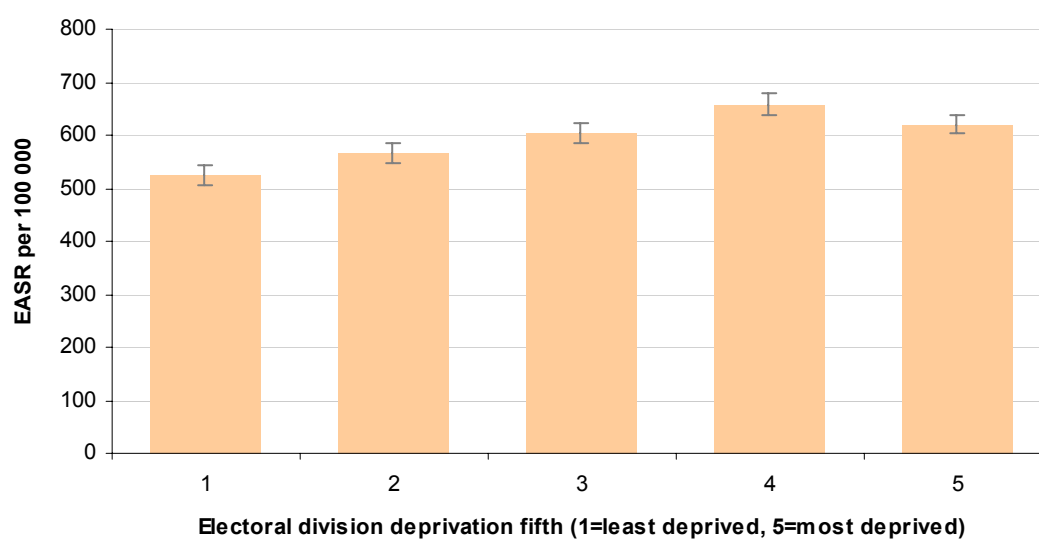
Source: Lester 2004.¹²

Figure 6.3 CHD hospital admissions, 2000–2002.



Source: Lester 2004.¹²

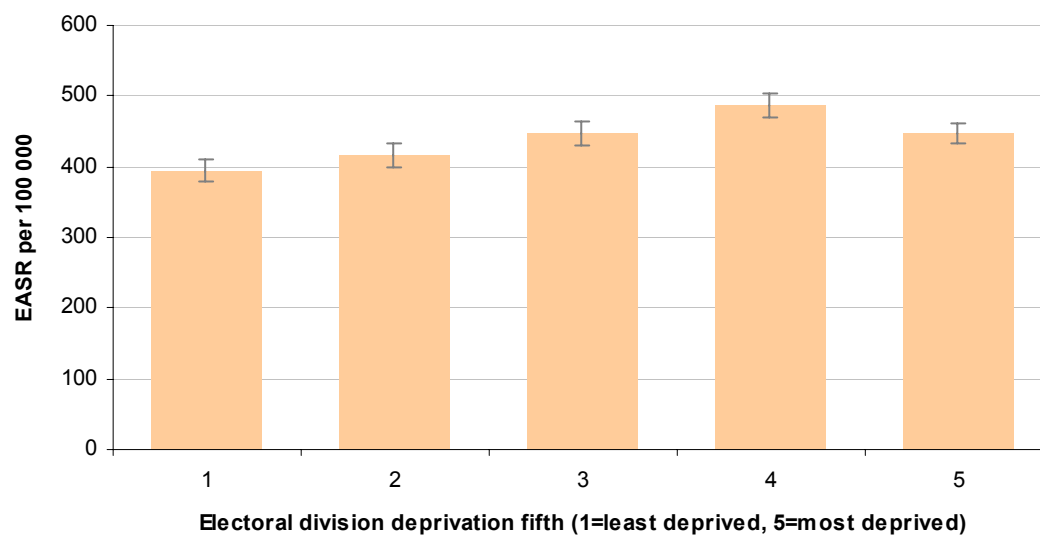
Figure 6.4 Coronary angiography hospital admissions, 2000–2002.



Source: Lester 2004.¹²

* European age-standardised rate per 100 000 person-years.

Figure 6.5 Coronary revascularisation hospital admissions, 2000–2002.



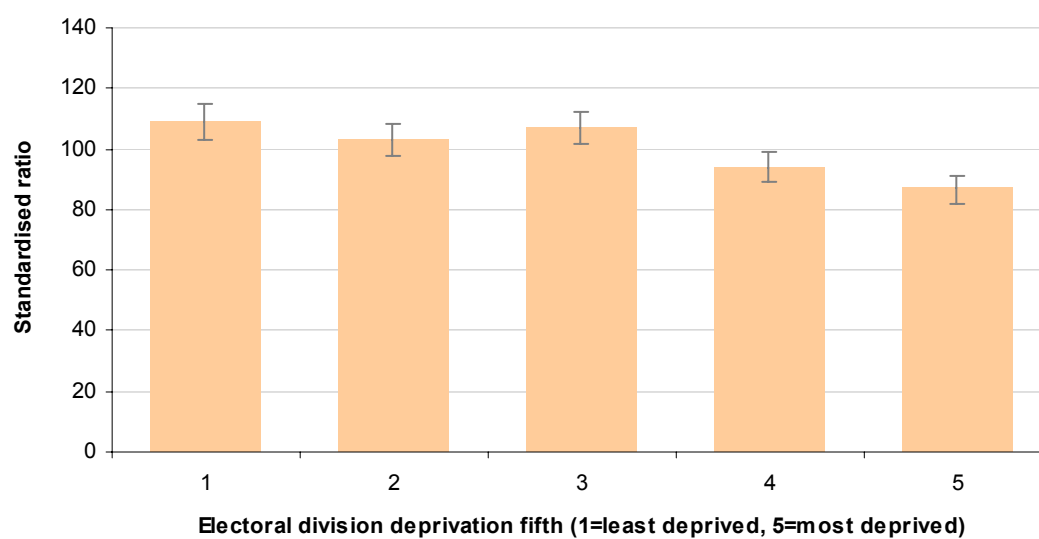
Source: Lester 2004.¹²

Table 6.4. Total hip replacement, total knee replacement, and lens replacement procedures standardised morbidity ratio (95%CI), financial years 2000/01 to 2002/03.

Deprivation fifth	Hip replacement	Knee replacement	Lens replacement
1 (least deprived)	109 (103, 115)	102 (96, 108)	93 (91, 95)
2	103 (98, 108)	99 (93, 104)	95 (93, 97)
3	107 (102, 112)	95 (90, 101)	98 (96, 100)
4	94 (89, 99)	104 (98, 109)	104 (102, 106)
5 (most deprived)	87 (82, 91)	97 (92, 102)	104 (102, 106)
Overall	100	100	100
Rate ratio 5:1	0.79 (0.74, 0.85)	0.95 (0.88, 1.02)	1.11 (1.08, 1.15)

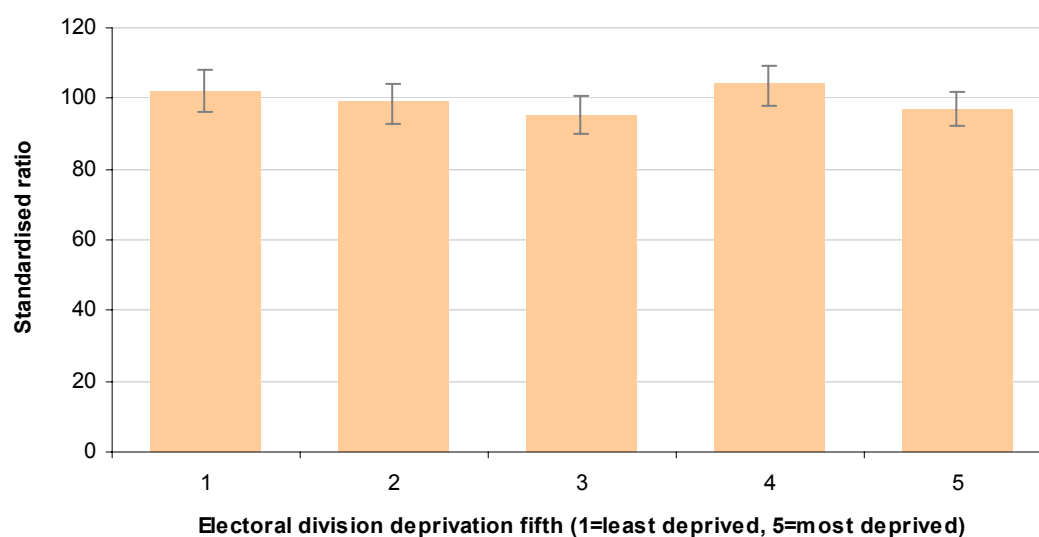
Data source: PEDW.

Figure 6.6 Hip replacement procedures, financial years 2000/01 to 2002/03.



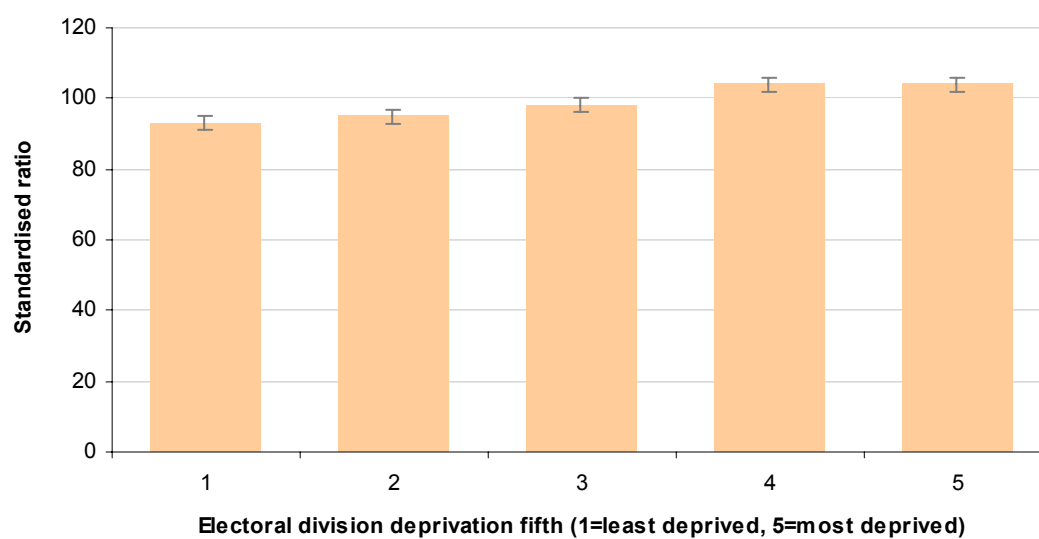
Data source: PEDW.

Figure 6.7 Knee replacement procedures, financial years 2000/01 to 2002/03.



Data source: PEDW.

Figure 6.8 Lens replacement procedures, financial years 2000/01 to 2002/03.



Data source: PEDW.

- Treatment in hospital for total hip replacement was inversely associated with deprivation: deprived areas had the lowest rates.
- Treatment for knee replacement surgery was not significantly related to deprivation.
- Lens replacement procedures were more frequent in residents of deprived areas.

Chapter 7

Deaths (mortality)

We derived infant mortality rates and all-age standardised mortality ratios from Office for National Statistics mortality data.

Infant mortality

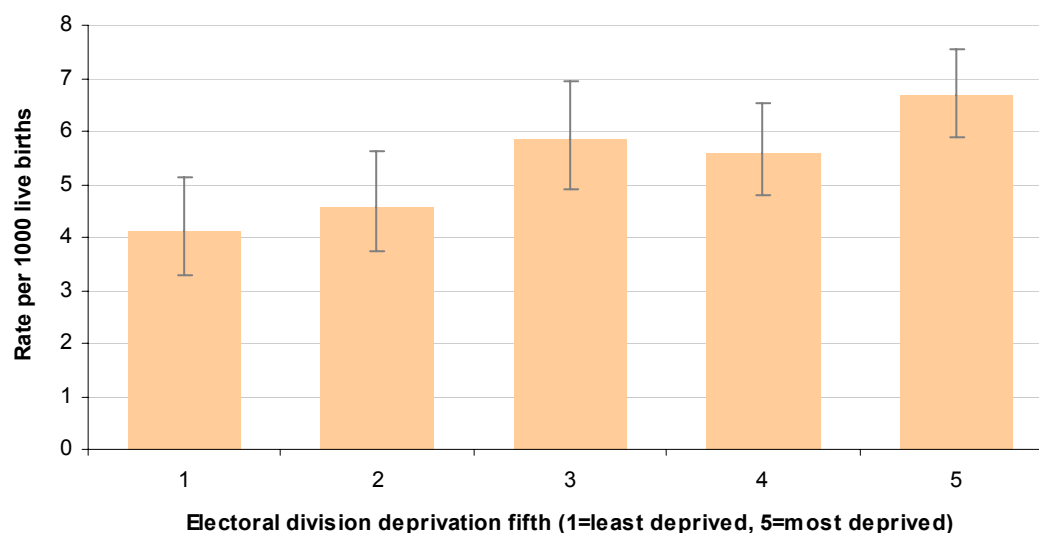
Table 7.1. Infant mortality, deaths per 1000 live births (95%CI), 1998–2001.

Deprivation fifth	Infant mortality rate
1 (least deprived)	4.12 (3.29, 5.15)
2	4.58 (3.73, 5.63)
3	5.84 (4.92, 6.94)
4	5.60 (4.81, 6.53)
5 (most deprived)	6.67 (5.90, 7.53)
Overall	5.59 (5.20, 6.02)
Rate ratio 5:1	1.61 (1.25, 2.08)

Data source: ONS.

Note: Infant deaths are defined as live born infants dying before 12 complete months after birth.

Figure 7.1 Infant mortality, 1998–2001.



Data source: ONS.

- Live-born infants are more likely to die before reaching one year of age in deprived areas of Wales. The infant mortality rate in the most deprived 20 percent of areas was 62 percent higher than in the most affluent 20 percent in 1998–2001.

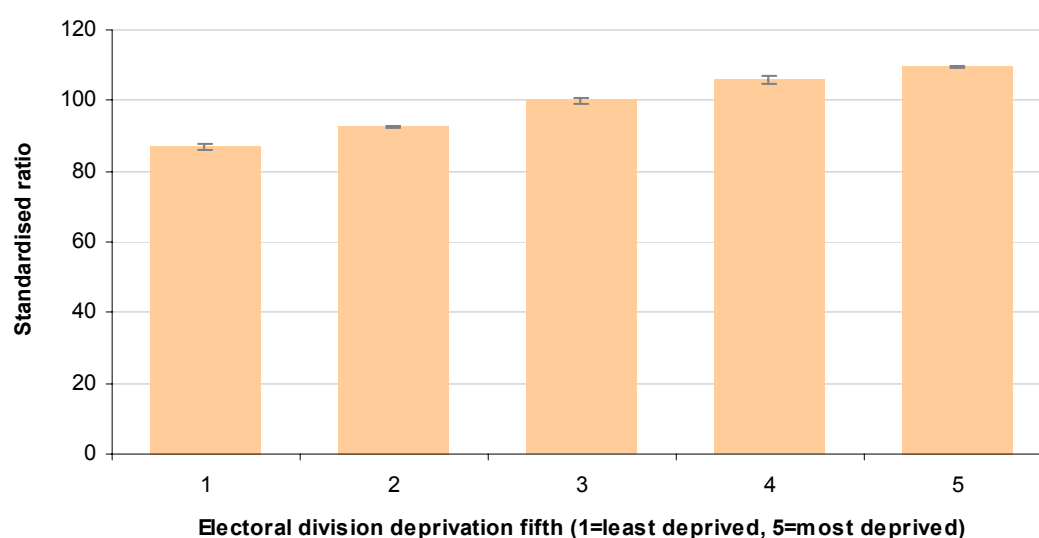
All-cause all-age mortality

Table 7.2. All-cause mortality, standardised mortality ratio (95%CI), 1995–2001.

Deprivation fifth	Persons	Females	Males
1 (least deprived)	87 (86, 88)	89 (88, 90)	84 (83, 85)
2	93 (92, 93)	93 (92, 94)	92 (91, 93)
3	100 (99, 101)	101 (100, 102)	100 (99, 101)
4	106 (105, 107)	105 (104, 107)	107 (106, 109)
5 (most deprived)	110 (109, 110)	108 (106, 109)	112 (111, 113)
Overall	100	100	100
Rate ratio 5:1	1.26 (1.25, 1.28)	1.21 (1.19, 1.23)	1.33 (1.31, 1.36)

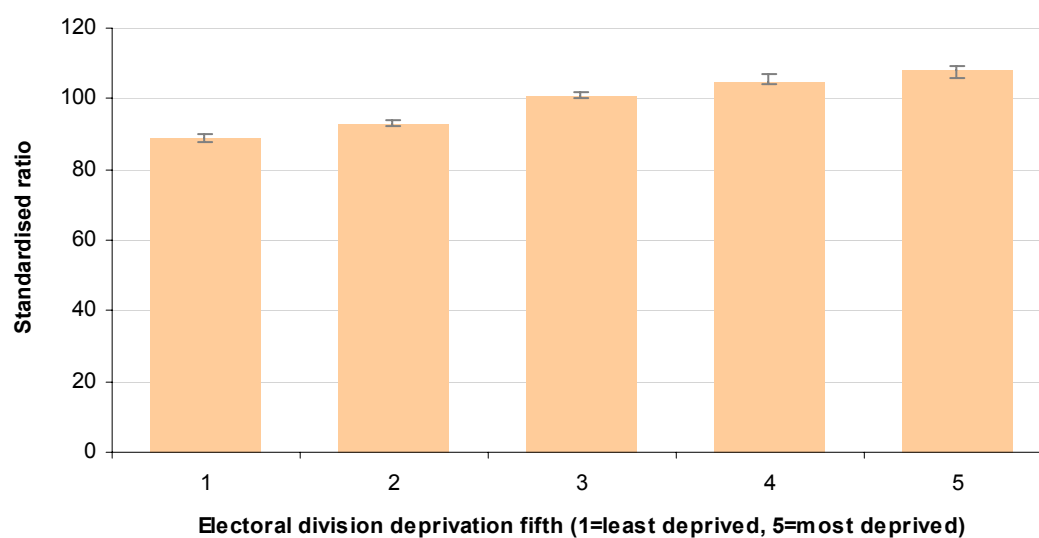
Data source: ONS.

Figure 7.2 All-cause mortality, persons, 1995–2001.



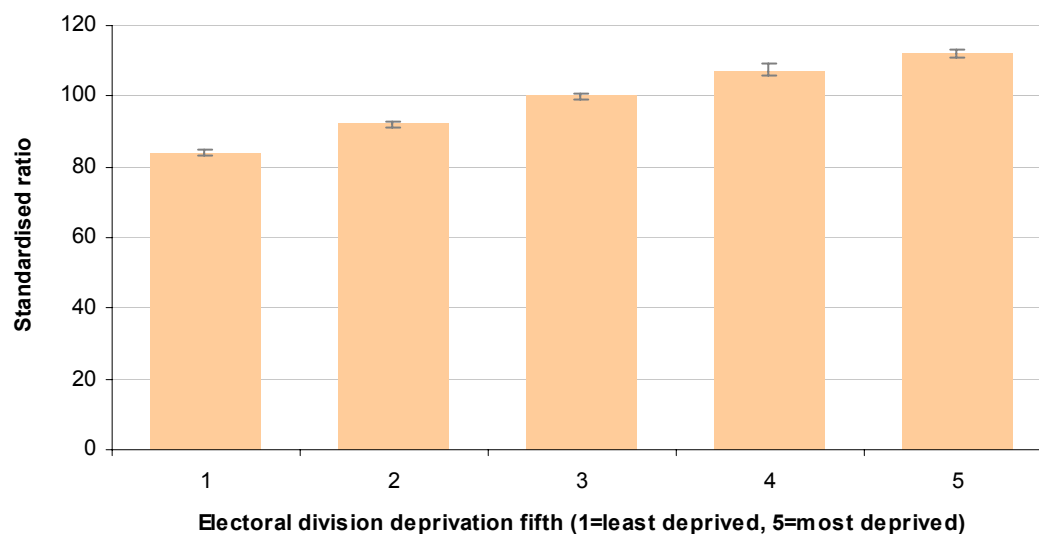
Data source: ONS.

Figure 7.3 All-cause mortality, females, 1995–2001.



Data source: ONS.

Figure 7.4 All-cause mortality, males, 1995–2001.



Data source: ONS.

- Higher all-cause mortality is associated with greater deprivation. The ratio of age-standardised mortality ratio for the most deprived fifth compared with the least deprived fifth was 1.26 (95%CI 1.25, 1.28) for both genders combined. The association was stronger for males (ratio 1.33) than for females (1.21).

Cause-specific mortality

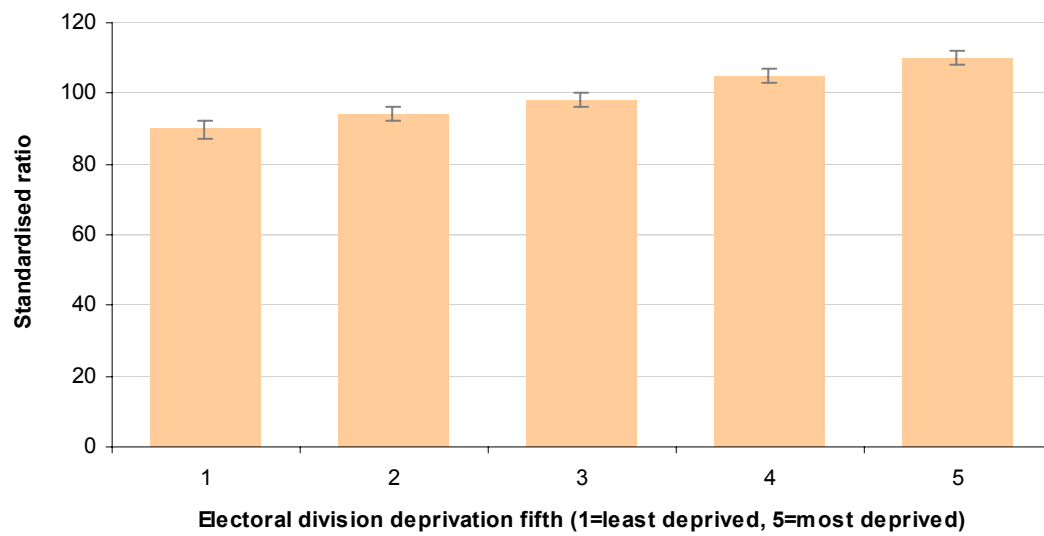
Specific analysis are presented for cancer, heart disease, stroke, respiratory disorders, chronic obstructive pulmonary disease (COPD) and injuries.

Table 7.3. Cancer mortality, standardised mortality ratio (95%CI), 1996–2000.

Deprivation fifth	All cancer	Colorectal cancer	Lung cancer	Female breast cancer
1 (least deprived)	90 (87, 92)	95 (89, 102)	71 (66, 75)	101 (93, 108)
2	94 (92, 96)	93 (86, 99)	86 (81, 90)	98 (90, 105)
3	98 (96, 100)	101 (95, 107)	94 (89, 98)	104 (96, 111)
4	105 (103, 107)	104 (98, 110)	112 (107, 117)	101 (94, 108)
5 (most deprived)	110 (108, 112)	105 (99, 111)	127 (122, 132)	97 (91, 104)
Overall	100	100	100	100
Rate ratio 5:1	1.22 (1.19, 1.26)	1.10 (1.01, 1.21)	1.80 (1.67, 1.93)	0.97 (0.87, 1.08)

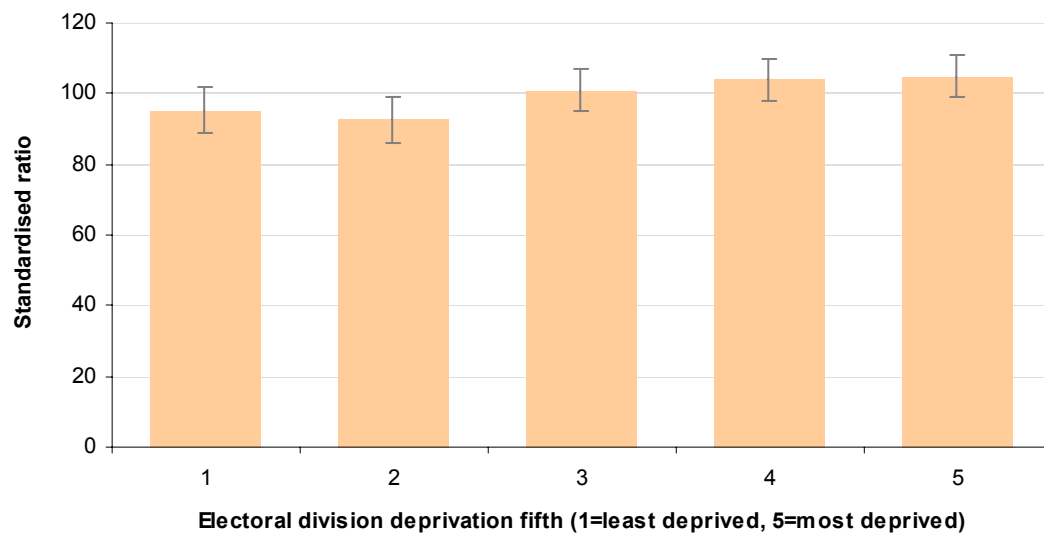
Data source: ONS.

Figure 7.5 Cancer mortality, 1996–2000.



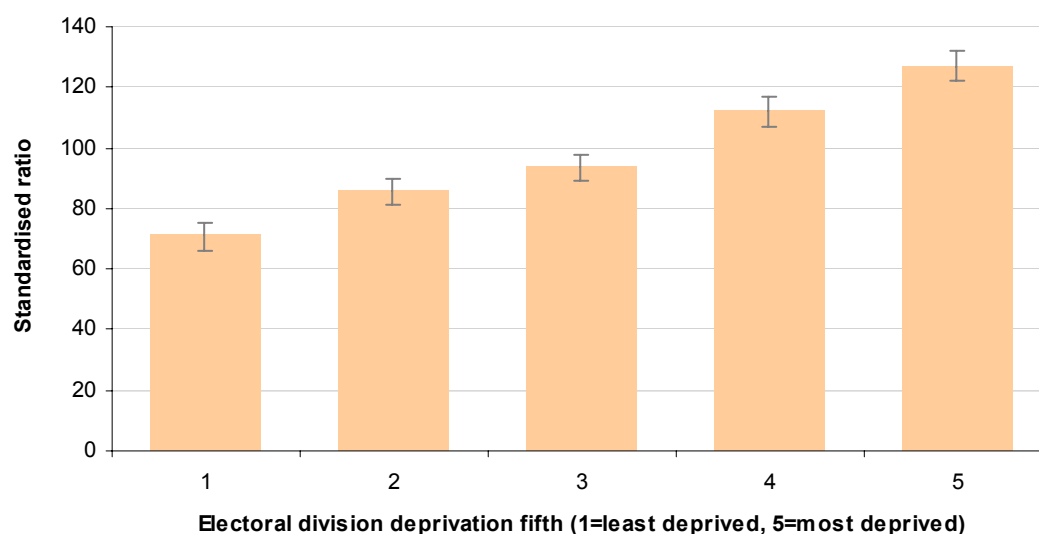
Data source: ONS.

Figure 7.6 Colorectal cancer mortality, 1996–2000.



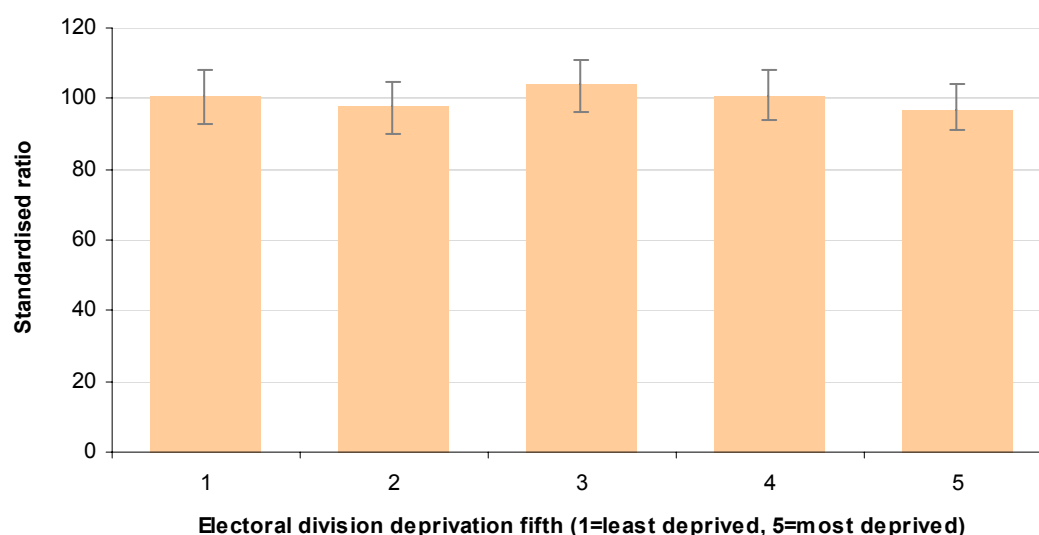
Data source: ONS.

Figure 7.7 Lung cancer mortality, 1996–2000.



Data source: ONS.

Figure 7.8 Female breast cancer mortality, 1996–2000.



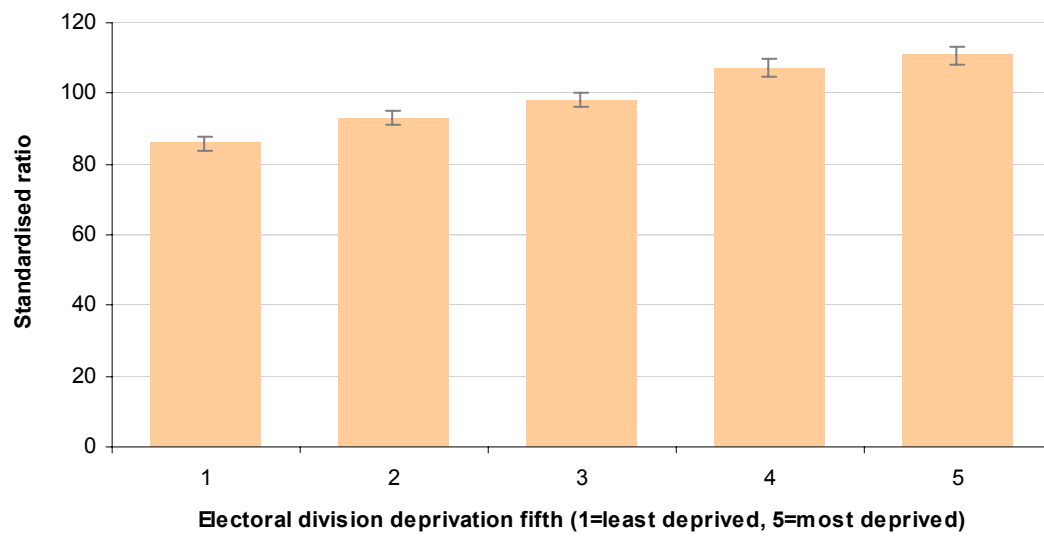
Data source: ONS.

Table 7.4. CHD, stroke, respiratory disease, and COPD mortality, standardised mortality ratio (95%CI), 1996–2000.

Deprivation fifth	Coronary heart disease	Stroke	Respiratory disease	COPD
1 (least deprived)	86 (84, 88)	93 (89, 96)	79 (76, 82)	64 (60, 68)
2	93 (91, 95)	96 (93, 99)	87 (85, 90)	78 (74, 83)
3	98 (96, 100)	105 (102, 108)	99 (97, 102)	96 (92, 101)
4	107 (105, 110)	104 (100, 107)	111 (108, 113)	113 (108, 118)
5 (most deprived)	111 (108, 113)	101 (98, 104)	116 (114, 119)	135 (130, 140)
Overall	100	100	100	100
Rate ratio 5:1	1.29 (1.25, 1.33)	1.09 (1.04, 1.14)	1.47 (1.42, 1.53)	2.11 (1.96, 2.27)

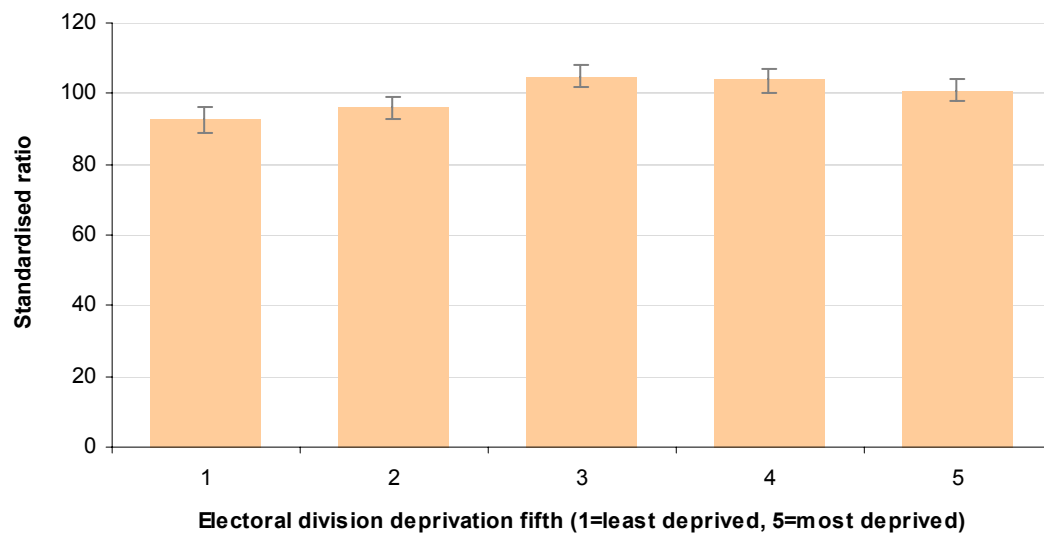
Data source: ONS.

Figure 7.9 CHD mortality, 1996–2000.



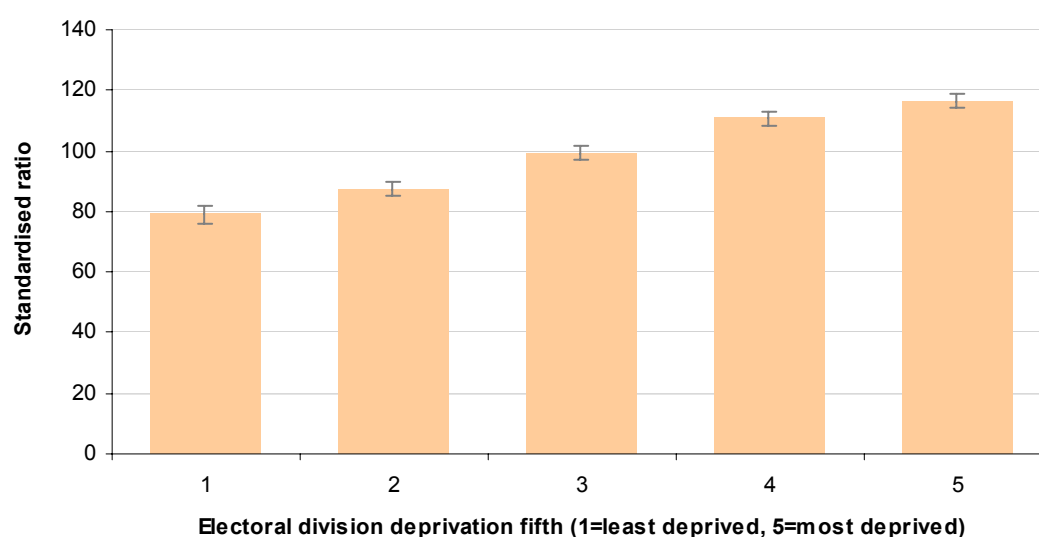
Data source: ONS.

Figure 7.10 Stroke mortality, 1996–2000.



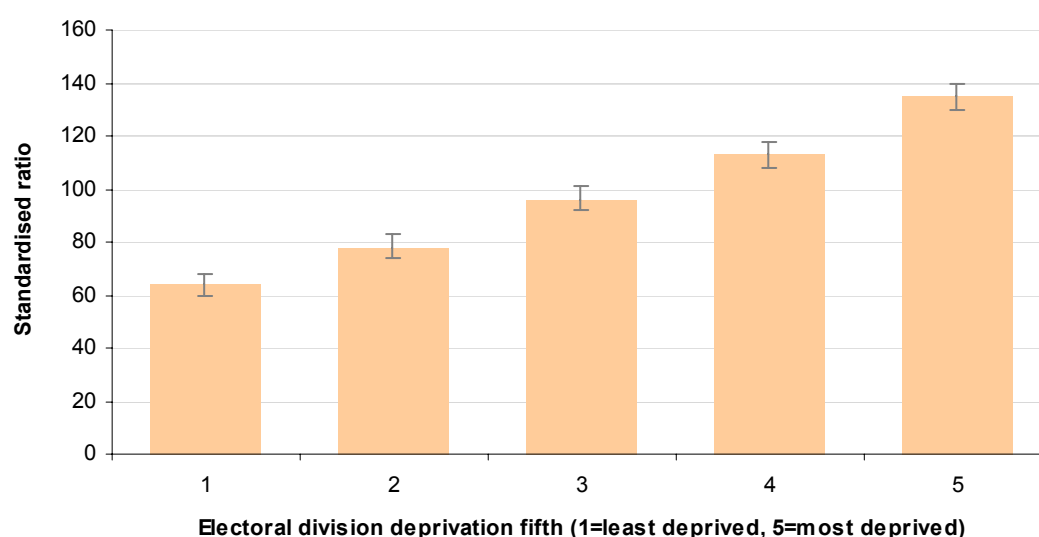
Data source: ONS.

Figure 7.11 Respiratory disease mortality, 1996–2000.



Data source: ONS.

Figure 7.12 COPD mortality, 1996–2000.



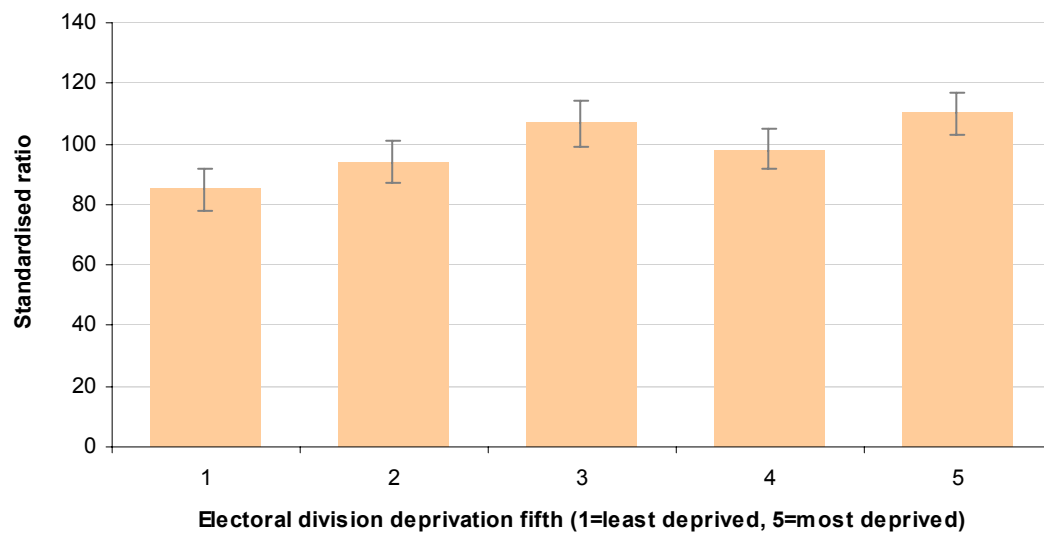
Data source: ONS.

Table 7.5. External causes of death, standardised mortality ratio (95%CI), 1996–2000.

Deprivation fifth	Unintentional injury	Road traffic injury	Unintentional fall	Suicide
1 (least deprived)	85 (78, 92)	95 (79, 111)	88 (77, 100)	78 (68, 88)
2	94 (87, 101)	109 (93, 126)	98 (87, 109)	98 (86, 109)
3	107 (99, 114)	127 (110, 144)	99 (88, 110)	91 (80, 102)
4	98 (92, 105)	85 (72, 98)	104 (93, 115)	103 (93, 114)
5 (most deprived)	110 (103, 117)	91 (79, 103)	107 (96, 117)	118 (108, 128)
Overall	100	100	100	100
Rate ratio 5:1	1.29 (1.16, 1.44)	0.96 (0.77, 1.19)	1.21 (1.02, 1.42)	1.51 (1.29, 1.78)

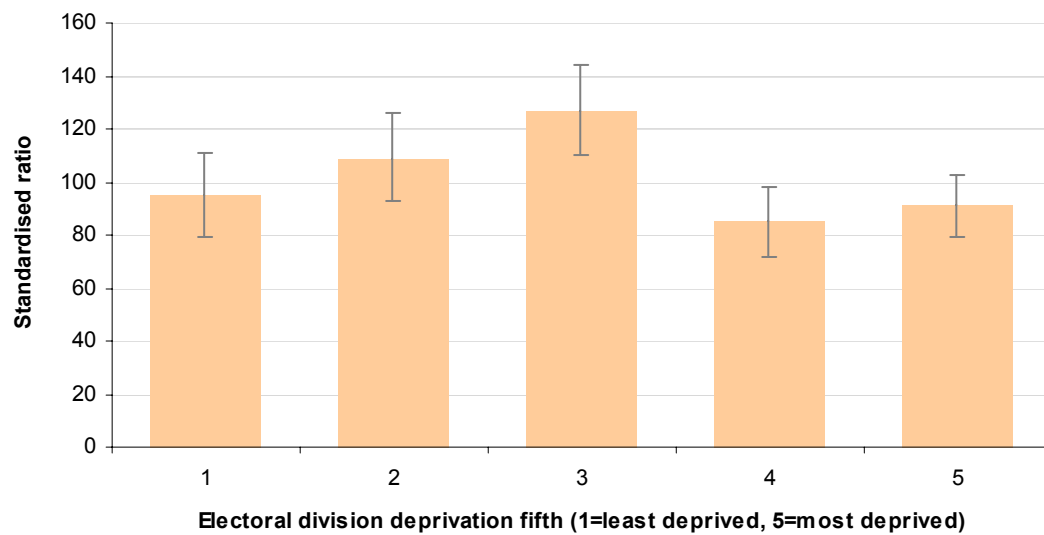
Data source: ONS.

Figure 7.13 Unintentional injury mortality, 1996–2000.



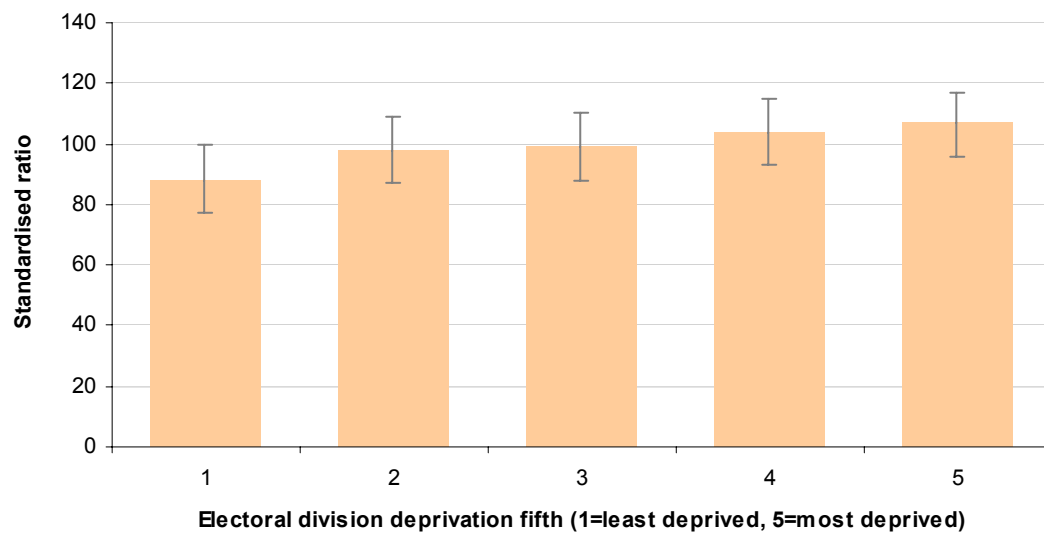
Data source: ONS.

Figure 7.14 Road traffic injury mortality, 1996–2000.



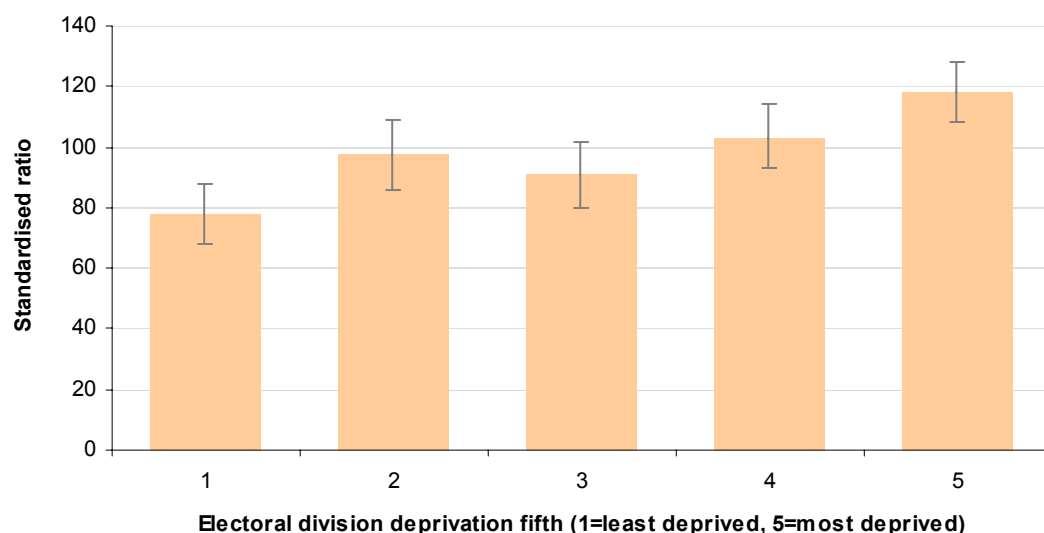
Data source: ONS.

Figure 7.15 Unintentional falls mortality, 1996–2000.



Data source: ONS.

Figure 7.16 Suicide mortality, 1996–2000.



Data source: ONS.

- Most of the major causes of death are related to deprivation, as shown in the above tables and figures. The gradient of the slope in standardised mortality ratios across deprivation fifths is particularly steep for lung cancer (deprived/affluent ratio 1.80), chronic obstructive pulmonary disease (COPD, ratio 2.11), respiratory diseases (including COPD, ratio 1.47) and suicide and self-harm (ratio 1.51).
- All unintentional injury mortality and unintentional falls mortality specifically are also more common in deprived areas.
- However, there are some exceptions to the general pattern of increasing mortality with increasing deprivation. Stroke SMR

was significantly above the Welsh average in only the intermediate deprivation fifths.

- Colorectal cancer and stroke mortality were only weakly related to deprivation.
- There was no clear relationship between breast cancer mortality and deprivation.
- Cancer mortality showed a similar pattern to that shown by cancer incidence (see Tables 4.9 and 4.10, page 29).
- Overall road traffic injury mortality showed little variation by deprivation. This is due to higher pedestrian death rates in deprived areas being compensated for by lower car occupant death rates. Car ownership is lower in deprived areas.

Chapter 8

Conclusions

This report highlights the relationship between small area deprivation and health in Wales, using a large number of health indicators.

The results show that, in nearly all instances, people living in the most deprived areas have worse health and health indicators than those in the most affluent areas. Results are summarised in Table 8.1 (page 58).

Behavioural determinants of poor health, such as smoking, and low levels of physical inactivity are substantially more common in deprived areas.

The consequences of poverty, higher levels of harmful behaviour and lower levels of protective behaviour are seen most clearly in the distribution of illnesses and health status. People in the most deprived areas have higher levels of mental illness, hearing and sight problems, and long-term conditions, particularly chronic respiratory diseases, cardiovascular diseases and arthritis. The social distribution of obesity, when considered in the context of a rapidly increasing national trend in obesity, means that many of the chronic health problems could become much more frequent in the future.

As expected, people in the most deprived areas have much higher uptake of most benefit payments but a lower uptake of child benefit for those aged 15–19 years indicating lower continuation rates in post-GCSE education.

Given the frequency and social distribution of conditions such as arthritis and visual problems, one would expect that people in deprived areas would be more likely to receive hip or knee replacements or cataract operations, but this is not generally the case. Almost certainly, specific health needs of people in deprived areas are not being completely met.

Premature death is also substantially more common in people from deprived communities, particularly in males, who have a 33 percent excess death rate compared with affluent communities. Deprived area mortality rates are high for a variety of causes of death, including cancers (especially lung cancer), heart disease, respiratory disorders (especially chronic obstructive pulmonary disease), injuries, and suicide.

Not every health indicator is worse in deprived areas. Excess alcohol consumption is a problem throughout Wales, in both deprived and affluent areas. Colorectal and breast cancers are not significantly related to deprivation.

The purpose of this report is to inform future action, rather than suggest remedies. National and local government, organisations and individuals are already doing much to improve health and to reduce health inequalities in Wales, but more action is needed. It is hoped that this report will help stimulate more action locally and nationally as part of the coordinated and sustained push for better health that is Health Challenge Wales.

Table 8.1 Summary of indicators in most deprived and most affluent fifths.

Domain	Indicator	Deprived-to-affluent ratio	Deprivation significantly associated with poor health indicator*
Lifestyle health determinants	Smoking (SMR)	1.63	Yes
	Excess alcohol consumption	1.05	No
	Healthy diet	0.65	Yes
	Physical inactivity	2.08	Yes
	Obesity	1.47	Yes
Health status	PCS	0.94	Yes
	MCS	0.95	Yes
	Physical functioning	0.88	Yes
	Role – physical	0.88	Yes
	Bodily pain	0.89	Yes
	General health	0.89	Yes
	Vitality	0.90	Yes
	Social functioning	0.89	Yes
	Role – emotional	0.90	Yes
Illness and injury	Mental health	0.92	Yes
	Low birth weight	1.37	Yes
	Depression and/or anxiety	1.90	Yes
	Hearing	2.60	Yes
	Eyesight	2.26	Yes
	LLTI	1.40	Yes
	Arthritis	1.39	Yes
	Back pain	1.27	Yes
	Respiratory disease	1.52	Yes
	Asthma	1.33	Yes
	Diabetes	1.78	Yes
	High blood pressure	1.33	Yes
	Heart disease	1.34	Yes
	Angina	1.46	Yes
	Heart failure	1.19	No
	Heart attack	1.16	No
	Cancer registrations (persons)	1.13	Yes
	Cancer registrations (females)	1.14	Yes
	Cancer registrations (males)	1.15	Yes
	Colorectal cancer registrations	1.06	No
	Lung cancer registrations	1.84	Yes
	Breast cancer registrations	0.99	No
	Pedestrian injury 4–16 years reported to police	2.53	Yes

Continued on next page.

* At 95 percent confidence.

Continued from previous page.

	Pedestrian injury 65+ years reported to police	2.67	Yes
	Pedestrian injury 5–14 years hospital inpatient	2.15	Yes
DWP benefits	Children in IS households	5.1	Yes
	IS	3.5	Yes
	JSA	3.1	Yes
	Child benefit	0.82	Yes
	Attendance Allowance	1.5	Yes
	DLA	2.5	Yes
	DLA (HC & HM)	2.0	Yes
	AA & DLA	2.0	Yes
	IB & SDA	2.8	Yes
Use of health services	Dentist	0.78	Yes
	Family doctor	1.04	Yes
	Hospital inpatient (persons)	1.24	Yes
	Hospital inpatient (females)	1.26	Yes
	Hospital inpatient (males)	1.24	Yes
	CHD admission	1.36	Yes
	Angiography	1.19	Yes
	Revascularisation	1.14	Yes
	Hip replacement	0.79	No
	Knee replacement	0.95	No
	Lens replacement	1.11	Yes
Deaths	Infant mortality	1.61	Yes
	All-cause persons	1.26	Yes
	All-cause females	1.21	Yes
	All-cause males	1.33	Yes
	All cancer	1.22	Yes
	Colorectal cancer	1.10	Yes
	Lung cancer	1.80	Yes
	Breast cancer	0.97	No
	CHD	1.29	Yes
	Stroke	1.09	Yes
	Respiratory disease	1.47	Yes
	CORP	2.11	Yes
	Unintentional injury	1.29	Yes
	Road traffic injury	0.96	No
	Unintentional fall	1.21	Yes
	Suicide	1.51	Yes

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- ⁴ Christie S, Fone D. Does car ownership reflect socio-economic disadvantage in rural areas? a cross-sectional geographical study in Wales, UK. *Public Health* 2002;117:112–6.
- ⁵ National Public Health Service for Wales. *Deprivation - Townsend*. <http://www.wales.nhs.uk/sites/page.cfm?orgid=368&pid=2755> (accessed 7 May 2004).
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- ⁹ WHO. *Tobacco or Health: A global status review*. Geneva: World Health Organization, 1997.
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- ¹¹ Collaboration for Accident Prevention and Injury Control. *Road Traffic Injuries in Wales*. Available at http://www.capic.org.uk/Injuries_In_Wales/road_traffic_injuries_in_wales.htm (accessed 22 March 2004).
- ¹² Lester NL. Is there equity of access to coronary angiography and revascularisation according to socio-economic deprivation for people in Wales? A cross-sectional ecological study (MPH dissertation). Cardiff: University of Wales College of Medicine, 2004.

Appendix 1

ICD and OPCS codes

Information presented in the cancer section of Chapter 4 (illness and injury), hospitalisation section of Chapter 6 (use of health services), and Chapter 7 (mortality) used International Classification of Diseases Ninth Revision (ICD-9) disease codes, Tenth Revision (ICD-10) disease codes, and Office of Population, Censuses and Surveys (OPCS) procedure codes listed in the table below.

Disease or procedure	Codes
Cancer (deaths)	ICD-9 140–208
Cancer (registrations)	ICD-9 140–172, 174–208; ICD-10 C00–43, C45–97
Colorectal cancer	ICD-9 153–154; ICD-10 C18–21
Lung cancer	ICD-9 162; ICD-10 C34
Breast cancer	ICD-9 174; ICD-10 C50
Coronary heart disease	ICD-9 410–414; ICD-10 I20–25
Stroke	ICD-9 430–438
Respiratory disease	ICD-9 460–519
Chronic obstructive pulmonary disease	ICD-9 491–492, 494, 496
Unintentional injury	ICD-9 E800–949
Road traffic injury	ICD-9 E810–828, 929.0
Pedestrian injury	ICD-9 E810–819(.7)
Unintentional fall	ICD-9 E880–888, E929.3
Suicide and intentional self-harm	ICD-9 E950–959, E980–989
Insertion of prosthesis replacement for lens (lens replacement)	OPCS C75.1
Coronary revascularisation	OPCS K40–50
Coronary angiography	OPCS K63–65
Total hip replacement	OPCS W37.1, W37.2, W38.1, W38.2
Total knee replacement	OPCS W40.1, W40.2, W41.1, W41.2, W42.1, W42.2

Appendix 2

Denominator populations

The tables below show the size of the denominator population used to calculate risk measures presented in this report.

Deprivation fifth	Persons 1998*	Females 1998*	Males 1998*	Persons 1999*	Females 1999*	Males 1999*
1 (least deprived)	492 374	250 851	241 522	500 667	254 730	245 937
2	516 332	263 650	252 682	519 359	264 917	254 442
3	544 495	278 865	265 630	546 385	279 051	267 334
4	651 735	332 109	319 623	645 416	328 165	317 251
5 (most deprived)	806 527	403 429	403 094	783 178	390 621	392 557
Overall	3 011 463	1 528 904	1 482 551	2 995 005	1 517 484	1 477 521

Deprivation fifth	Persons 2001*	Females 2001*	Males 2001*	Children aged 5–14 years 1998*	Persons 65+ years 1998*
1 (least deprived)	506 604	257 417	249 186	59 536	86 458
2	523 335	266 383	256 952	62 976	96 893
3	552 223	281 312	270 910	67 318	105 153
4	652 392	330 957	321 434	86 674	106 434
5 (most deprived)	797 664	397 554	400 106	112 318	119 165
Overall	3 032 218	1 533 623	1 498 588	388 822	514 103

Deprivation fifth	WHS 1998 respondents†	WHS 1998 female respondents†	WHS 1998 male respondents†	Births (live and still births) 1998–2002	Live births 1998–2001
1 (least deprived)	5 571	2 852	2 720	22 963	18 526
2	5 426	2 782	2 644	24 644	19 734
3	5 535	2 896	2 639	27 279	22 001
4	6 415	3 337	3 078	35 846	29 062
5 (most deprived)	6 927	3 586	3 341	47 734	38 762
Overall	29 874	15 452	14 422	158 466	128 085

* NHSAR mid-year population, all ages unless specified.

† Total number of survey respondents. Numbers of respondents for specific survey questions may be somewhat smaller.

Appendix 3

Numerator cases

The tables below show the numbers of cases (DWP claimants, survey respondents with positive response, incident cancer cases, deaths, etc) used as the numerator to calculate risk measures presented in this report. Except where otherwise specified, data are for both genders and all ages.

Chapter 2

Deprivation fifth	Smokers	Excess alcohol consumption	Healthy diet	Physical inactivity (no weekly exercise)	Obesity (BMI>30)
1 (least deprived)	1053	720	1556	338	638
2	1257	693	1412	456	745
3	1399	663	1305	547	819
4	1756	775	1244	782	990
5 (most deprived)	2130	937	1187	797	1116
Overall	7595	3788	6704	2920	4308

Chapter 4

Deprivation fifth	Live births <2500 g 1998–2002	Depression and/or anxiety	Hearing problems	Eyesight problems	LLTI	Arthritis
1 (least deprived)	1 470	462	61	104	1441	1071
2	1 735	510	74	150	1581	1128
3	1 980	620	95	177	1763	1321
4	2 864	827	138	263	2148	1603
5 (most deprived)	4 290	1038	187	285	2366	1718
Overall	12 339	3457	555	979	9299	6841

Deprivation fifth	Back pain	Respiratory disease	Asthma	Diabetes	High blood pressure	Heart disease
1 (least deprived)	1386	607	470	140	665	392
2	1471	605	453	154	745	461
3	1595	730	516	198	762	496
4	1891	921	635	229	925	550
5 (most deprived)	2099	1122	772	284	1009	604
Overall	8442	3985	2846	1005	4106	2503

Deprivation fifth	Angina	Heart failure	Heart attack	Cancer cases persons 1997–2001	Cancer cases females 1997–2001	Cancer cases males 1997–2001
1 (least deprived)	232	37	144	12 050	5 955	6 095
2	275	44	142	13 703	6 730	6 973
3	314	37	178	14 568	7 265	7 303
4	335	46	185	16 274	8 049	8 225
5 (most deprived)	386	51	190	18 307	9 092	9 215
Overall	1542	215	839	74 918	37 093	37 825

Deprivation fifth	Colorectal cancer cases 1997–2001	Lung cancer cases 1997–2001	Female breast cancer cases 1997–2001	Pedestrian injury reported to police 4–16 years 1995–2000	Pedestrian injury reported to police 65+ years 1995–2000
1 (least deprived)	1 675	1183	1 836	380	136
2	1 907	1643	1 945	591	222
3	2 015	1863	2 056	870	313
4	2 184	2376	2 147	1169	320
5 (most deprived)	2 362	2905	2 347	1797	500
Overall	10 148	9971	10 331	4807	1491

Deprivation fifth	Pedestrian injury inpatient episodes 5–14 years 1997–2002
1 (least deprived)	92
2	134
3	157
4	227
5 (most deprived)	381
Overall	991

Chapter 5

Deprivation fifth	IS children 2001	IS claimants 2001	JSA claimants 2001	Child Benefit claimants 2001	AA claimants 2001	DLA claimants 2001
1 (least deprived)	6 504	17 618	2 818	20 273	14 570	18 818
2	12 468	29 260	4 316	20 250	19 182	25 516
3	17 930	39 783	6 239	20 918	22 426	33 098
4	30 813	56 995	8 917	25 114	25 953	47 128
5 (most deprived)	59 091	91 289	15 632	29 567	28 075	63 686
Overall	126 806	234 945	37 922	116 122	110 206	188 246

	DLA: HC & HM claimants 2001	AA & DLA claimants 2001	IB & SDA claimants 2001
Deprivation fifth			
1 (least deprived)	3 533	33 388	16 876
2	4 502	44 698	23 979
3	5 466	55 524	33 001
4	7 626	73 081	46 453
5 (most deprived)	9 579	91 761	67 186
Overall	30 706	298 452	187 495

Chapter 6

			Hospital inpatient discharges persons 2000/01– 2002/03	Hospital inpatient discharges females 2000/01– 2002/03	Hospital inpatient discharges males 2000/01– 2002/03
Deprivation fifth	Dentist consult	Family doctor consult			
1 (least deprived)	3 875	4 067	289 240	152 649	136 357
2	3 483	3 983	317 753	169 300	148 288
3	3 365	4 049	364 987	194 844	169 996
4	3 674	4 696	440 514	236 052	204 296
5 (most deprived)	3 735	5 186	521 897	277 089	244 604
Overall	18 132	21 981	1 934 391	1 029 934	903 541

				Hip replacement hospital discharge 2000/01– 2002/03	Knee replacement hospital discharge 2000/01– 2002/03
Deprivation fifth	CHD admission 2000–2002	Coronary angio admission 2000–2002	Coronary revasc admission 2000–2002		
1 (least deprived)	9 108	3 165	2 403	1440	1180
2	10 774	3 480	2 609	1438	1215
3	12 108	3 767	2 816	1590	1250
4	14 262	4 544	3 356	1481	1430
5 (most deprived)	15 562	4 772	3 457	1488	1458
Overall	61 814	19 728	14 641	7437	6533

	Lens replacement hospital discharge 2000/01– 2002/03
Deprivation fifth	
1 (least deprived)	8 355
2	9 351
3	10 520
4	11 496
5 (most deprived)	12 253
Overall	51 975

Chapter 7

	Infant deaths	All-cause deaths persons	All-cause deaths females	All-cause deaths males	Cancer deaths	Colorectal cancer deaths
Deprivation fifth	1998–2001	1995–2001	1995–2001	1995–2001	1996–2000	1996–2000
1 (least deprived)	76	34 678	17 942	16 736	6 382	796
2	90	41 657	21 783	19 874	7 385	860
3	128	49 176	26 318	22 858	8 256	1011
4	162	54 035	28 500	25 535	9 334	1089
5 (most deprived)	257	61 035	31 065	29 970	10 782	1214
Overall	713	240 581	125 608	114 973	42 139	4970

	Lung cancer deaths	Female breast cancer deaths	CHD deaths	Stroke deaths	Respiratory deaths	COPD deaths
Deprivation fifth	1996–2000	1996–2000	1996–2000	1996–2000	1996–2000	1996–2000
1 (least deprived)	1061	621	5 550	2 737	3 715	930
2	1413	659	6 795	3 255	4 723	1290
3	1656	758	7 789	3 918	5 930	1723
4	2088	788	8 814	3 944	6 717	2102
5 (most deprived)	2630	828	9 889	4 127	7 601	2727
Overall	8848	3654	38 837	17 981	28 686	8772

	Unintent injury deaths	RTI deaths	Fall deaths	Suicide deaths
Deprivation fifth	1996–2000	1996–2000	1996–2000	1996–2000
1 (least deprived)	521	139	231	214
2	637	171	295	280
3	782	211	327	276
4	790	168	351	373
5 (most deprived)	1025	226	388	533
Overall	3755	915	1592	1676