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The Office for National Statistics (ONS) is the Government Agency responsible for compiling, analysing and disseminating many of the United Kingdom's economic, social and demographic statistics, including the retail prices index, trade figures and labour market data, as well as the periodic census of the population and health statistics. The Director of ONS is also the National Statistician and the Registrar General for England and Wales, and the agency administers the statutory registration of births, marriages and deaths there.

About Health Statistics Quarterly and Population Trends

Health Statistics Quarterly and *Population Trends* are journals of the Office for National Statistics. Each is published four times a year in February, May, August and November and March, June, September and December, respectively. In addition to bringing together articles on a wide range of population and health topics, *Health Statistics Quarterly* and *Population Trends* contain regular series of tables on a wide range of subjects for which ONS is responsible, including the most recently available statistics.

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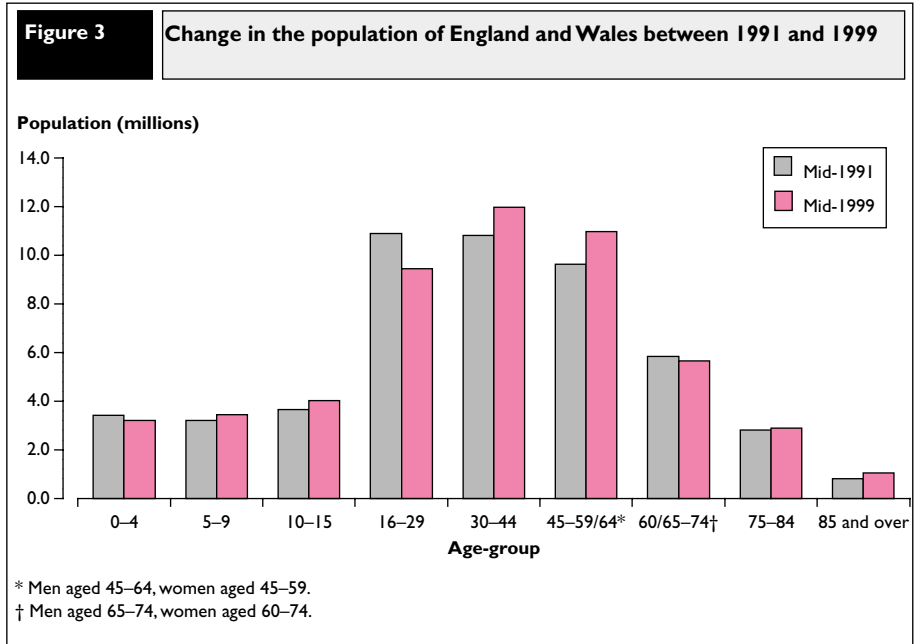
in brief

Population Review of 1999: England and Wales

The population of England and Wales was estimated at 52.7 million in 1999, an increase of 0.5 per cent compared with 1998. The population has increased every year since 1982, and is projected to reach 57.1 million in 2023. However, longer term projections suggest that the rate of increase will decline gradually.

Between 1991 and 1999, the population of children under 16 years old increased by 3.8 per cent to 10.7 million in England and Wales. However, the number of pre-school age children (0–4 years) decreased by 6.4 per cent as a result of declining numbers of births. The 16–29 age group decreased by 13 per cent between 1991 and 1999, while there were increases in the number of people between 30 and pensionable age. The number of people of pensionable age increased by 1.4 per cent between 1991 and 1999, despite a slight fall in the 60/65–74 age group.

In 1998 there were an estimated 44,000 conceptions to women under 18. The under-18 conception rate increased by two per cent to 47 per thousand women aged 15–17 in 1998. However, the under-18 conception rate was lower in 1998 than in 1990. Just over 40 per cent of conceptions in this age group lead to a legal abortion, compared with around 20 per cent of all conceptions. 183,000 legal abortions were performed in England and Wales in 1999. Overall numbers of abortions rose in the second half of the 1990s, after falling between 1990 and 1995.



There were 622,000 live births in 1999, two per cent fewer than in 1998. With the exception of 1996, there has been a reduction in the number of births every year since 1990. Between 1998 and 1999, fertility rates continued to fall for women under 30 and increase for women over 30. Women over 30 years old accounted for 45 per cent of births in 1999, compared with 32 per cent of births in 1991.

There were 554,000 registered deaths in England and Wales in 1999; a marginal increase of less than 0.1 per cent when compared with 1998; the first increase in

deaths for five years. However the long term decline in mortality rates continued for both men and women in most age groups.

Between 1981 and 1997, life expectancy at birth increased from 71.0 years to 74.8 years for males; and 77.0 years to 79.8 years for females. Life expectancy at birth is projected to continue to increase, reaching 78.8 for males and 82.9 for females respectively by 2021.

A longer version of this abstract appeared in *Population Trends* 102 published on 5 December 2000.

ICD-10 coding of mortality data begins

Coding to the Tenth Revision of the International Classification of Diseases (ICD-10) began in January 2001 for all cause of death information from death registrations for England and Wales.

The major changes between the ninth and tenth revisions of the ICD are expected to have a significant effect on the mortality rates attributable to particular causes of death. Mortality statistics are widely used as tools for monitoring public health, and ONS recognises that many users of mortality data need to be able to assess trends in mortality over time.

The ICD-9/ICD-10 discontinuity will cause difficulties in measuring these trends, so a comprehensive bridge coding study is being undertaken to assist in comparing figures between the two classifications. The coding for this study is underway. (See *Health Statistics Quarterly* 08 pp 41–50 for a detailed article explaining the differences between the two revisions and the expected changes in mortality statistics).

Customers who use weekly, monthly or quarterly outputs based on mortality data will see the effects of ICD-10 coding for all deaths registered after 1 January 2001. The annual publications for 1999 and 2000 mortality data will continue to use the ICD-9 classification. The 2001 annual dataset for mortality, using ICD-10 coding, will be published in May 2002.

Geographic variations in health in the United Kingdom

This volume, to be published in March builds on the tradition started in the nineteenth century of undertaking in-depth analyses of mortality by area as decennial supplements to annual statistical publications. The latest volume presents figures from the 1990s. It considerably extends the coverage and range of analyses available in previous supplements. For the first time, it takes a broader view of health outcomes than are reflected by mortality alone, by including reviews of variations in congenital anomalies, cancer incidence, infant mortality, births, conceptions and abortions.

The volume includes data for all local authorities in the United Kingdom. Wherever possible the analyses are, for the first time, presented on a comparable basis for all parts of the United Kingdom. This comprehensive view has made it possible to place the geographic patterns observed in a wider context than was previously possible.

Extensive use is made of maps to illustrate statistically significant variations. As in previous supplements, there is a strong emphasis on identifying the factors associated with geographic variation in the outcomes studied and to interpret these in terms of socio-economic and demographic patterns. To these ends, there are separate chapters summarising demographic and socio-economic characteristics of the population and all analyses draw on the recently revised ONS classification of local authorities.

This volume will be an essential resource for anyone with an interest in health variation across the United Kingdom.

UK Health Statistics

A further volume, also appearing shortly, looks at health statistics for the United Kingdom as a whole and for its constituent parts. It brings together data from variety of sources that are normally published in different places. A link between this volume and *Geographic variations in health in the United Kingdom* is provided, to help users find out what comparable information is presented in the two volumes for the different geographies.

The volume covers information on population, vital statistics, morbidity, determinants of health (such as smoking and drinking), health education and health care, resources and expenditure. A short chapter provides some comparisons across Europe.

Both publications will be available from The Stationery Office.

Correction: Paracetamol related deaths in England and Wales, 1993–97

This article appeared in *Health Statistics Quarterly* 07 (pp 5–9) which was published on 24th August 2000.

There was a small error in Box 2 (p 7) where ICD9 codes E980.0-E985.0 should have been listed as E980.0-E980.5.

Tables 3 and 4 (p 8) showed incorrect rate per million data. The correct tables are shown below.

Table 3 Numbers of paracetamol related deaths and annual death rates by age and sex in England and Wales, 1993–97

Age group	Males		Females	
	Number	Rate per million	Number	Rate per million
0–14	3	0.12	9	0.37
15–29	290	10.65	214	8.26
30–44	437	15.36	314	11.29
45–59	292	12.66	271	11.70
60–74	169	10.30	241	12.92
75 and over	84	13.17	175	14.51
Total	1,275	10.03	1,224	9.28

Table 4 Numbers of paracetamol related deaths associated with liver disease and annual rates by age and sex in England and Wales, 1993–97

Age group	Males		Females	
	Number	Rate per million	Number	Rate per million
0–14	2	0.08	3	0.12
15–29	34	1.25	65	2.51
30–44	77	2.71	94	3.38
45–59	59	2.56	54	2.33
60–74	26	1.58	43	2.30
75 and over	10	1.57	21	1.74
Total	208	1.64	280	2.12

Health indicators

England and Wales

Figure A Population change (mid-year to mid-year)

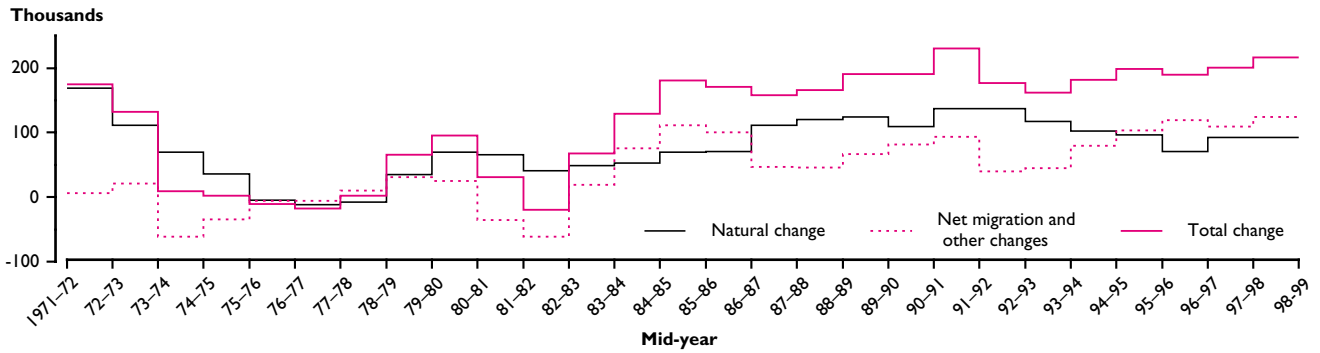


Figure B Age-standardised mortality rate

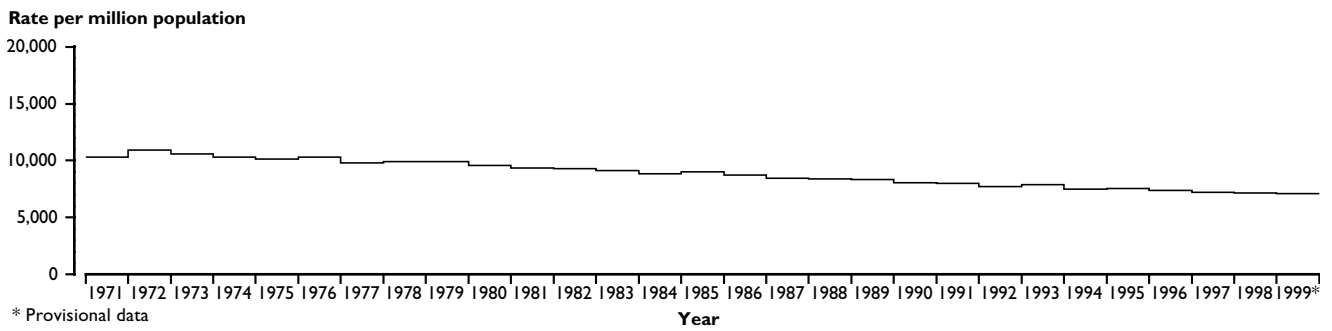


Figure C Infant mortality (under 1 year)

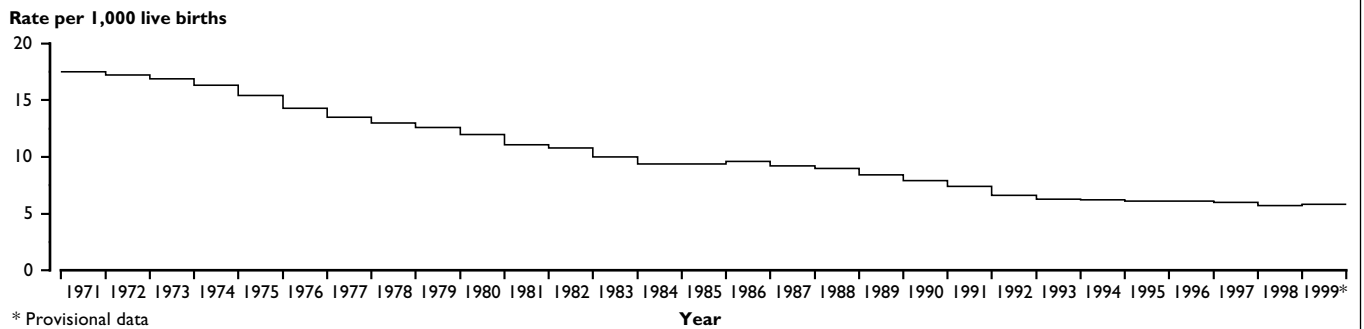
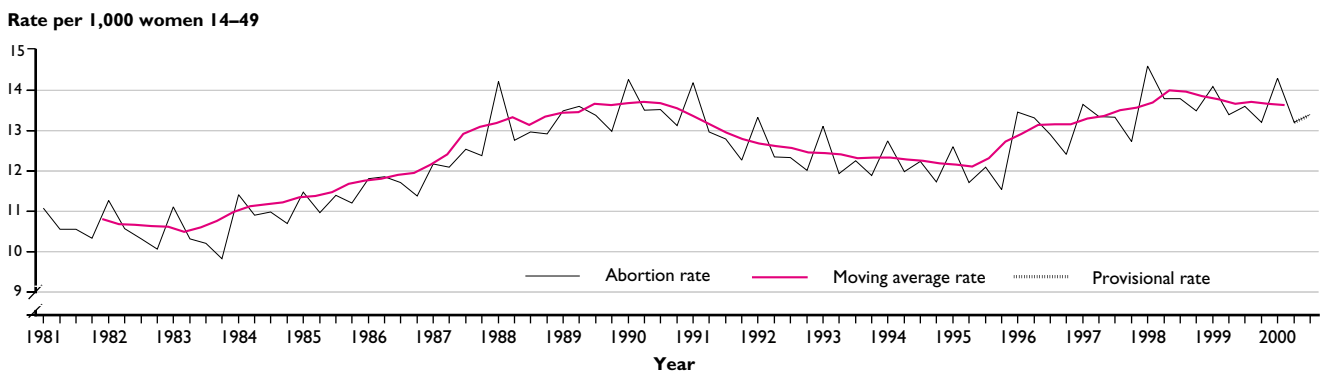


Figure D Quarterly abortion rates – residents



Daily and seasonal variation in live births, stillbirths and infant mortality in England and Wales, 1979–96

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BACKGROUND

By the mid 1960s, a weekly cycle had developed in the numbers of births each day in England and Wales and this became more marked during the 1970s.^{1–3} In most weeks, similar numbers of live births occurred from Tuesdays to Fridays, with fewer births on Mondays and Saturdays and the lowest numbers of births on Sundays. Similar patterns have been reported in Australia⁴ and the United States,^{5,6} while in Israel there was a deficit in the numbers of live births on Saturdays,⁷ which are holidays, while Sundays are working days. Below average numbers of live births occurred on days that were public holidays in England and Wales in the 1970s,^{1–3} in the United States⁵ and in Israel.⁷ It has been suggested that the patterns reflect the impact of obstetric practice, with elective delivery concentrating births onto working days.

Seasonal rhythms of births, with smaller numbers of births in winter compared to summer months, have been apparent for many years in England and Wales, with a small peak in the number of births in September, corresponding to Christmas conceptions.^{2,8} Similar patterns have been found in other countries, including the USA⁶ and Norway.⁹

It is often thought that the lunar cycle might affect the pattern of births. A peak in the number of live births at the time of the full moon was found in 57 hospitals in New York city during 13 lunar months beginning in January 1 1954.¹⁰ An analysis published in the early 1970s of five hundred thousand live births over a period of three years in New York City, found the birth rate to be above average before the full moon and below average after the full moon.¹¹ On the other hand, studies elsewhere have shown no evidence of a relationship between the lunar cycle and births.¹²

This article describes analyses of live births, stillbirths and early neonatal, late neonatal and postneonatal deaths by day of birth from the early 1980s to the mid 1990s. Using statistical models to analyse daily, seasonal and longer term trends simultaneously, it found a pronounced weekly cycle in live births, with more births on weekdays and fewer births at weekends and also on bank holidays. Stillbirth and early neonatal mortality rates tended to be higher on Saturdays and Sundays respectively, compared with other days. All the mortality rates varied according to the time of year.

In the 1970s in England and Wales, the perinatal death rate was found to be higher among babies born at the weekends, compared with those born on weekdays.¹³ There were concerns that lower levels in staffing at the weekend may have led to this raised mortality, but no data were available to investigate this. It was also suggested that spontaneous preterm births might have accounted for a higher proportion of the lower numbers of births at weekends and thus would have inflated mortality rates.

Associations between the day of the week of death and postneonatal mortality were found in the 1970s in England and Wales. Cot deaths were found to be more common at the weekends than on weekdays and numbers of deaths ascribed to congenital anomalies were particularly high on Thursdays and Fridays.¹³ A later study in New Zealand also found sudden infant deaths to be more common at the weekend and suggested that this may in part be explained by sharing a bedroom with an adult at that time.¹⁴ A more recent analysis of deaths attributed to the sudden infant death syndrome in England and Wales from 1971 to 1998, showed higher rates of postneonatal deaths at weekends and on public holidays than on other days.¹⁵

Seasonality was a marked feature in postneonatal mortality for many decades,^{15, 16} with a greater number of deaths occurring in winter than in summer months. Following the decline in postneonatal mortality between 1988 and 1992, primarily among deaths attributed to sudden death, cause unknown, one article suggested that this seasonality has diminished, if not disappeared,¹⁸ while a subsequent analysis suggested the contrary.¹⁹

A study of intrapartum deaths in Wales between 1993 and 1995 found that rates were higher for babies born in July and August than among those born in other months.²⁰ In Scotland during the same period similar patterns were found, but none of the differences were significant.²¹

In this study, ONS data for the 1980s and early 1990s were examined to see if the day of the week pattern was still present in live births. It also considered long term trends, seasonality, and relationships with bank holidays, and how these changed over time. In addition, possible associations with the phases of the moon and selected economic factors was also explored.

Day of the week and seasonal variations and long term trends in stillbirth and deaths in the early neonatal, late neonatal and postneonatal periods were also analysed along with possible associations with bank holidays and broad economic indicators. Since it was unclear whether or not seasonality was still apparent in deaths whose underlying cause was classified as sudden death, cause unknown, it seemed appropriate to study these separately from other postneonatal deaths. Previous studies considered seven day cycles, seasonality and long term trends separately, but this study used statistical models to analyse associations with these and other factors simultaneously.

DATA

The numbers of live births and stillbirths in England and Wales on each day were derived from the Office for National Statistics' (ONS) individual records of live births and stillbirths. For consistency over time, only stillbirths at 28 or more completed weeks of gestation were included.

Anonymised individual records of infant deaths during an eleven year period, 1986–96, were made available by ONS. From these, counts of the numbers of children born on each day who died during the early, late neonatal or postneonatal periods were derived. Postneonatal deaths were subdivided, and those whose underlying cause was coded as

sudden death, cause unknown (International Classification of Diseases, ninth revision code 798.0) were analysed separately from other postneonatal deaths.

Factors for the day of the week, month of the year and years in the series were derived from the data. In addition, dates of all public holidays over this period were added in. These comprised the Easter period, early and late spring and August bank holidays, Christmas Day, Boxing Day and New Year's Day. Seven factors were created to correspond with bank holidays. Some of these distinguished between bank holidays in the Christmas period and other bank holidays. Others incorporated additional days assigned to be bank holidays when Christmas or New Year fell at the weekend or included days preceding or following bank holidays.

Three variables relating to the lunar cycle were also created. The first was a simple binary variable indicating the days on which there was a full moon. The second was a sine wave which peaked at the full moon and the third was a sine wave which was higher before the full moon and lower afterwards. Both sine waves were created to coincide with the phases of the lunar cycle throughout the period.

Data recorded at death registration include dates of birth and death, but not the times of day. These two dates are used to derive the estimated age at death. This takes the value 0 if the birth and death date were the same, 1 if they were a day apart and so on. This means that an estimated age of one day can, in practice, correspond to actual ages at death which range from just a few minutes to almost 48 hours after birth.

Early neonatal deaths of babies born during the last week of 1996 were not included in any of the analyses, as some babies born in this week did not die until the first week of 1997, data for which were not available at the time of analysis. Similarly, babies born in the last 27 days of 1996 were excluded from analyses of late neonatal deaths and all babies born in 1996 were excluded from analyses of postneonatal deaths.

Two economic indicators were obtained. The monthly counts of claimants on unemployment benefit in the United Kingdom were extracted from the Monthly Digest of Statistics and the GDP deflator on a quarterly basis was supplied by General Expenditure Statistics team in the Data Unit of HM Treasury.

Data were first plotted to see if there were any visible daily patterns, seasonal variations or long term trends in the live births, stillbirth and infant mortality rates. Then they were analysed using the methods summarised in Table 1.

In order to examine associations between numbers of live births and the factors mentioned above, log linear models were fitted, as is appropriate for data with a Poisson distribution. A suitable population at risk was not available on a daily basis for use as a denominator, so it was decided to analyse the numbers of live births rather than any form of rate. In addition to examining the seasonality by fitting log linear models with a factor for each month, cosinor analysis²² was applied to the monthly totals of live births, as they appeared to follow a sinusoidal pattern. The cosine model was fitted to each year separately, making it possible to identify changes in seasonality over the period. To analyse stillbirths and death rates at various stages of infancy, logistic regression was used, as this is appropriate for data with a binomial distribution.

The numerators and denominators are shown in Table 2. In order to form a conditionally independent analysis, the denominator used for the late neonatal deaths was the number of live born babies who survived the early neonatal period, and were therefore at risk of dying in the late

Table 1 Methods of analysis

Method of analysis	Data	Description of method	Application
Log linear	Counts of daily live births	Regression for discrete dependent variable	Examination of day of week patterns, fluctuations on bank holidays, seasonality and long term trends in the count of live births, and any changes in the above patterns over the series via interaction terms in the models.
Cosinor	Counts of daily live births	Examine sinusoidal patterns in data	Examination of seasonality in the number of daily live births for each year individually, finds yearly maxima and percentage deviation below and above each maximum.
Logistic regression	Stillbirth, early and late neonatal and postneonatal death rates	Regression method appropriate for data with a binomial distribution	Examination of day of week patterns, fluctuations on bank holidays, seasonality and long term trends in the death rates and stillbirth rate, and any changes in the above associations over the series.
Akaike information criterion	All data	Criterion for whether dropping a term from a model is beneficial	Determination of the appropriate model for the data.
Residual deviance and Null deviance	All data	Judging the degree of matching of the model to the data when the parameter estimation is carried out by maximising the likelihood as in generalised linear models.	Used in conjunction with the AIC to assist in selecting the appropriate model for the data. Gives the proportion of variation explained in data by the model selected.

neonatal period. Similarly the denominator for postneonatal deaths was restricted to live born babies who survived the neonatal period.

The data were analysed using the SPLUS package, version 4.5. This has an automated procedure for selecting models, using an approximation to the Akaike Information Criterion (AIC).²³ Models were conducted in two steps. Firstly a model was chosen using the automated stepwise procedure to add or delete variables from the model. Second a partially subjective approach was applied, to both the addition and removal of variables as well as certain interactions. The latter approach selected models by a combination of their residual deviance and their parsimony.

RESULTS

The models selected are shown in Table 4, along with their residual and null deviances. The findings are summarised in Table 5 and described more fully below.

Live births

The numbers of live births in England and Wales on each day of the whole period 1st January 1979 to 31st December 1996 are shown in Figure 1. Each day's total has been plotted and the points joined consecutively. Triangles and squares indicate Christmas Day and Boxing Day in each year. Overall the numbers of births decreased up to 1983, then increased up to 1990 and decreased up to 1995 before

levelling off in 1996, possibly as a consequence of the 'pill scare' in 1995.²⁴ The overall average number of live births each day during the period was 1,814, with the maximum, 2,278, occurring on 18th September 1990 and the minimum, 1,123, on the 26th December 1979. There was a clear seasonal pattern in the number of daily live births throughout the entire period, with lower numbers of births in the winter than the summer months. In each year, the lowest number of births occurred either on Christmas Day or on Boxing Day, usually the latter. The average daily number of births on Boxing Day was 31 per cent below the overall daily average for the period.

Figures 2 and 3 show and compare data for the first and last years of the period. The total number of daily live births in England and Wales in 1979 is shown in Figure 2. The filled squares correspond to bank holidays. There is an obvious seven day cycle, with fewer births on Sundays compared with births on other days of the week. The average number of births on a Sunday during 1979 was 1,373, with a standard deviation of 60, whereas the overall daily average in 1979 was 1,748, with a standard deviation of 211. In general, there were fewer births on bank holidays compared to other days. A discontinuity in the usual weekly pattern occurred at the end of 1979. This was because in the final week of the year, the fewest births, 1,123, occurred on Boxing Day, which was a Thursday, while on the Sunday there were 1663 live births. In addition to the seasonal pattern seen in Figure 1, there also appears to be a peak in the number of births in the latter part of September.

Table 2 Definitions of numerators and denominators used in analyses

Rate	Numerator	Denominator
Stillbirth	Number of stillbirths	Number of live births plus number of stillbirths on same day
Early neonatal	Number born alive who died from 0 to 6 days after birth	Number of live births on the day of birth
Late neonatal	Number of babies born on a particular day who died from 7 to 27 days after birth	Number of live born babies who survived the early neonatal period
Postneonatal	Number of babies born on a particular day who died from 28 days but under a year after birth	Number of live born babies who survived the neonatal period

Figure 1 Daily live births, England and Wales, 1979-96

Number of live births each day

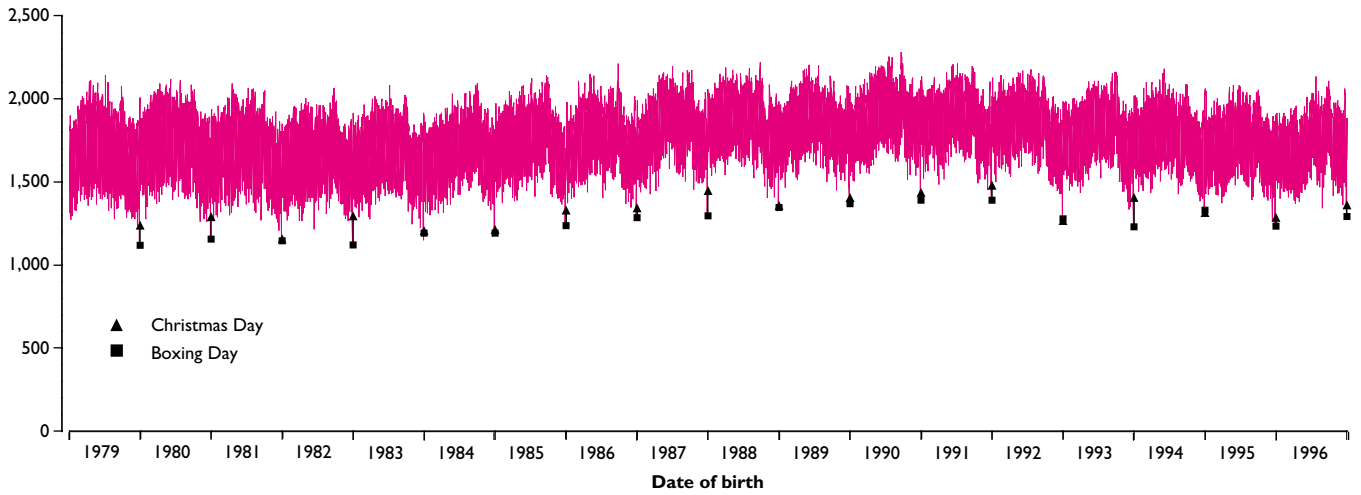


Figure 2 Daily live births, England and Wales, 1979

Number of live births each day

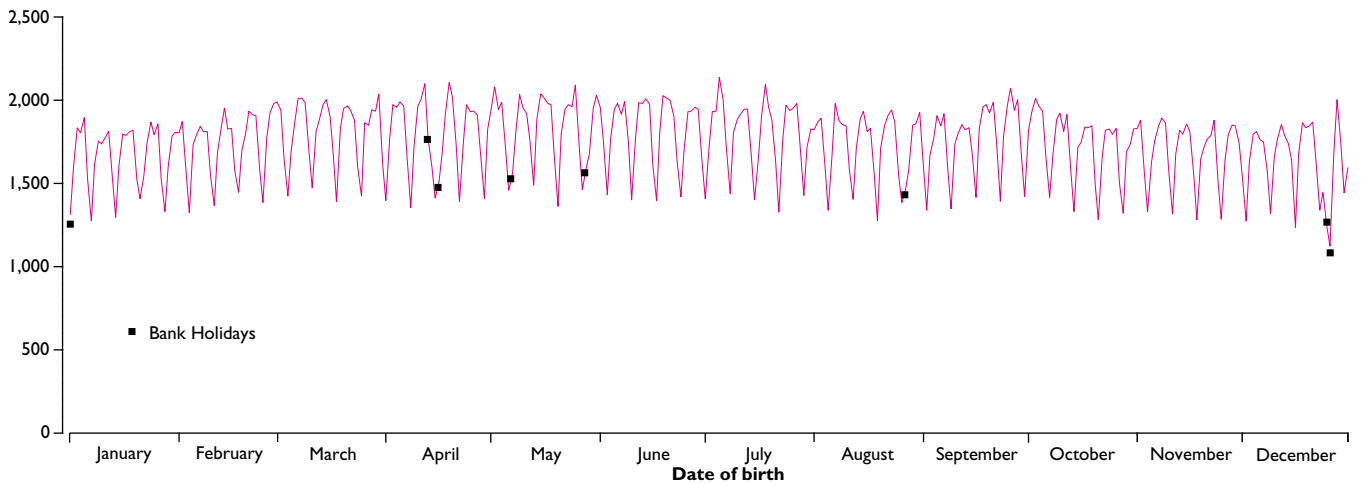
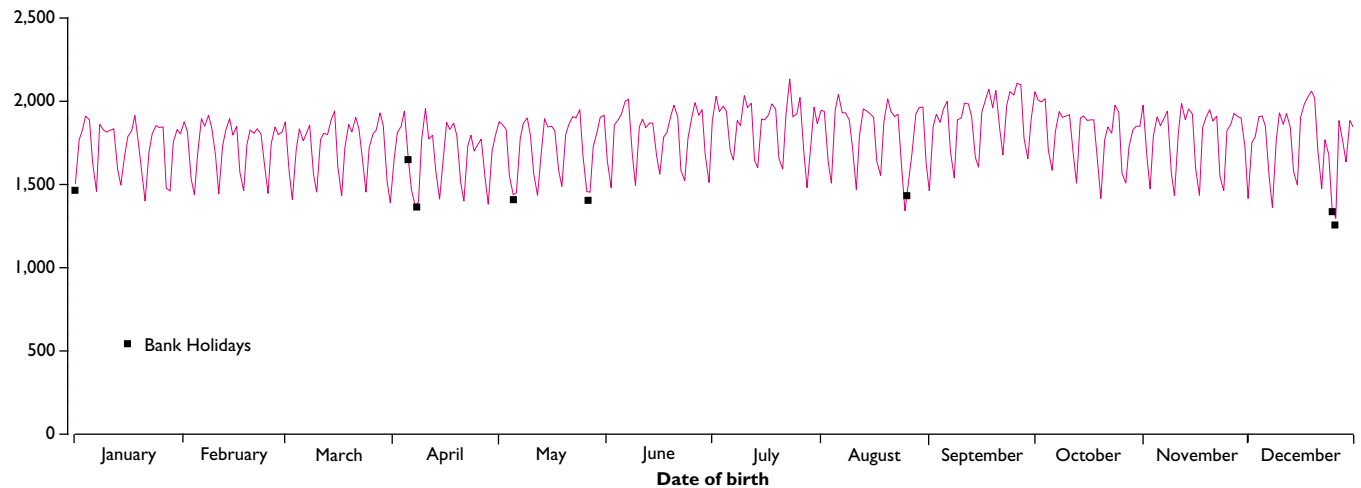


Figure 3 Daily live births, England and Wales, 1996

Number of live births each day



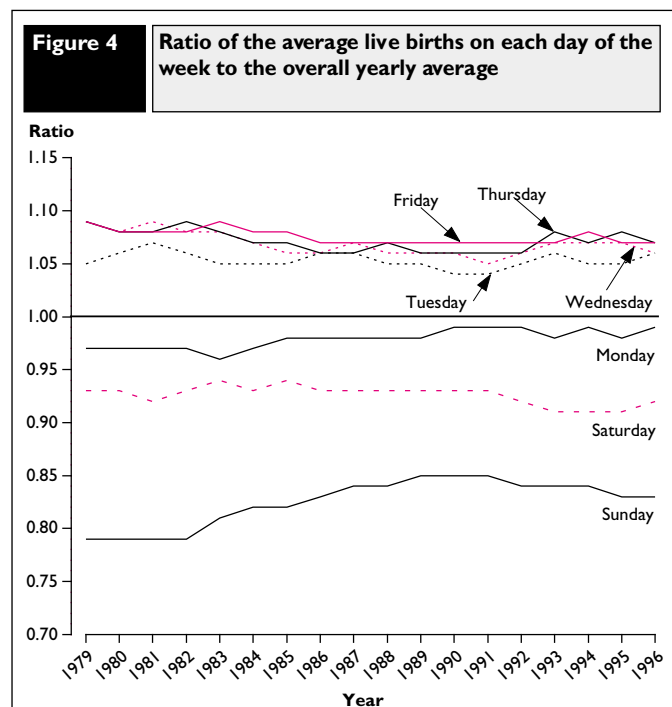
The weekly pattern in live births and the deficit on bank holidays was still present in 1996, and took a similar form to that in 1979, as shown in Figure 3. The variation in the daily rates appeared to be smaller in 1996 than in 1979. Figure 3 also shows higher numbers of live births in the week prior to Christmas, compared with preceding weeks. Similar excesses were also evident in several other years.

The weekly cycle is summarised in Figure 4, which shows the ratio of the average daily live births on each day of the week, to the overall yearly average for the years 1979–96. In each year, the average numbers of live births on Mondays, Saturdays and Sundays were consistently lower than the overall yearly average. The average for Tuesday to Friday was always above the overall yearly average. From 1979 to 1990, the relative difference between the number of live births on Sunday and the overall number of live births decreased. In contrast, from 1991 to 1993, the relative difference between the average births on Saturday and the overall yearly average increased.

Statistical model

The final model chosen for the live births contained factors for the day of the week, month and year and two variables relating to bank holidays, as shown in Table 4. In addition, the two sine wave variables relating to the lunar cycle were included along with the variables for the GDP and unemployment. Three interactions were included, one between bank holidays and days of the week, another between day of the week and year, and the third between month and year. The residual deviance for this model was 11,022, on 6,184 degrees of freedom, a reduction of 92.5 per cent compared with the null deviance. In other words the model explained a large proportion of the original variation in the daily live births.

This analysis confirmed the existence of a seven-day cycle, with fewer births on Sundays, and a concentration of births from Tuesday to Thursday and a slight narrowing of these differences after 1984. There was significant evidence that fewer births tended to occur on bank holidays compared with other days, and also an indication that the days before bank holidays had higher numbers of births compared with other days, though this was not true for all bank holidays. If a bank holiday occurred at the weekend, then the numbers of births were in general even lower than for a bank holiday or a weekend alone, but the decrease



was by less than the sum of respective bank holiday and weekend factors. Only Christmas Day, Boxing Day, or New Year's Day can occur at a weekend.

The analysis also confirmed that there were fewer live births in the winter months than in the summer months, regardless of the year, and that numbers also peaked in September, corresponding to Christmas conceptions. For each year of the series, the monthly maximum for the live births occurred between May and August. Although there was clear seasonality in all of the years, the deviation below the average monthly live births was never more than 10 per cent in any year and the deviation above the mean was never more than 7 per cent. The two methods of analysis indicated that seasonality had remained constant over the period.

Two variables relating to the lunar cycle were also included in the model. As both took the form of sine waves, but each peaked at a different time in the lunar cycle, it is hard to interpret their association with the numbers of live births and it is likely that these are chance findings rather than indicators of a possibly causal association.

STILLBIRTHS AND INFANT DEATHS

Trends

There was an obvious decline in the stillbirth rate over the period from 1979 to 1996, with the steepest decline being between 1979 and 1983, as shown in Figure 5. In 1979, the stillbirth rate was 8.0 per 1000 total births, with a standard deviation of 2.3. By 1996 it had fallen to less than half the average rate for 1979 and was 4.0, with a standard deviation of 1.6.

The early neonatal rate clearly declined during the period from 1986 to 1996, as shown in Figure 6, though not as dramatically as the stillbirth rate. In 1986, the average daily rate per 1,000 live births was 4.3, whereas in 1996 the average daily rate was 3.1, a decrease of approximately 27 per cent. For the period 1986 to 1989 there was significant evidence of a general decline in the early neonatal mortality rate. This appeared to continue from 1990–96, but the decrease was not significant.

The rate of late neonatal deaths, shown in Figure 7, was lower than the early neonatal rate, and there were a number of days of birth for which there were no late neonatal deaths. The analysis detected a decline in the late neonatal rate over the period. By 1996 the average daily late neonatal birth cohort rate was 0.8 with a standard deviation of 0.7, a reduction of 25 per cent on the average rate for 1986.

The clear decline from 1986 to 1995 in the daily birth cohort rate of postneonatal deaths with underlying cause coded as sudden death, cause unknown is shown in Figure 8. In 1995, the average daily rate was 0.52 per 1,000 adjusted live births, with a standard deviation of 1.07. This was 74 per cent lower than the average daily rate for 1986. Among other postneonatal deaths the rate fell over the period from 1986 to 1995, as shown in Figure 9, although this was not as prominent as the decline in the rate of deaths recorded as sudden death, cause unknown. The rate per 1,000 adjusted live births was 2.2 in 1995 with a standard deviation of 1.2, a reduction of 31 per cent on the 1986 rate.

Figure 5 Daily stillbirth rate, England and Wales, 1 January 1979 to 31 December 1996

Daily rate per 1,000 total births

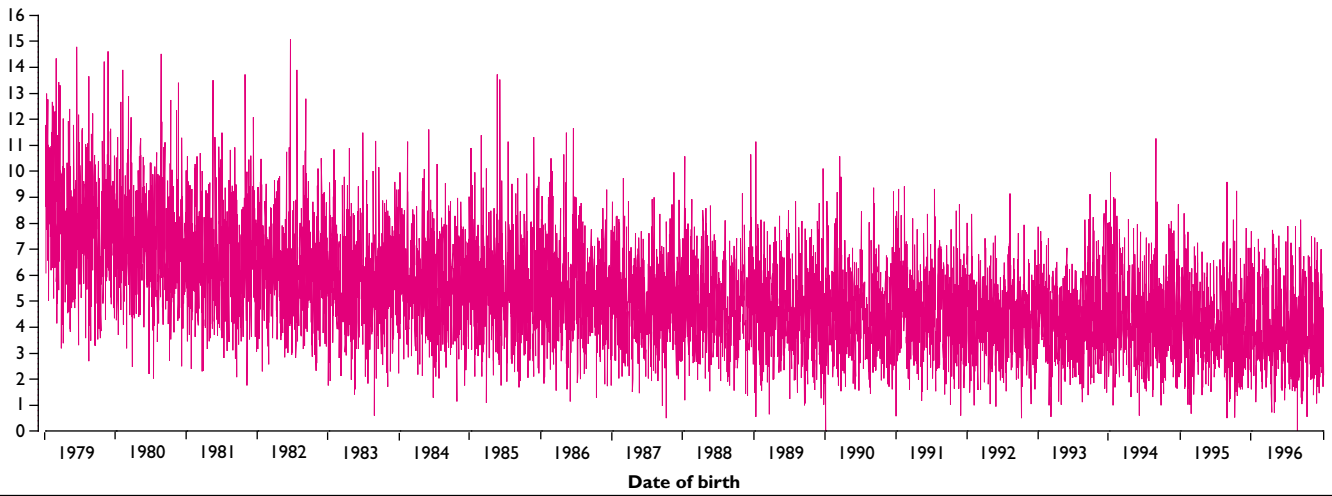


Figure 6 Birth cohort early neonatal death rate, England and Wales, 1 January 1986 to 25 December 1996

Early neonatal rate per 1,000 live births

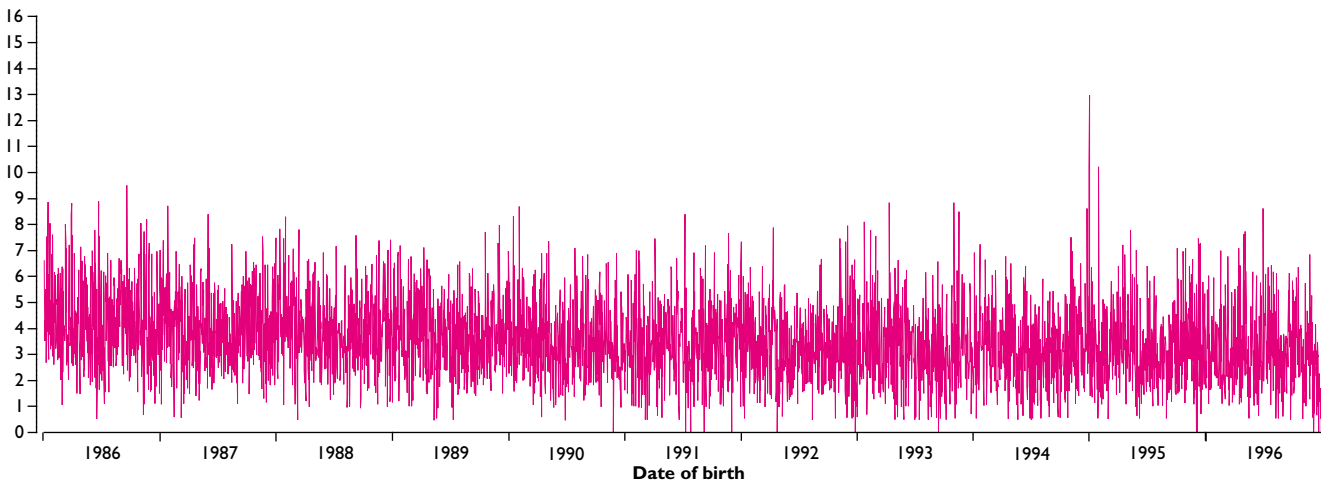


Figure 7 Birth cohort late neonatal mortality rate, England and Wales, 1 January 1986 to 31 November 1996

Late neonatal rate per 1,000 live births

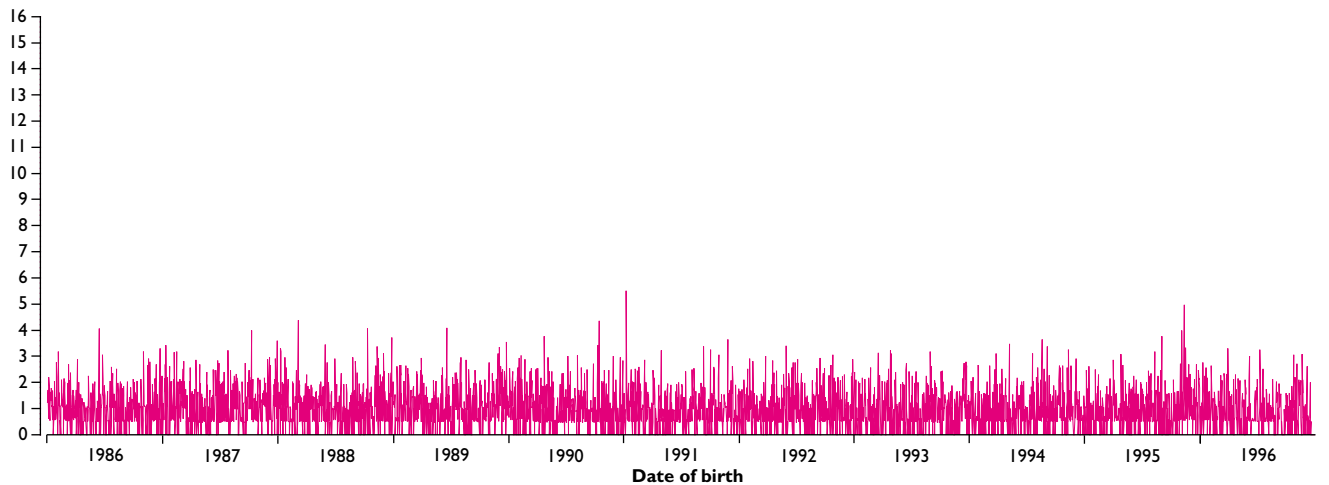


Table 3 Age distribution of early neonatal deaths by day of the week of birth

Day of the week of birth	Estimated length of life, days						
	0	1	2	3	4	5	6
<i>Percentage of the early neonatal deaths among babies born on a given day</i>							
Monday	43.0	21.9	13.1	9.3	5.4	4.2	3.2
Tuesday	43.4	22.1	13.7	8.9	5.1	3.3	3.6
Wednesday	44.6	22.5	13.9	7.1	4.9	3.8	3.2
Thursday	44.3	22.2	12.3	7.7	5.4	4.3	3.5
Friday	45.5	22.1	12.8	8.0	5.0	3.9	2.8
Saturday	46.5	21.9	11.9	7.2	5.0	3.7	3.8
Sunday	47.6	22.0	12.2	7.2	4.8	3.8	2.3
All days	45.0	22.1	12.8	7.9	5.1	3.9	3.2

evidence of above average late neonatal or postneonatal death rates for babies born on bank holidays, except for a very slight indication of a higher postneonatal mortality rate attributed to sudden death, cause unknown among babies born on bank holidays.

Seasonality

No seasonality in the stillbirth rate is visible in Figure 5, possibly because of the width of the variation in the daily rates. Despite this, there was an indication that the stillbirth rate was higher in the winter than in the summer, with the highest rate being in January. Seasonality was also detected in the early neonatal mortality rate, which was higher for babies born in December and January than for babies born in the summer months. This pattern did not diminish over the period studied. In some of the years there was a suggestion of a higher early neonatal mortality rate for babies born in August.

Seasonality was also apparent in the rate of late neonatal deaths. On average the rate was higher for babies born in winter than for those born in summer. This may arise from differences in risks according to the season of death, the season of birth, or a combination of both of

these. If the result were due to the former, rather than the latter, the risk period would be moved forward between 7 days and a month.

Seasonality was apparent in both groups of postneonatal deaths. For deaths attributed to sudden death, cause unknown, the seasonality was not constant over time. From 1986 to 1990 the rate appeared to be highest among babies born in October, and generally higher among babies born between August and December than among those born in the first half of the year. During 1991, the seasonality was masked by the steep decline in the rate. From 1992 to 1995 there was still seasonality in the birth cohort rate, although less marked than in earlier years. The main feature was that the rate appeared to be highest for babies born in August, though not conclusively so.

There was no evidence that the seasonal pattern in the other postneonatal deaths changed over the period studied. It appeared to be higher for babies born in the later months of the year compared to the earlier months. In particular, the rate appears to have been highest for babies born in November and December. There is also a suggestion that it was higher for babies born in August than for those born in the following months.

Table 4 Results of model fitting

Rate	Main effects	Interactions	Null deviance	Residual deviance
Live births	Day of week Month of year Bank holidays Two sine waves for the lunar cycle GDP Unemployment	Bank holidays and day of week Day of the week and year Month and year	147,938 on 6,574 df	11,022 on 6,184 df
Stillbirths	Day of week Month of year Bank holidays other than Christmas and Boxing Day Year of series	-	9,555 on 6,574 df	6,774 on 6,539 df
Early neonatal	Bank holidays Month Day of the week GDP	Day of the week and bank holidays Month and year	4,920 on 4,010 df	4,437 on 3,866 df
Late neonatal	Month GDP Unemployment	-	4,911 on 3,990 df	4,845 on 3,977 df
Postneonatal, sudden death, cause unknown	Month Year	Month and year	6,577 on 3,651 df	4,033 on 3,532 df
Postneonatal, other causes	Day of week Month GDP	-	4,285 on 3,651 df	4,011 on 3,633 df

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Friday	45.5	22.1	12.8	8.0	5.0	3.9	2.8
Saturday	46.5	21.9	11.9	7.2	5.0	3.7	3.8
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Table 5 Summary of results

	Day of week	Bank holidays	Seasonality
Live births	Fewer on Sundays, concentrated from Tuesday to Thursday.	Lower numbers of live births on Bank holidays, least on Boxing Day followed by Christmas Day.	Fewer live births in winter than in summer, peak in September.
Stillbirths	Higher on Saturdays, fewer on Mondays.	Higher stillbirth rate on bank holidays.	Higher for babies born in winter than in summer.
Early neonatal	Higher on Sundays, fewer on Tuesdays.	Higher early neonatal rate on bank holidays.	Higher for babies born in December and January than in summer, indication of higher rate for babies born in August.
Late neonatal	No evidence of a seven day cycle.	No evidence of a higher rate for babies born on bank holidays.	Higher for babies born in winter compared with summer.
Postneonatal, sudden death, cause unknown	No evidence of a seven day cycle.	Slight indication of higher rate for babies born on bank holidays.	From 1986 to 1990 higher for babies born August to December, compared with earlier months. From 1992 to 1995 higher for babies born in August.
Postneonatal, other causes	Higher on Tuesdays, fewer on Saturdays.	No evidence of a higher rate for babies born on bank holidays.	Higher for babies born in later months of year compared with those born in earlier months.

Discussion

It seems unlikely that the weekly cycle in the live births resulted from any weekly pattern of conceptions being carried forward to the time of birth. A more likely explanation is that it and patterns seen on bank holidays reflected obstetric practice. Information about methods of onset of labour and of delivery are not recorded at birth registration, but data from the Maternity Hospital Episode Statistics about births in England in 1994–95 have been analysed by day of week and method of onset of labour.²⁵ This showed particularly marked deficits in births at weekends in elective caesarean sections and births following induced labour. Among elective caesarean sections, only 2.2 per cent occurred on Sundays and 3.0 per cent on Saturdays. Births following induction of labour were least common on Sundays, below average on Mondays and Saturdays and most common on Thursdays and Fridays.²⁵ Analyses of data from the US, from 1989 to 1997 showed that repeat caesareans and induced vaginal births were much more likely to occur on weekdays than at weekends.⁶ The disparity between weekday and weekends for all births increased over the period, despite the general decline in the induction rate.

Analyses of birthweight by day of the week were not included in this study, as some birthweight data were missing before 1983 and from 1989 to 1994.² There were some signs that low birthweight births accounted for a slightly higher proportion of births at weekends compared with weekdays in the early 1980s. This was not the case in the late 1980s and early 1990s.²⁶ It is unlikely, therefore that differences in the incidence of low birthweight accounted for the higher early neonatal rate on Sundays in comparison to other days. This suggests that other factors may have contributed.

Although no seven day cycle was found for the late neonatal deaths, this may be because the numbers of late neonatal deaths were small, or because of the considerable time which had elapsed between birth and death for late neonatal deaths. In the case of postneonatal deaths attributed to causes other than sudden death, cause unknown, some evidence was found of a weekly cycle, despite the even longer time period between birth and death, but the maximum fell on Tuesdays rather than at weekends. This could possibly be an indirect association with the day of the week of death, but as this is mathematically confounded with the day of the week of birth, the day of the week of death, and the length of life, it is impossible to distinguish the key factor in analyses of this type.

During the 1980s and early 1990s the early neonatal death rate was

higher for babies born in December and January, compared with those born in summer. There was also an indication of a higher rate of neonatal deaths for babies born in August compared to preceding and succeeding months. A study which showed a high rate of intrapartum deaths among babies born in Wales in August pointed out that this is the month when junior medical staff take up new posts and suggested that "At these times, junior medical staff may be less well supervised and perinatal services may rely more heavily on locum staff employed to cover annual leave".²⁰ As with day of the week variations, more detailed local studies are needed to investigate this further as the information required is not recorded at birth and death registration.

Previous studies of seasonality have analysed the rate of sudden infant deaths according to the month of death and found considerable variation up to and including the 1980s. Two studies of deaths in England and Wales in the early 1990s attributed to the sudden infant death syndrome reached conflicting conclusions about whether there were seasonal variations after the fall in the cot death rate at the end of the 1980s. Our analyses showed that seasonal differences persisted into the early 1990s, even though their form had altered. Between 1992 and 1995, the rate of deaths attributed to the sudden death, cause unknown was highest for babies born in August, but this is likely to reflect the age distribution of these deaths and increases in risks of death during winter months among babies born in the summer. In order to consider possible reasons for these associations, further analysis and additional data, for example weather data, would be needed. Earlier analyses, using different analytical approaches, found associations between cot deaths and low temperature.^{27,28}

The model suggested an inverse association between both unemployment and GDP at the time of conception and numbers of births. It is unlikely that these associations are causal, as the trends in GDP and unemployment at this period were broad, rather than showing complex patterns. While there was an association between late neonatal deaths and the GDP, there is no way of knowing whether this was causal, or a consequence of changes of other factors. Unexpectedly, perhaps, higher unemployment was associated with a lower rate of late neonatal death, although the association was not very strong and could reflect independent long-term trends in both variables.

The data described in this article relate to a past period from 1979 to 1996. Some of the patterns described were already apparent in the 1970s and are therefore likely to be still present while others indicate a situation which could be changing. Data for years since 1996 should therefore be examined to see if any new patterns have emerged.

CONCLUSIONS

This study showed that the seven day cycle seen in live births during the 1970s persisted in the 1980s and the early 1990s. The form of this cycle altered marginally over the period 1979–1996, with a slight reduction in the difference between the average daily births on Sundays and weekdays after 1984 compared with before. The deficit in births on bank holidays in the 1970s was still evident during the 1980s and early 1990s. In addition, there appeared to be higher than average numbers of live births on the days immediately before bank holidays. The numbers of live births also showed a seasonal pattern, with fewer births in the winter compared to the summer and a separate peak in September.

The stillbirth, early, late neonatal and postneonatal mortality rates all declined during the period considered. For the stillbirth rate, the period of steepest decline was between 1979 and 1993.

There was evidence of a seven day cycle in the stillbirth rate. In general the rate was lowest on Mondays and highest on Saturdays. The early neonatal death rate was highest for babies born on Sunday compared to other days of the week. For late neonatal deaths and for postneonatal deaths with underlying cause coded as sudden death, cause unknown, there was no association between death rates and days of the week of birth. There was a weak association between the day of the week of birth and the postneonatal rate for causes other than sudden death, cause unknown.

Stillbirth rates were relatively high on bank holidays during the years 1979–1996. There was also weak evidence that early neonatal rates were higher for babies born on bank holidays than for babies born on other days. There was also an indication that early neonatal mortality rates were higher among babies born in August, compared with other months. If these patterns are still apparent in more recent data, further research is needed to investigate possible explanations.

Over the period from 1979 to 1996, the stillbirth rate was higher in January and lowest in September, but there was no evidence to suggest that the form of the seasonal variation had changed over time. During the late 1980s and early 1990s, the early neonatal death rate was higher for babies born in December and January than for those born in summer. There was also a seasonal pattern in the late neonatal mortality rate between 1986 and 1996, with a higher rate for babies born during winter compared to summer months.

Postneonatal mortality attributed to sudden death, cause unknown showed evidence of seasonality throughout the whole period 1986–1995. During the earlier half of the series there was evidence of a higher rate for babies born between August and December, with the rate being highest for those born in October. During the latter half of the period the form of seasonality altered and from 1992 to 1995 the rate was highest for babies born in August. There were also seasonal patterns in postneonatal deaths attributed to other causes, with a higher rate in November and December than in other months.

ACKNOWLEDGEMENTS

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Key findings

- The seven day cycle in live births found in the 1970s, with fewer births on Sundays and a concentration of births from Tuesday to Thursday, persisted during the years 1979 to 1996. The relative difference between numbers of live births on Sundays and the overall daily average narrowed between 1979 and 1990. The stillbirth rate followed a seven day cycle over the whole period, being generally lower on Mondays and highest on Saturdays. It was also relatively high on bank holidays.
- Over the years 1986–96, early neonatal mortality rates were higher for babies born at the weekends compared with those born on Mondays, Tuesdays and Wednesdays.
- Fewer live births took place in the winter months than in the summer months over the period 1979 to 1996, and numbers of live births in late September.
- Seasonal variation was found in the stillbirth rate and in death rates at all stages of the first year of life. Stillbirth rates and late neonatal mortality rates were, in general, higher in the winter months, and early neonatal mortality rates were high for babies born in December and January compared with babies born in summer months.
- Patterns of seasonality in postneonatal deaths attributed to sudden death, cause unknown changed between 1986 and 1995. From 1986 to 1990 the rate appeared to be higher for babies born between August and December and highest for babies born in October compared with the first half of the year. From 1992 to 1995, after a drop in overall mortality, seasonal variation was still apparent in the rate, which was highest for babies born in August.
- There was also seasonal variation between 1986 and 1995 in other postneonatal deaths, with a higher rate for babies born in November and December compared with those born in the earlier months of the year.

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Geographic Inequalities in Life Expectancy in the United Kingdom, 1995–97

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This article examines geographic inequalities in life expectancy by country, region and local authority within the United Kingdom in 1995–97. It begins with an overview of inequalities between countries and government office regions of England and then examines variations between local authorities across the United Kingdom. The article follows on from that published in *Health Statistics Quarterly 07*,¹ examining geographic variations in mortality. It expands on the approach taken in that article and compares local authorities with the United Kingdom at different time periods and also compares the life expectancy in local authorities within England with their ranks on the employment and income domains of the Department of the Environment, Transport and the Regions Indices of Deprivation 2000.

INTRODUCTION

This article examines geographic variation in life expectancy between 1995 and 1997. In our previous article we examined directly age-standardised mortality rates. Life expectancy was chosen for this article as it is a summary measure of mortality at every age that allows comparisons to be made between areas and time periods without the need to assume a particular standard population. Life expectancy in an area can be interpreted simply as the number of years a baby born in a particular period could be expected to live, if it experienced the mortality rates in that time period and area throughout its life. The Government Actuary's Department routinely calculates life expectancy at a national level, and so life expectancy by local authority can easily be compared to life expectancy in the United Kingdom as a whole at different points in time.

Our previous article¹ showed Wales, Scotland and Northern Ireland to have higher mortality than England, for most age groups and confirmed findings from other studies of a north-south divide in mortality rates within England. High mortality rates within the north of England tended to be concentrated in particular local authorities, often alongside authorities with low mortality rates. Authorities with high mortality rates also tended to be located in urban and industrial areas and had characteristics indicating low socio-economic status. This work is presented in more detail, particularly by cause of death, in the forthcoming Decennial Supplement on geography and health.

Clear inequalities in life expectancy have been found in analyses of expectation of life for different Social Classes in 1987–1991² and also in 1992–1996.³ Geographic variation in mortality has been documented since 1837,⁴ and death rates by area first calculated using Census populations for the 1841 Census.⁵ Geographic variation has also been

described in more recent Decennial Supplements on mortality and geography^{6,7} and a number of separate studies have examined life expectancy by different types of geographical area. Charlton⁸ identified large variations between different types of local authority, classified using the ONS classification of authorities.⁹ His analysis confirmed that people living in rural and prosperous areas tended to have the highest life expectancy and those in urban, inner city areas the lowest life expectancy. The better off areas were also those which had experienced the greatest health gains between 1981 and 1992. Raleigh and Kiri¹⁰ also found that it was areas that were the healthiest and most prosperous that had experienced the largest health gains up to 1994. Negligible gains in life expectancy were found in the most deprived areas.

Deprivation has also been shown by other studies to play a major part in determining geographical patterns of mortality,^{11,12} although the combination of factors at work makes causes of this geographic variation difficult to ascertain. One suggestion has been that differential lifetime exposure to health damaging or health promoting physical and social environments is the main explanation, although health-related social mobility, health-related behaviour, use of health services and biological factors may also contribute.¹³ A recent study examining the effect of lifetime exposure to risk on male mortality outcomes suggested that certain causes of death are related to socio-economic deprivation in childhood only (e.g. stroke), others to childhood deprivation plus adult circumstances (e.g. coronary heart disease) and others simply to social circumstances and risk behaviour in adulthood (e.g. lung cancer).¹⁴ In this article we use the income and employment ranks of the Department of the Environment, Transport and the Regions (DETR) Indices of Deprivation 2000¹⁵ to examine the relationship between deprivation and life expectancy at the local authority level within England. These measures were chosen as they are readily available at the local authority level and contain more up-to-date information than those measures based on the 1991 Census.

METHODS AND DATA

Abridged life tables were constructed for each country, region and local authority using standard methods.^{16,17} In this analysis deaths and population data were combined for the years 1995–1997 in order to give large enough numbers to give more robust figures at local authority level. Two local authorities, the Isles of Scilly and City of London, have been excluded from the analysis, as there are too few deaths there in a three-year period to make analysis meaningful.

Data for England and Wales at country, regional and local authority level refer to residents of these countries only. Data for Scotland and Northern Ireland at country level include deaths to non-residents. Data for local authorities in Northern Ireland also include approximately 90 deaths per year to non-residents. Deaths to non-residents in Northern Ireland are allocated to the district of occurrence. These deaths to non-residents have been removed from the data for Scotland at local authority level. Data are presented for local authorities as they existed at April 1999.

The DETR Indices of Deprivation 2000¹⁵ have been used to look at deprivation characteristics of areas at a broad level for local authorities within England. The new indices are based on six domains of deprivation – income; employment; health deprivation and disability; education, skills and training; housing and geographical access to services. The index of multiple deprivation derived from these uses up-to-date information from 33 indicators to describe deprivation at ward level. At local authority level the individual ranks from the income and employment domains are available separately and also indices which use all six domains together – these have not been used in this article because they contain detail from the health domain, which used comparative mortality ratios as one of its measures of deprivation.

Figure 1 Life expectancy at birth by country of the United Kingdom and region of England, 1995–97

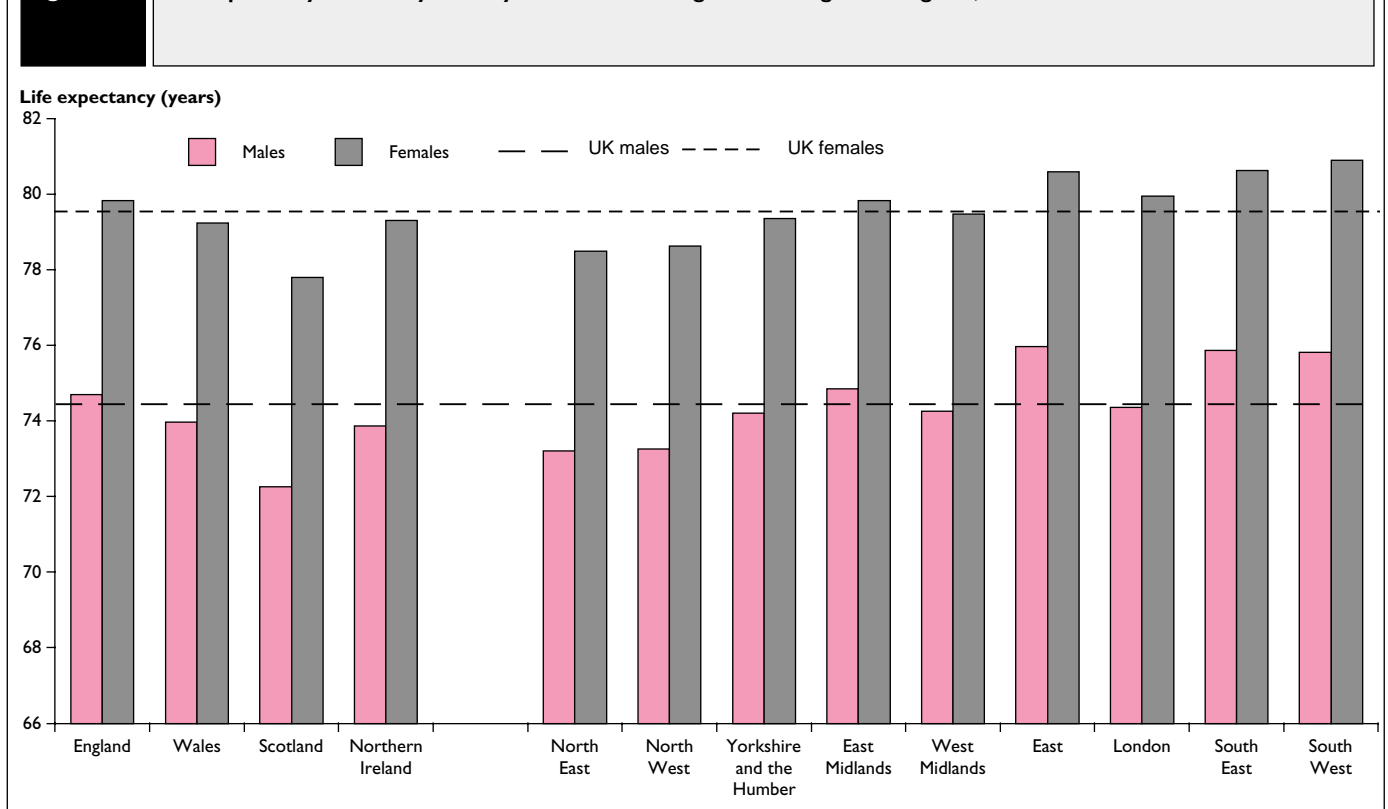
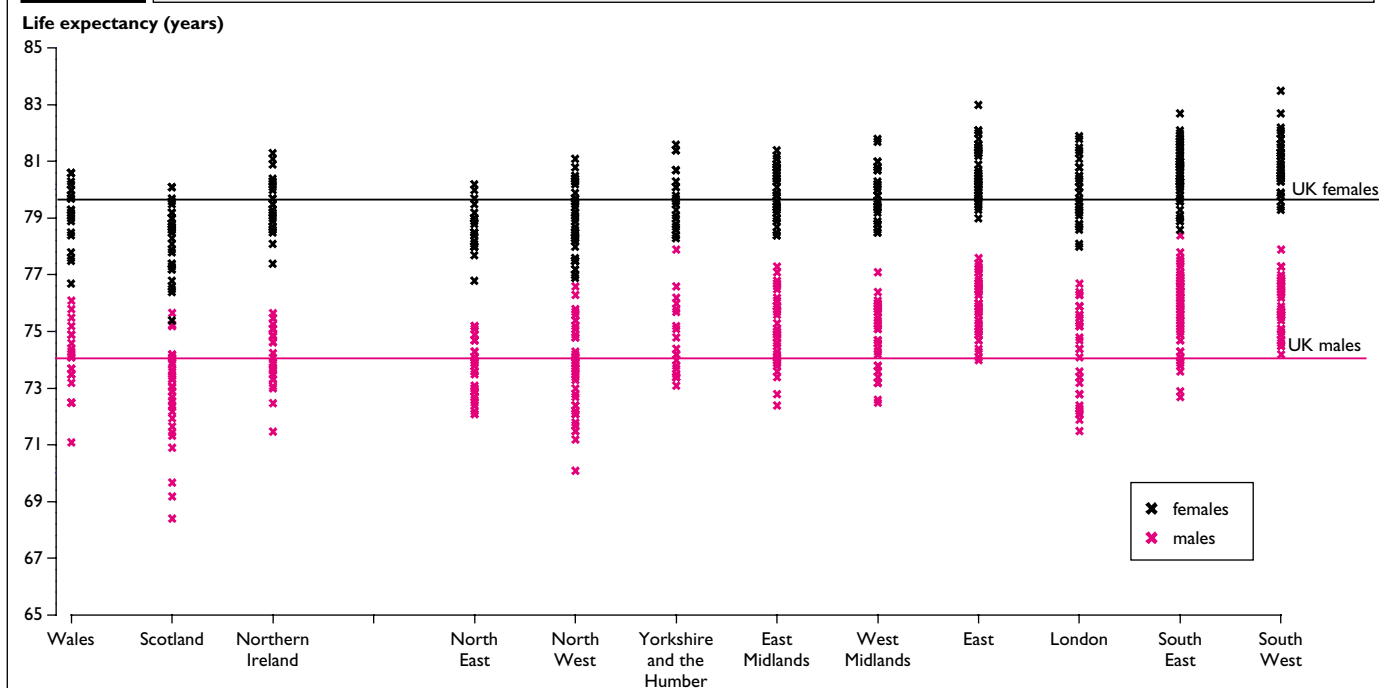


Figure 2 Life expectancy at birth by local authority within countries of the United Kingdom and regions of England 1995–97



In this article we examine the relationship between life expectancy and the income and employment rankings of local authorities. The income domain measures people who are on a low income. The indicators used in the income deprivation score are made up of non-overlapping counts of people in families in receipt of means-tested benefits, including income support, job-seekers allowance and other benefits. The employment domain measures those who are ‘employment deprived’, i.e. who want to work but are unable to do so through unemployment, sickness or disability, so measuring involuntary exclusion from the world of work. The indicators used in the employment domain are claimant count unemployment, people aged 18–24 on the New Deal, people out of work receiving TEC-delivered government supported training and people in receipt of Incapacity Benefit and Severe Disablement allowance. Local authorities are ranked according to their scores on this scale, with increasing rank on the scales being equivalent to decreasing deprivation.

INEQUALITIES BETWEEN COUNTRIES OF THE UNITED KINGDOM AND REGIONS OF ENGLAND

Life expectancy in the United Kingdom between 1995 and 1997 was 74.4 years for males and 79.6 years for females so that, on average, females were expected to live over 5 years longer than males. The country and regional pattern was similar for males and females (Figure 1). Life expectancy in Wales, Scotland and Northern Ireland was lower than in the United Kingdom as a whole, with Scotland having the lowest life expectancy (72.3 years for males and 77.8 years for females). England had the highest life expectancy of the countries of the United Kingdom (74.7 years for males and 79.8 years for females). The difference between life expectancy in Scotland and England was therefore greater for males than for females, 2.4 years and 2 years respectively.

At a regional level, in general there was a clear north-south divide with the regions of the north having lower life expectancy and the regions of the south having higher life expectancy than seen in the United Kingdom as a whole (Figure 1). The region with the highest life expectancy was the East of England for males (76.0 years) and the

South West for females (80.9 years). The region with the lowest life expectancy was the North East (73.2 years for males and 78.5 years for females). Again, the differential between highest and lowest was greater for males than for females.

INEQUALITIES BETWEEN LOCAL AUTHORITIES WITHIN THE UNITED KINGDOM

Figure 2 shows that within these countries and regions life expectancy by local authority varied widely. For males, Scotland, London and the North West had the widest variation in expectation of life at birth. This amounted to just under 8 years between the authorities with the highest and the authorities with the lowest life expectancy. Variation in life expectancy between the authorities with the highest and lowest life expectancies within countries and regions was less marked for females than for males. Scotland had the most variation in expectation of life at birth for females, about 5 years between the authorities with the highest and lowest life expectancies.

Figure 2 also shows that there was overlap between the life expectancies for males in the authorities with the highest life expectancies and females in the authorities with the lowest. However, with the exception of Scotland, this did not occur in the same country or region. Some authorities in the northern parts of England had life expectancies for females that were equivalent to life expectancies for males in authorities in the southern parts of England, for example female life expectancy in Barnsley was 78.3 years, compared to 78.4 years for males in Chiltern. In Scotland, life expectancy for females in Glasgow City was lower than life expectancy for males in East Renfrewshire.

Within the United Kingdom as a whole, variation in life expectancy by local authority was substantial. For males, there was a differential of 10.0 years between the highest and lowest life expectancies, 78.4 years in Chiltern to 68.4 years in Glasgow City. This is a comparable difference to the difference in life expectancy between men in Social Class I and men in Social Class V, which in 1992–96 was 9.5 years.³

Box one

GUIDE TO THE MAPS

Maps have been used to present the local authority data. Authorities have been grouped in terms of their life expectancy in years compared to the United Kingdom average and shading is green for low life expectancy, with dark green representing areas with particularly low life expectancies, white for average life expectancy and grey for high life expectancy, with dark grey representing areas with particularly high life expectancy.

Map 1 shows that within England, areas with low life expectancy were found in the North West and the North East. Inner London also had lower life expectancies than the United Kingdom, which is not consistent with the north-south divide pattern described for regions. South Wales and parts of Scotland also had low life expectancy. Areas with the highest life expectancy were mainly located in south and central England, along with more rural authorities in the north of England (Map 1). Although the methods used to produce the maps in this article are different to those used in our previous article, the pattern seen is very similar.¹

The pattern for females was similar (Map 2). East Dorset had the highest expectation of life at birth (83.5 years) and Glasgow City the lowest (75.4 years), a differential of 8.1 years, which is greater than the difference between females in Social Classes I and V (6.4 years in 1992–96).³

A full list of life expectancies for both males and females by country, region and local authority can be found in Annex 1.

This level of inequality means that in some local authorities life expectancy had not yet reached the average level for the United Kingdom as a whole 10 years earlier (in 1986), i.e. 71.9 years for males and 77.7 years for females.¹⁸ Table 1 shows these authorities and gives their life expectancy in 1995–97. All the authorities shown in this table are in Wales, Scotland or the north of England, with the exception of Newham and Tower Hamlets for males. Life expectancy for Glasgow City in 1995–97 was 3.5 years less than the 1986 United Kingdom figure for males and 2.3 years less than the figure for females.

Figure 3 shows life expectancies by local authority for males and females plotted in order of increasing life expectancy. These levels are then compared to life expectancies experienced in the United Kingdom as a whole over the past 35 years. Glasgow City had a life expectancy in 1995–97 that was lower than that experienced in the United Kingdom as a whole in 1966 for males. For females its life expectancy was similar to the 1976 United Kingdom figure. Inverclyde’s life expectancy for males was lower than the 1976 figure for the United Kingdom and West Dunbartonshire had a life expectancy similar to this. Manchester stands out within England as having life expectancy for males approaching the 1976 figure for the United Kingdom.

Figures 4 and 5 show a comparison of life expectancy in local authorities within England with their ranks on the income and employment domains of the DETR Indices of Deprivation 2000. The sizes of local authorities are denoted by the width of the bubbles on the figures and the regression lines shown are weighted to take into account the different sizes of local authorities. The results for both the income

Table 1 Local authorities with life expectancies at birth in 1995–97 at or below the United Kingdom figure 10 years earlier (1986*)

Males		Females	
LA name	Life expectancy	LA name	Life expectancy
Glasgow City	68.4	Glasgow City	75.4
Inverclyde	69.2	North Lanarkshire	76.4
West Dunbartonshire	69.7	Inverclyde	76.5
Manchester	70.1	West Dunbartonshire	76.6
Eilean Siar	70.9	Merthyr Tydfil	76.7
Merthyr Tydfil	71.1	Easington	76.8
Liverpool	71.2	West Lothian	76.8
North Lanarkshire	71.3	Manchester	76.9
Dundee City	71.4	Liverpool	77.0
Tower Hamlets	71.5	Halton	77.0
Blackburn with Darwen	71.5	Hyndburn	77.2
Knowsley	71.5	South Lanarkshire	77.2
Renfrewshire	71.7	Knowsley	77.2
Salford	71.7	Midlothian	77.2
Blackpool	71.8	Renfrewshire	77.3
Newham	71.9	East Ayrshire	77.4
		Dundee City	77.4
		Salford	77.5
		Blaenau Gwent	77.5
		Blackpool	77.5
		Burnley	77.5
		Rochdale	77.5
		Blackburn with Darwen	77.6
		Caerphilly	77.6
		Blyth Valley	77.7

* 71.9 years for males and 77.7 years for females.

and employment domains were similar. Both showed a broad trend of increasing life expectancy with decreasing deprivation at the area level.

Table 2 shows the correlation between life expectancy and the income and employment ranks at local authority level, weighted for the population size of the authority, for both males and females. The correlation was highly significant for both measures, for both males and females, although for both measures the correlation was stronger for males. The employment rank showed a slightly stronger correlation with life expectancy than the income rank.

Table 2 Correlation* between the Income and Employment ranks on the Indices of Deprivation 2000 and life expectancy by local authority, England

Income		Employment	
Males	0.7073†	Males	0.7335†
Females	0.6003†	Females	0.6293†

* Weighted for population size.

† p<0.00001.

DISCUSSION

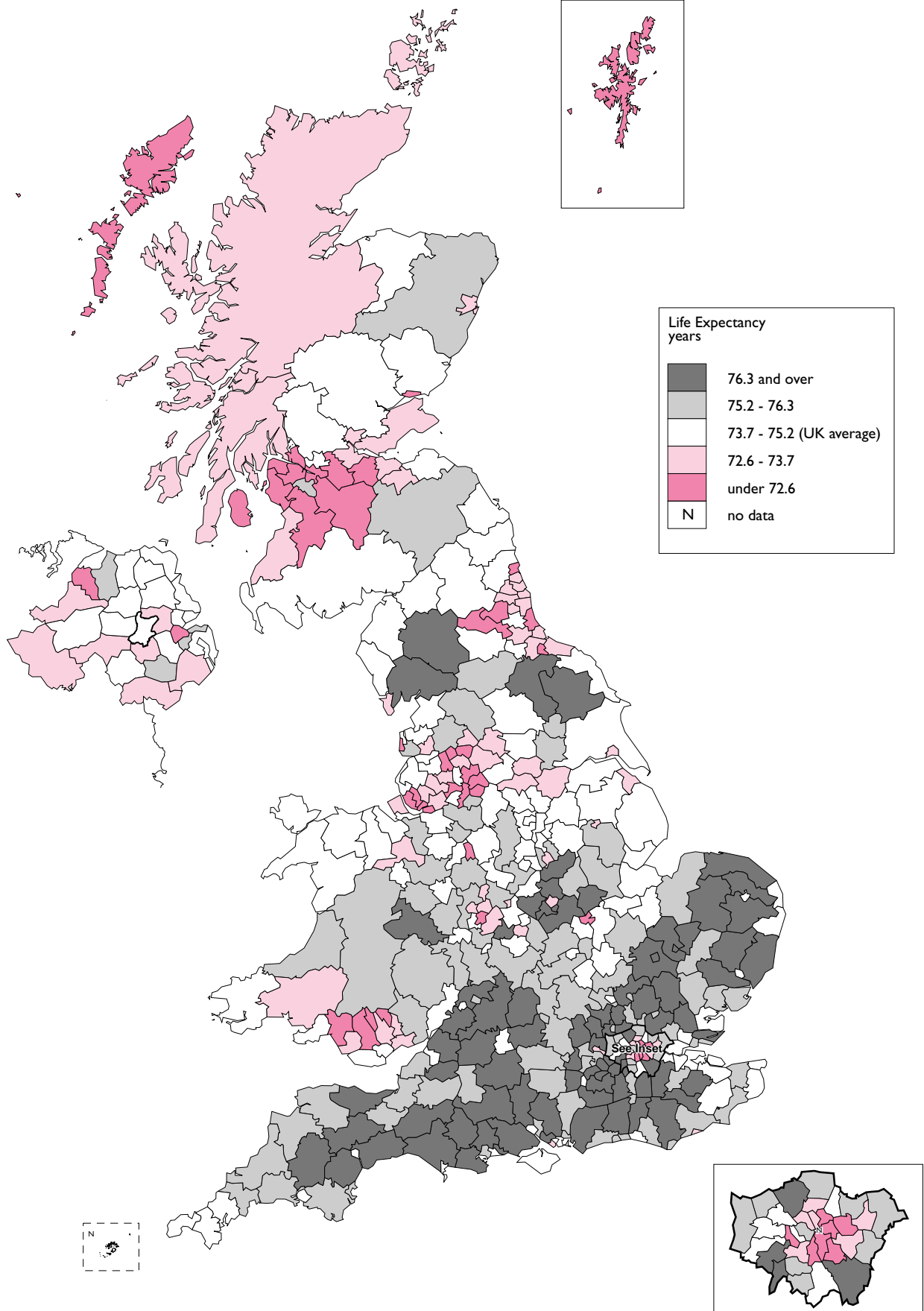
Clear geographic variation in expectation of life is apparent at each geographical level discussed in this article. Life expectancy in Scotland was markedly lower than life expectancy in England, for both males and females, and the regions in the north of England had lower life expectancy than those in the south.

This is not the whole picture, as the country and regional level of analysis masks variations found at the local authority level. Within England the North East stood out as having the lowest life expectancy at regional level, but it was within the North West that local authorities with particularly low life expectancy were found.

Although there was a north-south divide in life expectancy at regional level within England, there were local authorities in the north of

Map 1

Male Life Expectancy at birth by Local Authority, United Kingdom, 1995-97



Map 2

Female Life Expectancy at birth by Local Authority, United Kingdom, 1995-97

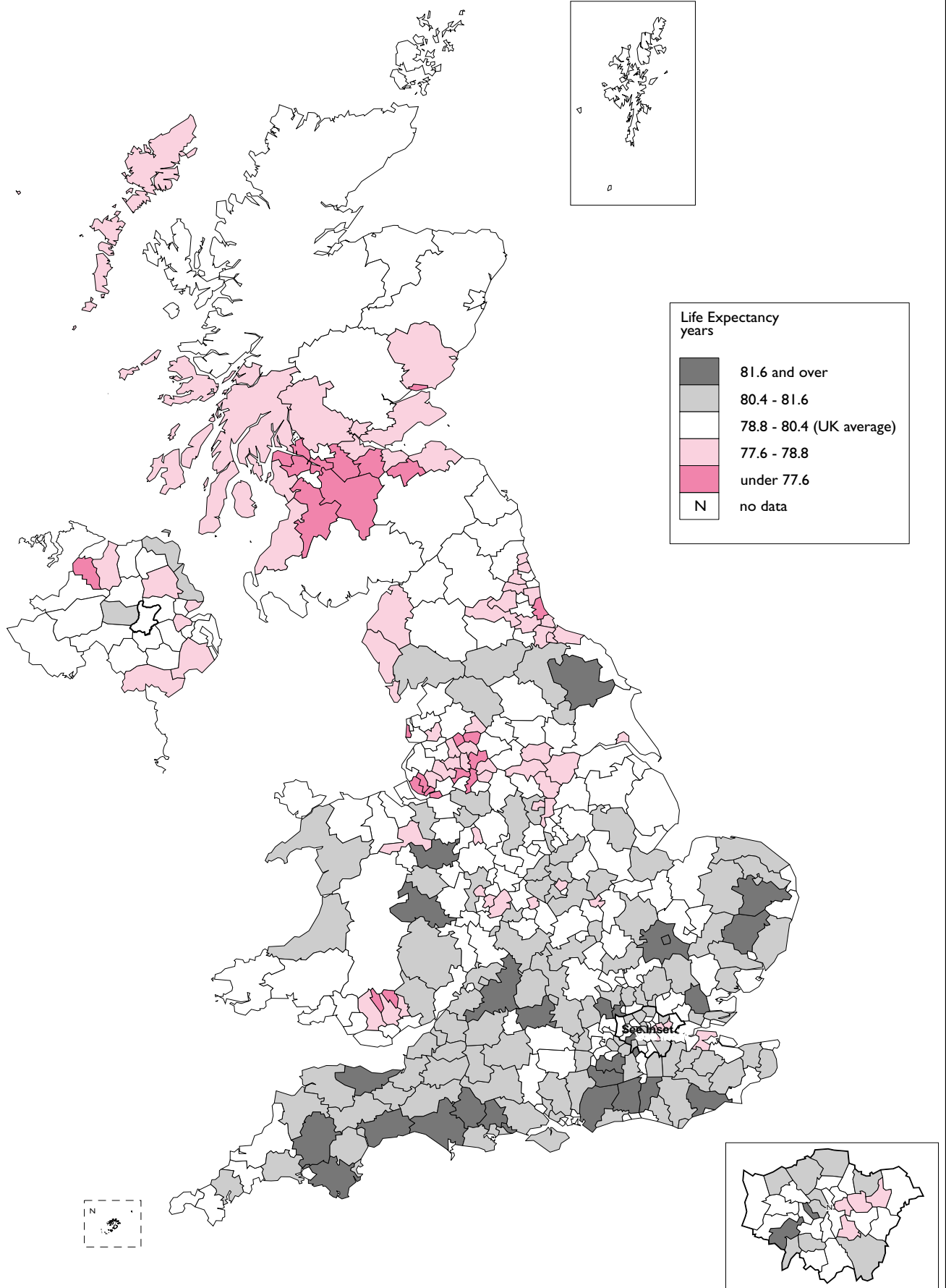
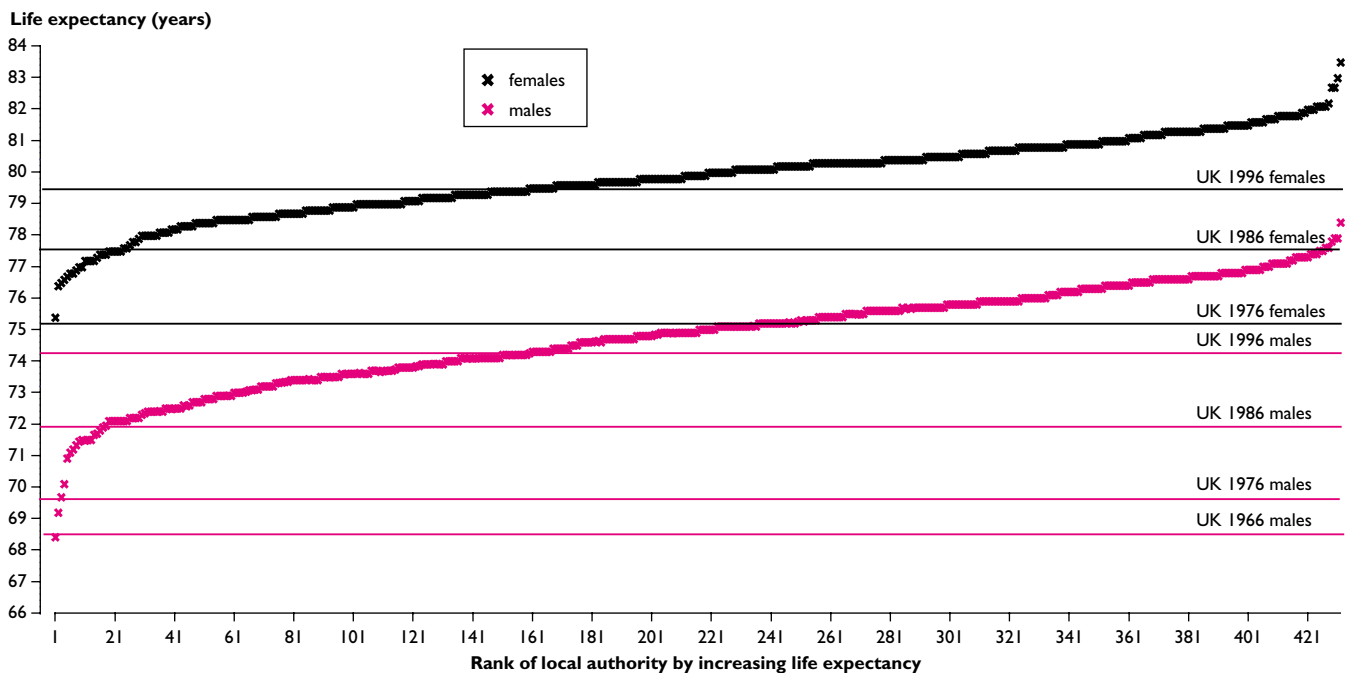


Figure 3 Life expectancy by local authority, United Kingdom 1995–97 compared to the United Kingdom figure in earlier years



England with very good life expectancy, for example Ryedale in the north Yorkshire area, which had the second highest life expectancy for males at 77.9 years. However, outside London, there were no local authorities in the south of England with very low life expectancies at birth.

A substantial number of local authorities had life expectancies below the figure for 10 years previously in the United Kingdom as a whole. Life expectancy for males and females was lowest in Glasgow City. For males it was lower than the United Kingdom figure for 1966 and for females it was similar to the 1976 United Kingdom figure.

Using the DETR Indices of Deprivation 2000, deprivation at the area level within England appeared to be associated with life expectancy, with life expectancy decreasing with increasing deprivation. Both measures of deprivation were highly correlated with life expectancy, and the correlation was slightly stronger for the employment measure. The strength of correlation was greater for males than for females for both measures.

Presenting life expectancy for administrative areas does have two limitations. First, local authorities vary substantially in size and so variation within large authorities like Manchester and Birmingham cannot be examined at this level of analysis. In contrast, parliamentary constituencies are intended to contain broadly similar numbers of people, and analysis at this level has shown variation in mortality within large local authorities.¹⁹ Second, there are known to be substantial variation in mortality at small area level within most local authorities that is not captured by authority level analysis, for example at ward level.²⁰

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Key findings

- Scotland had the lowest life expectancy of the countries of the United Kingdom and England had the highest. Within England, the southern regions had higher life expectancies than the northern regions.
- There was wide variation at local authority level within the United Kingdom as a whole and also within countries and regions. More variation in life expectancy was seen within regions than between regions but the largest differences were seen between local authorities located in the north and those located in the south.
- There was a 10.0 year difference between male life expectancy in Glasgow City and Chiltern and an 8.1 year difference between female life expectancy in Glasgow City and East Dorset. The difference between the life expectancy of females born in East Dorset and males born in Glasgow City was over 15 years.
- Life expectancy was still below the 1986 United Kingdom level in 16 local authorities for males and 25 authorities for females. Of these, only Newham and Tower Hamlets are outside Scotland, Wales and the northern regions of England.
- Life expectancy in Glasgow City was lower than in 1966 for males and around the same as that in 1976 for females in the United Kingdom as a whole.
- Comparisons with the DETR Indices of Deprivation 2000 showed that within England decreasing life expectancy was associated with increasing deprivation. This association was stronger for males than for females.

Figure 4

Life expectancy against rank of deprivation using income rank from the DETR Indices of Deprivation 2000, England, 1995-97

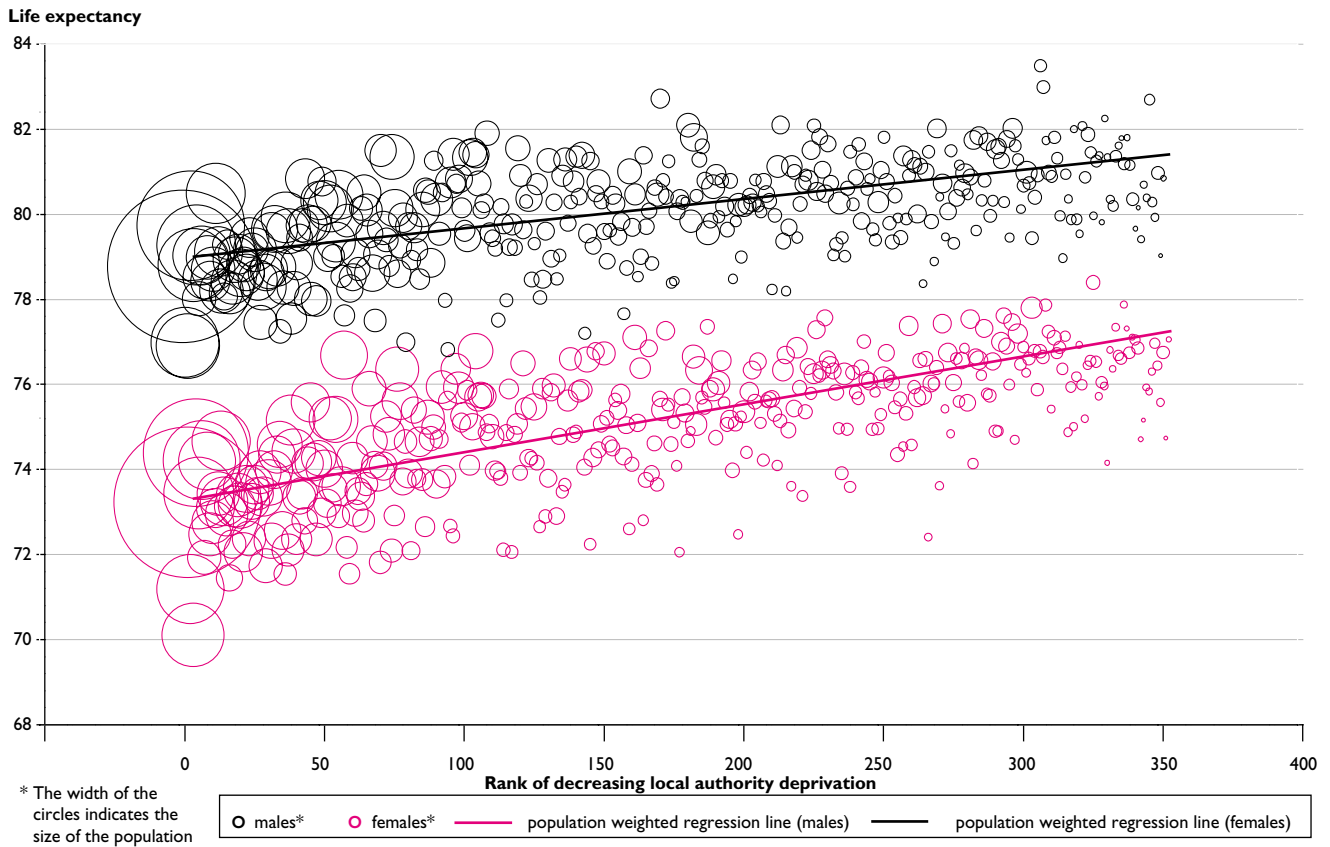
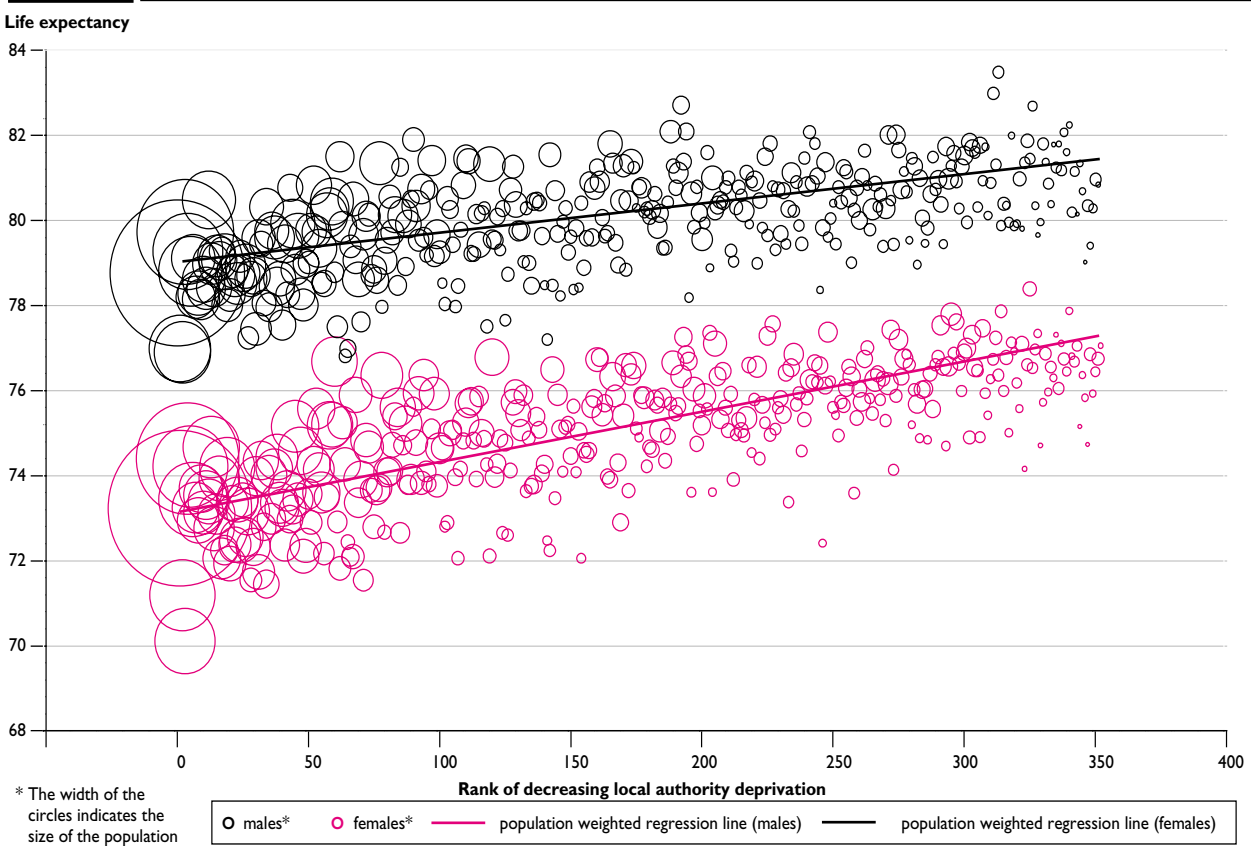


Figure 5

Life expectancy against rank of deprivation using employment rank from the DETR Indices of Deprivation 2000, England, 1995-97



Annex I Life expectancy at birth for the United Kingdom, by country, Government Office Region within England, and local authority, 1995-97

	Males	Females		Males	Females
UNITED KINGDOM	74.4	79.6			
ENGLAND	74.7	79.8			
NORTH EAST	73.2	78.5			
Darlington UA	73.9	79.2			
Hartlepool UA	72.7	78.0			
Middlesbrough UA	72.2	78.5			
Redcar and Cleveland UA	72.9	78.8			
Stockton-on-Tees UA	73.5	78.5			
Durham					
Chester-le-Street	73.6	78.9			
Derwentside	72.1	78.0			
Durham	75.1	80.0			
Easington	72.4	76.8			
Sedgefield	72.9	78.0			
Teesdale	74.7	79.0			
Wear Valley	72.1	78.4			
Northumberland					
Alnwick	74.7	79.7			
Berwick-upon-Tweed	75.2	80.2			
Blyth Valley	72.6	77.7			
Castle Morpeth	75.2	79.5			
Tynedale	74.9	79.0			
Wansbeck	72.5	78.5			
Tyne and Wear					
Gateshead	73.0	78.0			
Newcastle-upon-Tyne	73.1	78.1			
North Tyneside	73.6	79.0			
South Tyneside	72.9	79.0			
Sunderland	73.0	78.2			
NORTHWEST	73.3	78.6			
Blackburn with Darwen UA	71.5	77.6			
Blackpool UA	71.8	77.5			
Halton UA	72.1	77.0			
Warrington UA	73.7	78.9			
Cheshire					
Chester	75.4	80.4			
Congleton	75.7	80.8			
Crewe and Nantwich	74.3	79.5			
Ellesmere Port and Neston	74.2	80.2			
Macclesfield	75.4	80.5			
Vale Royal	75.1	79.7			
Cumbria					
Allerdale	74.1	78.7			
Barrow-in-Furness	72.8	78.5			
Carlisle	73.8	79.0			
Copeland	74.1	78.2			
Eden	76.3	80.4			
South Lakeland	76.6	81.1			
Greater Manchester					
Bolton	73.4	78.4			
Bury	73.7	78.6			
Manchester	70.1	76.9			
Oldham	72.1	78.3			
Rochdale	72.4	77.5			
Salford	71.7	77.5			
Stockport	75.2	80.3			
Tameside	72.4	78.0			
Trafford	74.8	79.7			
Wigan	73.7	78.3			
Lancashire					
Burnley	72.1	77.5			
Chorley	74.0	79.6			
Fylde	75.8	80.3			
Hyndburn	72.2	77.2			
Lancaster	74.1	79.6			
			Pendle	73.5	78.5
			Preston	72.7	78.5
			Ribble Valley	75.6	79.9
			Rossendale	73.6	78.2
			South Ribble	74.9	79.4
			West Lancashire	74.8	79.2
			Wyre	73.9	79.7
			Merseyside		
			Knowsley	71.5	77.2
			Liverpool	71.2	77.0
			St. Helens	73.0	78.3
			Sefton	73.9	79.2
			Wirral	73.3	79.1
			YORKSHIRE AND THE HUMBER	74.2	79.3
			East Riding of Yorkshire UA	75.2	80.1
			Kingston upon Hull, City of UA	73.1	78.4
			North East Lincolnshire UA	73.7	80.1
			North Lincolnshire UA	73.8	79.5
			York UA	75.7	81.4
			North Yorkshire		
			Craven	76.0	81.4
			Hambleton	76.6	80.7
			Harrogate	75.1	79.8
			Richmondshire	75.8	80.7
			Ryedale	77.9	81.6
			Scarborough	74.8	80.3
			Selby	76.2	79.6
			South Yorkshire		
			Barnsley	73.4	78.3
			Doncaster	73.4	78.4
			Rotherham	74.0	78.7
			Sheffield	74.2	79.3
			West Yorkshire		
			Bradford	73.4	78.8
			Calderdale	73.4	79.1
			Kirklees	74.2	79.0
			Leeds	74.4	79.7
			Wakefield	73.5	78.6
			EAST MIDLANDS	74.8	79.8
			Derby UA	74.3	79.8
			Leicester UA	73.4	78.7
			Nottingham UA	72.8	79.0
			Rutland UA	77.1	80.8
			Derbyshire		
			Amber Valley	75.0	79.8
			Bolsover	74.1	78.4
			Chesterfield	74.2	78.5
			Derbyshire Dales	75.9	80.9
			Erewash	74.6	79.6
			High Peak	73.9	79.3
			North East Derbyshire	74.6	80.4
			South Derbyshire	75.6	79.3
			Leicestershire		
			Blaby	76.8	80.7
			Charnwood	76.7	80.8
			Harborough	76.5	81.4
			Hinckley and Bosworth	76.6	81.1
			Melton	75.9	79.4
			North West Leicestershire	74.9	80.6
			Oadby and Wigston	77.3	80.3
			Lincolnshire		
			Boston	74.8	79.5
			East Lindsey	75.1	80.3
			Lincoln	73.6	79.0
			North Kesteven	75.9	80.9
			South Holland	74.1	80.5

Annex I Life expectancy at birth for the United Kingdom, by country, Government Office Region within England, and local authority, 1995-97

	Males	Females		Males	Females	
South Kesteven	75.3	80.4	Cambridgeshire	Cambridge	76.7	82.1
West Lindsey	75.0	79.0		East Cambridgeshire	77.1	80.0
Northamptonshire			Fenland	74.4	79.0	
Corby	72.4	78.4	Huntingdonshire	76.0	80.6	
Daventry	76.2	79.9	South Cambridgeshire	77.2	82.0	
East Northamptonshire	74.9	80.3	Essex			
Kettering	74.9	79.4	Basildon	75.0	80.5	
Northampton	73.9	79.9	Braintree	75.8	80.3	
South Northamptonshire	76.1	81.2	Brentwood	76.0	79.9	
Wellingborough	75.8	80.8	Castle Point	75.7	80.2	
Nottinghamshire			Chelmsford	76.7	82.1	
Ashfield	74.0	79.4	Colchester	76.0	81.3	
Bassetlaw	74.8	79.8	Epping Forest	76.3	80.2	
Broxtowe	75.9	80.8	Harlow	75.2	79.8	
Gedling	75.7	80.1	Maldon	75.0	80.4	
Mansfield	73.8	79.2	Rochford	76.9	81.3	
Newark and Sherwood	74.5	78.9	Tendring	75.9	80.1	
Rushcliffe	76.7	80.9	Uttlesford	77.1	81.2	
WEST MIDLANDS	74.2	79.5	Hertfordshire			
Herefordshire, County of UA	75.7	80.7	Broxbourne	76.0	81.5	
Stoke-on-Trent UA	72.6	78.8	Dacorum	76.6	80.9	
Telford and Wrekin UA	73.8	79.2	East Hertfordshire	76.7	80.7	
Shropshire			Hertsmere	76.4	79.8	
Bridgnorth	75.7	80.0	North Hertfordshire	76.5	80.3	
North Shropshire	75.4	81.7	St.Albans	77.4	81.4	
Oswestry	74.2	79.8	Stevenage	75.6	80.0	
Shrewsbury and Atcham	75.9	81.0	Three Rivers	77.2	83.0	
South Shropshire	77.1	81.8	Watford	75.3	79.4	
Staffordshire			Welwyn Hatfield	76.3	80.6	
Cannock Chase	73.6	78.8	Norfolk			
East Staffordshire	74.6	80.1	Breckland	76.8	81.4	
Lichfield	75.3	79.4	Broadland	76.5	80.5	
Newcastle-under-lyme	74.3	79.5	Great Yarmouth	74.3	80.3	
South Staffordshire	75.8	80.7	King's Lynn and West Norfolk	75.9	79.8	
Stafford	75.8	80.2	North Norfolk	77.4	81.6	
Staffordshire Moorlands	74.4	79.3	Norwich	74.7	81.3	
Tamworth	73.4	79.4	South Norfolk	77.6	81.8	
Warwickshire			Suffolk			
North Warwickshire	74.7	79.4	Babergh	76.6	81.5	
Nuneaton and Bedworth	73.8	78.5	Forest Heath	76.7	80.2	
Rugby	75.5	79.8	Ipswich	74.9	80.1	
Stratford-on-Avon	76.0	81.0	Mid Suffolk	76.5	81.6	
Warwick	75.2	80.2	St. Edmundsbury	75.7	80.4	
West Midlands			Suffolk Coastal	77.3	81.5	
Birmingham	73.2	78.8	Waveney	74.9	80.2	
Coventry	73.2	78.9	LONDON	74.3	79.9	
Dudley	74.6	79.6	Inner London			
Sandwell	72.5	78.5	Camden	73.2	80.8	
Solihull	76.4	80.7	Hackney	72.2	79.3	
Walsall	73.6	79.4	Hammersmith and Fulham	72.1	79.4	
Wolverhampton	73.2	78.6	Haringey	73.4	79.2	
Worcestershire			Islington	72.8	79.4	
Bromsgrove	75.9	79.4	Kensington and Chelsea	74.8	81.9	
Malvern Hills	76.0	80.3	Lambeth	72.1	79.1	
Redditch	75.1	80.8	Lewisham	72.3	78.6	
Worcester	75.1	80.8	Newham	71.9	78.0	
Wychavon	76.1	79.8	Southwark	72.4	78.8	
Wyre Forest	74.7	79.8	Tower Hamlets	71.5	78.1	
EAST	76.0	80.6	Wandsworth	73.6	79.3	
Luton UA	74.1	79.5	Westminster	75.2	81.5	
Peterborough UA	74.7	79.3	Outer London			
Southend-on-Sea UA	75.4	79.7	Barking and Dagenham	72.8	78.7	
Thurrock UA	74.0	79.6	Barnet	76.7	80.5	
Bedfordshire			Bexley	75.9	80.3	
Bedford	75.1	79.8	Brent	74.4	79.6	
Mid Bedfordshire	75.7	81.3	Bromley	76.4	81.3	
South Bedfordshire	75.4	79.7	Croydon	75.2	79.9	
			Ealing	74.4	79.6	
			Enfield	75.6	80.8	
			Greenwich	73.4	78.8	
			Harrow	75.9	81.4	

Annex I Life expectancy at birth for the United Kingdom, by country, Government Office Region within England, and local authority, 1995-97

	Males	Females		Males	Females
Havering	75.2	80.1	Reigate and Banstead	75.7	80.0
Hillingdon	75.6	80.1	Runnymede	76.6	80.9
Hounslow	74.7	80.1	Spelthorne	76.6	80.9
Kingston upon Thames	76.3	81.1	Surrey Heath	76.9	80.3
Merton	75.3	80.8	Tandridge	76.6	81.4
Redbridge	75.9	80.5	Waverley	76.5	81.7
Richmond upon Thames	76.3	81.8	Woking	76.8	80.4
Sutton	75.5	80.4	West Sussex		
Waltham Forest	74.1	79.7	Adur	76.3	80.1
SOUTH EAST	75.9	80.6	Arun	75.8	80.8
Bracknell Forest UA	76.0	80.1	Chichester	76.3	81.7
Brighton and Hove UA	74.0	80.3	Crawley	75.4	80.2
Isle of Wight UA	75.1	80.7	Horsham	77.3	81.8
Medway UA	73.9	78.6	Mid Sussex	76.6	81.7
Milton Keynes UA	74.7	79.7	Worthing	75.3	80.3
Portsmouth UA	74.1	79.1	SOUTH WEST	75.8	80.9
Reading UA	75.4	80.9	Bath and North East Somerset UA	76.5	81.5
Slough UA	72.9	78.9	Bournemouth UA	74.7	80.6
Southampton UA	74.3	79.8	Bristol, City of UA	74.7	80.5
West Berkshire UA	76.2	80.3	North Somerset UA	75.7	81.5
Windsor and Maidenhead UA	76.2	80.3	Plymouth UA	74.2	79.8
Wokingham UA	77.8	81.0	Poole UA	75.9	81.3
Buckinghamshire			South Gloucestershire UA	76.8	81.3
Aylesbury Vale	75.9	79.6	Swindon UA	75.0	79.4
Chiltern	78.4	81.9	Torbay UA	75.6	80.5
South Bucks	76.4	80.3	Cornwall		
Wycombe	77.1	81.0	Caradon	75.8	80.9
East Sussex			Carrick	75.1	81.2
Eastbourne	75.5	80.8	Kerrier	74.9	80.3
Hastings	72.7	79.3	North Cornwall	75.6	79.9
Lewes	75.8	81.5	Penwith	74.9	80.3
Rother	76.2	82.1	Restormel	75.6	79.6
Wealden	76.9	81.1	Devon		
Hampshire			East Devon	77.3	82.7
Basingstoke and Deane	75.4	80.2	Exeter	75.1	80.5
East Hampshire	75.6	80.6	Mid Devon	76.8	81.2
Eastleigh	76.1	81.2	North Devon	75.7	80.4
Fareham	77.6	81.6	South Hams	76.2	81.8
Gosport	73.6	79.0	Teignbridge	76.8	81.2
Hart	76.8	81.0	Torridge	75.4	80.4
Havant	75.8	79.6	West Devon	76.9	82.0
New Forest	76.6	81.4	Dorset		
Rushmoor	74.9	80.0	Christchurch	76.8	82.2
Test Valley	76.6	80.4	East Dorset	77.9	83.5
Winchester	76.9	81.3	North Dorset	76.5	82.1
Kent			Purbeck	76.4	81.3
Ashford	75.1	80.8	West Dorset	77.0	81.6
Canterbury	75.9	80.7	Weymouth and Portland	74.5	79.9
Dartford	75.0	79.6	Gloucestershire		
Dover	74.1	80.4	Cheltenham	75.6	80.8
Gravesham	74.7	80.3	Cotswold	76.9	81.8
Maidstone	76.4	80.5	Forest of Dean	74.6	79.9
Sevenoaks	76.7	81.0	Gloucester	74.5	79.3
Shepway	75.2	80.3	Stroud	76.4	80.7
Swale	74.3	79.6	Tewkesbury	76.7	80.9
Thanet	73.8	78.9	Somerset		
Tonbridge and Malling	76.0	80.8	Mendip	75.6	80.4
Tunbridge Wells	76.4	80.9	Sedgemoor	75.7	80.6
Oxfordshire			South Somerset	76.6	81.3
Cherwell	76.2	80.8	Taunton Deane	75.5	81.3
Oxford	75.6	80.9	West Somerset	77.3	81.8
South Oxfordshire	77.5	81.0	Wiltshire		
Vale of White Horse	77.5	81.8	Kennet	76.4	81.3
West Oxfordshire	77.1	81.0	North Wiltshire	76.3	80.5
Surrey			Salisbury	76.6	81.0
Elmbridge	77.0	81.5	West Wiltshire	75.7	80.5
Epsom and Ewell	77.0	82.7			
Guildford	77.4	82.0			
Mole Valley	76.7	81.2			

Annex I Life expectancy at birth for the United Kingdom, by country, Government Office Region within England, and local authority, 1995-97

	Males	Females		Males	Females
WALES	74.0	79.2	NORTHERN IRELAND	73.9	79.3
Blaenau Gwent	72.5	77.5	Antrim	73.3	79.5
Bridgend	73.2	79.3	Ards	73.8	79.7
Caerphilly	73.5	77.6	Armagh	74.2	79.3
Cardiff	74.2	80.0	Ballymena	74.6	78.7
Carmarthenshire	73.7	78.9	Ballymoney	74.8	78.9
Ceredigion	76.1	80.6	Banbridge	75.3	80.3
Conwy	74.9	80.3	Belfast	72.5	78.7
Denbighshire	74.1	80.0	Carrickfergus	75.1	78.5
Flintshire	74.4	79.0	Castlereagh	75.7	80.1
Gwynedd	75.2	80.6	Coleraine	74.6	80.3
Isle of Anglesey	74.6	79.7	Cookstown	75.1	81.3
Merthyr Tydfil	71.1	76.7	Craigavon	73.5	79.5
Monmouthshire	75.8	80.6	Derry	71.5	77.4
Neath Port Talbot	72.5	79.1	Down	73.0	78.6
Newport	73.7	79.3	Dungannon	73.1	79.0
Pembrokeshire	74.3	79.7	Fermanagh	73.3	79.2
Powys	75.5	80.2	Larne	74.9	80.9
Rhondda, Cynon, Taff	72.5	77.8	Limavady	75.5	78.6
Swansea	74.1	79.2	Lisburn	75.1	80.2
Torfaen	73.5	78.4	Magherafelt	73.7	80.0
The Vale of Glamorgan	74.9	79.8	Moyle	73.9	81.1
Wrexham	73.5	78.5	Newry and Mourne	73.6	78.1
SCOTLAND	72.3	77.8	Newtownabbey	74.8	79.7
Aberdeen City	72.9	79.0	North Down	75.5	80.4
Aberdeenshire	75.3	80.1	Omagh	74.1	79.1
Angus	74.1	78.6	Strabane	73.7	79.2
Argyll and Bute	73.3	78.7			
Clackmannanshire	73.0	77.9			
Dumfries and Galloway	74.2	79.2			
Dundee City	71.4	77.4			
East Ayrshire	72.6	77.4			
East Dunbartonshire	75.2	79.0			
East Lothian	74.1	78.7			
East Renfrewshire	75.7	79.6			
Edinburgh, City of	72.9	78.7			
Eilean Siar	70.9	78.6			
Falkirk	72.7	78.1			
Fife	73.4	78.8			
Glasgow City	68.4	75.4			
Highland	73.3	78.8			
Inverclyde	69.2	76.5			
Midlothian	73.1	77.2			
Moray	73.8	79.2			
North Ayrshire	72.0	77.8			
North Lanarkshire	71.3	76.4			
Orkney Islands	73.7	79.5			
Perth and Kinross	74.2	79.0			
Renfrewshire	71.7	77.3			
Scottish Borders	75.2	79.7			
Shetland Islands	72.4	80.1			
South Ayrshire	73.6	78.3			
South Lanarkshire	72.2	77.2			
Stirling	73.9	78.5			
West Dunbartonshire	69.7	76.6			
West Lothian	72.3	76.8			

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Social and economic variation in general practice consultation rates amongst men aged 16–39

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INTRODUCTION

There is growing concern over the health of young men, a group who are experiencing increasing levels of mental disorders, drug misuse, violence, injury and poisoning.^{1–4} Furthermore, secular trends in mortality amongst this group have not shown the long-term reductions in death rates seen in women and other age groups.⁵ Instead, mortality has plateaued, and for 25–34 year old males, death rates increased during the 1980s and early 1990s. These patterns have been attributed to rising mortality from suicides⁶ and infections including HIV.⁵ Amongst young men, those most at risk of premature death are in social class V.^{7–9}

Young men are thought to be less likely to recognise that they have a health problem or to seek professional help than women, young children, or older age groups,¹⁰ but there are few data on variations in use of health services specifically amongst young men.³ Multivariable analysis of the Fourth National Survey of Morbidity in General Practice showed that almost all age/sex groups in the manual social classes had a 10 per cent increased consultation rate for all illnesses.¹¹ In contrast, consultations for preventive reasons were 10 per cent lower for the manual than the non-manual classes. Other studies have shown that residents of deprived areas and members of ethnic minorities have higher than average consultation rates,¹² material deprivation is associated with many common self-reported diseases,¹³ and uptake of preventive services is low in deprived areas.¹² Lifestyle patterns influencing health, such as smoking or drug dependence and material circumstances vary by socio-economic factors,³ and unemployment and divorce may differentially affect men.^{14 15} There are also marked socio-economic gradients in the exposure of men to stressful life events.¹⁶

We examined socio-economic differences in consultation rates in 16–39 year old men using data collected in 1991/2 by the Fourth National Survey of Morbidity in General Practice. Mean annual consultation rates per person were 2.21 in men aged 16–24 years and 2.52 in those aged 25–39 years. In 25–39 year old men overall consultation rates were 42 per cent higher in social class IV/V than class I/II. Amongst 16–24 year olds, increasing deprivation as measured by type of housing and employment status were associated with increased consultation rates, but there was no clear association between social class and consultation rates. Amongst 25–39 year olds, increasing deprivation, as measured by social class, housing tenure or employment status, was associated with higher consultation rates for all illnesses, mental illness and injury and poisoning. In contrast, consultations for preventive health care were lower in young men in social class IV/V than class I/II and in council tenants rather than owner-occupiers. We conclude that socio-economically disadvantaged young men were more likely to consult general practice services in general and for mental illness and injury and poisoning. They received less preventive health care than more advantaged men who are at lower risk of premature mortality.

The government in England aims to reduce health inequalities, and their priority areas include reducing rates of suicides and accidents which are major causes of premature mortality in young men.¹⁷ About 40 per cent of those who commit suicide have been in contact with the health service, mostly the general practitioner, in the preceding month.¹⁸ An improved understanding of social and economic variations in primary health care utilization by young men may help in the design of interventions more appropriate to their needs. This in turn has implications for the planning of services and for the provision of adequate resources to improve health.^{12,13,19,20} Using data from the Fourth National Survey of Morbidity in General Practice¹¹ we investigated socio-economic variations in use of general practitioner services in young men aged between 16 and 39.

SUBJECTS AND METHODS

The Fourth National Survey of Morbidity in General Practice was conducted between September 1991 and August 1992.¹¹ Sixty volunteer general practices in England and Wales participated, providing a 1 per cent sample of the population (502,493 patients; 468,042 person-years at risk). Patients were generally representative of the population of England and Wales when compared with the 1991 census, although relatively few inner-city practices participated in the survey so that ethnic minority groups and people living alone were under-represented. Compared with England and Wales, the survey practices tended to be larger and employ more staff, and the principals were younger.

Recording and validation of morbidity data

General practitioners and nurses recorded information on all face to face contacts with patients fully registered for part or the whole of the study period. A consultation was defined as each diagnosis or reason for contact recorded during a contact. Details of consultations were entered onto the practice computer and given a Read code from which an International Classification of Diseases Ninth Revision (ICD9) code was later assigned systematically at the Office of Population Censuses and Surveys and categorized as serious, intermediate or minor.¹¹ Consultations for preventive health care included those for vaccinations, chronic disease monitoring, and screening examinations and investigations. Validation studies showed that 96 per cent and 95 per cent of surgery and of home contacts were recorded, and that 93 per cent of diagnoses were correctly recorded.

Socio-economic data

Socio-economic data were collected by face to face interview with trained field workers on 83 per cent of all patients registered with the 60 practices at any time during the study year, regardless of whether or not they had consulted during the study period.²¹ Most interviews took place in the surgery. Reasons for non-response amongst all subjects (age/sex-group specific data are not available) were: refused interview (1 per cent); moved away (4 per cent); not at stated address and not contactable (8 per cent); other (3 per cent). Each person's social class was derived from their relevant occupation and employment status and assigned using the Registrar-General's classification.

Statistical methods

Overall, 67,721 (74.1 per cent) men aged 16-39 years were interviewed. Approximately 12 per cent of patients on the practices' age/sex register had moved away or were not at the stated address and not contactable. Up to one third of these non-responders may have been ineligible due to practice list inflation (ONS - personal communication) making the effective response rate higher. 65,594 had complete data for all of the socio-economic variables considered here and 64,136 (70.2 per cent) also had urban/rural area of residence recorded. The main analysis was restricted to this subset of 64,136 men. Because there was clear

evidence that consultation rates varied between subjects, all analyses used negative binomial regression.²² This is an extension of Poisson regression which allows for variation in consultation rates between subjects. Analyses also allowed for proportion of the year during which each subject was registered with the practice.

We examined the effect of the following measures of deprivation on consultation rates: social class, housing tenure and employment status using social class I/II, owner-occupier tenure and full-time employment respectively as reference categories. Rate ratios per category of social class were also computed. These represent the amount by which consultation rates are multiplied per category change in social class. For example, if the rate ratio is 1.1 per category and the consultation rate is 2 per year in social class II, then consultation rates would be 2.2 per year in social class IIIM, 2.42 per year in social class IIIMM and so on.

Potential confounding factors chosen *a priori* for inclusion in models were ethnic group, urban/rural residence, smoking status and marital status. Likelihood ratio tests were used to assess whether the effects of socio-economic variables varied with age or smoking status (tests for interaction). If p-values for interaction were <0.1 we examined the effect of socio-economic variables in strata defined by age or smoking status as appropriate. Analyses were performed using Stata.²³

RESULTS

Men aged 16-39 years of age accounted for 18.2 per cent (91,409/502,493) of all patients in the morbidity survey and for 10.9 per cent (167,609/1,530,835) of consultations with a doctor or a nurse. 56.1 per cent of young men consulted a general practitioner or a practice nurse at least once during the survey, compared with 78 per cent of patients in the overall sample. 85 per cent (143,233/167,609) of consultations were for episodes of illness, and 99 per cent (166,722/167,609) involved contact with a doctor.

Representativeness of sample

Amongst the 64,136 men included in the main analysis, the overall consultation rate was 2.41 (95 per cent CI: 2.39 to 2.44) per person per year. Amongst the 27,273 excluded men, the consultation rate was 1.07 (95 per cent CI: 1.04 to 1.10) per person per year. This lower rate is due at least in part to non-responders having moved away but still remaining on the practice register. There was little difference between analysed and excluded men in terms of proportion aged 16-24 years (35.6 per cent v. 35.1 per cent; p=0.14), mean distance in kilometres from house to practice (1.87 v. 1.87; p=0.96) and the proportions in rural areas of residence (11.8 per cent v 11.7 per cent; p=0.91).

There was strong evidence of interaction between the effects of age group and the socio-economic variables on consultation rates (p<0.0001), hence age-group specific results are presented. There were no interactions with smoking.

Overall consultation rates

Mean annual consultation rates per person were 2.21 (95 per cent CI: 2.17 to 2.25) in men aged 16 to 24 years and 2.52 (95 per cent CI: 2.49 to 2.55) in those aged 25-39 years (Table 1). Overall consultation rates were highest in men from social classes IV/V. In men aged 25 to 39 consultation rates were 42 per cent (95 per cent CI: 36 per cent to 47 per cent) higher in those from social class IV/V than in those from class I/II, but in those aged 16 to 24 years the increase in rate was only 9 per cent (95 per cent CI: 2 per cent to 16 per cent). The crude rate ratios per category of social class were 1.04 (1.02 to 1.06) and 1.12 (1.11 to 1.13) for 16-24 and 25-39 year olds respectively. Consultation rates amongst men from council or rented accommodation were higher compared with

owner-occupiers. Part-time employment, or waiting/seeking work, or being permanently sick were each associated with higher consultation rates than full-time employment in both age groups. South Asian ethnicity, or living in an urban area, or smoking, or being separated, widowed or divorced were also associated with higher consultation rates in both age-groups.

Consultation rates for preventive health care

Consultation rates for preventive health care were highest in men from social class I/II (Table 1). Compared to social class I/II, rates in class IV/V were 37 per cent and 31 per cent lower in age groups 16–24 and 25–39 respectively. Council house tenure was associated with lower consultation rates for preventive health care than owner-occupiers, but living in other rented accommodation was associated with higher rates. Being a student, or of South Asian ethnicity or separated, widowed or

divorced were factors individually associated with higher consultation rates in both age-groups.

Multivariable analyses

Controlling for smoking status, marital status, urban/rural residence, and ethnic group had little effect on the associations between social class and consultation rates. However, controlling for tenure and economic position attenuated observed associations. Table 2 shows that there was no social class gradient in men aged 16–24 years after controlling for other factors. In men aged 25–39 years the association between social class and consultation rates was reduced to 1.05 (95 per cent CI: 1.03 to 1.06) per social class category. Council or rented tenure were independently associated with increased consultation rates compared with owner-occupiers. The other factors that remained associated with increased consultation rates were waiting/seeking

Table 1 Age-specific annual consultation rates with general practitioners and practice nurses for any reason or preventive health care, stratified by social and economic variables

Characteristic	No. of people	Percentage	Annual consultation rate per person			
			Any consultation		Preventive health care	
Age group (years)			16–24 N=22,507	25–39 N=41,629	16–24 N=22,507	25–39 N=41,629
Total	64,136	(100)	2.21 (2.17 to 2.25)*	2.52 (2.49 to 2.55)*	0.14 (0.13 to 0.15)*	0.22 (0.21 to 0.22)*
Social class						
I & II	16,414	(25.6)	2.25	2.11	0.19	0.26
III N	7,387	(11.5)	2.13	2.42	0.17	0.24
III M	20,237	(31.6)	2.29	2.63	0.12	0.19
IV & V	12,986	(20.2)	2.46	2.99	0.12	0.18
Other†	7,112	(11.1)	1.93	3.52	0.16	0.26
Tenure‡						
Owner-occupied	39,853	(62.1)	2.01	2.22	0.13	0.22
Council	9,482	(14.8)	2.57	3.49	0.09	0.16
Other rented	7,218	(11.3)	2.67	3.11	0.24	0.27
Communal	471	(0.7)	1.86	3.15	0.21	0.29
Employment status in the last week‡						
Employed full time	48,075	(75.0)	2.15	2.27	0.13	0.22
Employed part time	945	(1.5)	2.30	2.98	0.15	0.20
Waiting/seeking	6,455	(10.1)	2.59	3.31	0.13	0.19
Student	572	(0.9)	1.86	2.62	0.17	0.34
Permanently sick	751	(1.2)	6.40	7.65	0.18	0.21
Other**	226	(0.4)	5.47	3.99	0.19	0.26
Ethnic group‡						
White	55,532	(86.6)	2.20	2.51	0.14	0.21
Afro-Caribbean	391	(0.6)	2.56	2.53	0.15	0.26
South Asian	658	(1.0)	2.59	3.07	0.34	0.41
Other††	443	(0.7)	2.19	2.55	0.25	0.26
Urban/rural residence‡						
Urban	50,336	(78.5)	2.25	2.57	0.14	0.22
Rural	6,688	(10.4)	1.87	2.15	0.14	0.22
Smoking status‡						
Smoker	20,431	(31.9)	2.44	2.91	0.13	0.19
Non smoker	36,593	(57.1)	2.10	2.31	0.15	0.23
Marital status‡						
Single	28,104	(43.8)	2.18	2.63	0.14	0.22
Married	26,212	(40.9)	2.50	2.35	0.18	0.21
Separated/widowed/divorced	2,708	(4.2)	3.23	3.67	0.28	0.25

* 95% confidence interval for the overall rate estimate.

† Social class – other was: armed forces, unoccupied (students, housewives, persons of independent means, permanently sick or disabled, persons who have never worked and occupation not stated) and inadequately described.

‡ Missing data: n=7,112.

** Employment status in the last week – other was: retired from paid work; looking after home or family.

†† Ethnic group – other was: Chinese, Sri Lankan and other.

employment, being a student, permanently sick or 'other' (looking after a family), South Asian ethnicity, urban residence, smoking, and being separated, widowed or divorced. Consultation rates for preventive health care decreased with lower social class and with council tenure with little attenuation of the rate ratios after controlling for other factors (Table 2). There was little attenuation of the rate ratios for the association between increased consultation rates for preventive health care and other rented accommodation, economic position, South Asian ethnicity or marital status after controlling for other factors.

Disease specific associations

Table 3 shows annual consultation rates for all illness, mental illness and injury and poisoning according to social class. Decreasing social class was associated with increasing consultation rates for all illness,

mental illness and injury and poisoning in men aged 25–39. There was no strong association between social class and consultation rates for all illness or mental illness in men aged 16–24, but consultations for injury and poisoning increased with lower social class in this age group.

Amongst 16–24 year olds the association between social class and rates of consultation for mental illness was confounded by smoking. The crude rate ratio per social-class category was 1.20 (95 per cent CI: 1.08 to 1.33); after controlling for smoking it was 1.09 (95 per cent CI: 0.98 to 1.20). However, this confounding effect was not as strong in 25–39 year olds amongst whom the crude rate ratio per social-class category was 1.44 (95 per cent CI: 1.37 to 1.52) and after controlling for smoking was 1.31 (95 per cent CI: 1.24 to 1.38). The observed associations between all illness and social class varied little by the severity of the illness (data not shown).

Table 2 Age-specific annual consultation rates per person for any consultation or preventive health care; rate ratios and 95% confidence limits controlling for all other factors in the table*

Characteristic	Multivariable rate ratio (95% CI)			
	Any consultation		Preventive health care	
	16-24 N=22,507	25-39 N=41,629	16-24 N=22,507	25-39 N=41,629
Social class				
I & II	|	|	|	|
IIIN	0.94 (0.88 to 1.01)	1.10 (1.05 to 1.15)	0.88 (0.71 to 1.09)	0.92 (0.82 to 1.02)
IIIM	0.99 (0.93 to 1.05)	1.10 (1.07 to 1.14)	0.65 (0.54 to 0.79)	0.75 (0.69 to 0.81)
IV & V	1.01 (0.95 to 1.08)	1.15 (1.10 to 1.19)	0.66 (0.54 to 0.81)	0.74 (0.67 to 0.82)
Other†	0.72 (0.66 to 0.79)	0.82 (0.74 to 0.91)	0.53 (0.40 to 0.70)	0.88 (0.68 to 1.14)
Trend‡	1.01 (0.99 to 1.03)	1.05 (1.03 to 1.06)	0.86 (0.81 to 0.92)	0.89 (0.86 to 0.92)
Tenure				
Owner-occupied	|	|	|	|
Council	1.16 (1.10 to 1.21)	1.26 (1.22 to 1.31)	0.70 (0.59 to 0.83)	0.84 (0.75 to 0.93)
Other rented	1.27 (1.21 to 1.33)	1.21 (1.16 to 1.26)	1.90 (1.64 to 2.19)	1.23 (1.10 to 1.37)
Communal	0.94 (0.85 to 1.03)	1.12 (0.97 to 1.29)	1.53 (1.16 to 2.01)	1.22 (0.85 to 1.76)
Employment status in the last week				
Employed full time	|	|	|	|
Employed part time	1.06 (0.94 to 1.20)	1.19 (1.07 to 1.34)	1.17 (0.79 to 1.72)	0.95 (0.71 to 1.29)
Waiting/seeking	1.20 (1.14 to 1.27)	1.24 (1.19 to 1.30)	1.21 (1.01 to 1.44)	0.98 (0.87 to 1.10)
Student	1.20 (1.10 to 1.30)	1.21 (1.07 to 1.37)	1.58 (1.22 to 2.05)	1.34 (0.98 to 1.81)
Permanently sick	3.39 (2.93 to 3.92)	3.10 (2.85 to 3.36)	1.70 (1.05 to 2.76)	1.06 (0.84 to 1.33)
Other**	2.41 (1.67 to 3.46)	1.53 (1.29 to 1.82)	1.96 (0.61 to 6.34)	1.29 (0.83 to 2.00)
Ethnic group				
White	|	|	|	|
Afro-Caribbean	1.21 (0.97 to 1.49)	0.97 (0.84 to 1.13)	1.11 (0.56 to 2.22)	1.12 (0.79 to 1.61)
South Asian	1.26 (1.09 to 1.47)	1.28 (1.15 to 1.43)	2.24 (1.50 to 3.35)	1.90 (1.48 to 2.45)
Other††	1.08 (0.89 to 1.31)	0.97 (0.85 to 1.11)	1.33 (0.78 to 2.25)	1.02 (0.74 to 1.41)
Urban/rural residence‡‡				
Urban	|	|	|	|
Rural	0.86 (0.82 to 0.91)	0.91 (0.87 to 0.95)	0.99 (0.84 to 1.17)	0.98 (0.89 to 1.14)
Smoking status				
Smoker	|	|	|	|
Non smoker	0.94 (0.91 to 0.98)	0.93 (0.90 to 0.95)	1.14 (1.01 to 1.29)	1.10 (1.03 to 1.18)
Marital status				
Single	|	|	|	|
Married	1.06 (0.98 to 1.14)	1.00 (0.98 to 1.03)	1.52 (1.21 to 1.89)	0.93 (0.87 to 1.00)
Separated/widowed/divorced	1.29 (1.03 to 1.62)	1.34 (1.27 to 1.41)	2.33 (1.21 to 4.49)	1.18 (1.03 to 1.36)

* With social class entered as a categorical variable.

† Social class – other was: armed forces, unoccupied (students, housewives, persons of independent means, permanently sick or disabled, persons who have never worked and occupation not stated) and inadequately described.

‡ Based on linear increase in log rate per category of social class (excluding other).

** Employment status in the last week – other was: retired from paid work; looking after home or family.

†† Ethnic group – other was: Chinese, Sri Lankan and other.

‡‡ Additionally adjusted for distance from patients' house to the practice.

Table 3

Social class specific annual consultation rates per person for all illness, mental disorders, and injury and poisoning; crude rates and multivariable rate ratios (95% confidence limits) controlling for social and economic factors*

	Social Class						
	Rate in all subjects	I&II	IIIN	IIIM	IV/V	Other	Rate ratio per category†
16–24 years							
All illness							
Rate	1.94	1.96	1.86	2.01	2.14	1.71	-
Multivariable rate ratio (95% CI)	-	I	0.94 (0.87 to 1.01)	1.00 (0.94 to 1.06)	1.02 (0.95 to 1.08)	0.74 (0.68 to 0.81)	1.01 (0.99 to 1.03)
Mental illness							
Rate	0.11	0.09	0.10	0.12	0.15	0.10	-
Multivariable rate ratio (95% CI)	-	I	1.17 (0.82 to 1.67)	1.09 (0.80 to 1.47)	1.21 (0.89 to 1.66)	0.80 (0.52 to 1.23)	1.05 (0.95 to 1.16)
Injury and poisoning							
Rate	0.30	0.25	0.25	0.36	0.40	0.20	-
Multivariable rate ratio (95% CI)	-	I	1.04 (0.89 to 1.22)	1.41 (1.24 to 1.60)	1.54 (1.34 to 1.76)	0.86 (0.71 to 1.05)	1.18 (1.13 to 1.23)
25–39 years							
All illness							
Rate	2.10	1.75	2.02	2.20	2.51	2.82	-
Multivariable rate ratio (95% CI)	-	I	1.10 (1.06 to 1.16)	1.11 (1.07 to 1.15)	1.16 (1.11 to 1.21)	0.80 (0.72 to 0.89)	1.05 (1.04 to 1.06)
Mental illness							
Rate	0.19	0.10	0.17	0.20	0.31	0.62	-
Multivariable rate ratio (95% CI)	-	I	1.43 (1.18 to 1.73)	1.17 (1.01 to 1.34)	1.28 (1.08 to 1.51)	1.03 (0.68 to 1.56)	1.07 (1.02 to 1.13)
Injury and poisoning							
Rate	0.28	0.18	0.25	0.33	0.37	0.25	-
Multivariable rate ratio (95% CI)	-	I	1.37 (1.24 to 1.51)	1.70 (1.58 to 1.82)	1.86 (1.71 to 2.02)	1.11 (0.88 to 1.41)	1.24 (1.21 to 1.28)

* Tenure, ethnic group, employment status, urban/rural residence, smoking status, and marital status.

† Based on linear increase in log rate per category of social class (excluding 'other').

Table 4 shows annual consultation rates for all illness, mental illness and injury and poisoning by housing tenure. Strong associations were observed between living in council or other rented accommodation and consultation rates in both age-groups, particularly for mental illnesses. Communal housing was associated with mental illness amongst 25–39 year olds. Table 5 shows annual consultation rates by employment status. Amongst both age groups there were strong associations between waiting/seeking employment and consultations for all illness

and mental illness. Amongst 16–24 year olds there was an association between being a student and consultations for all illness. Amongst 25–39 year olds part-time work or being a student were associated with all illness and with mental illness. Amongst 16–24 year olds permanent sickness and looking after a family (category of 'other') were associated with all illness, mental illness and injury and poisoning. Amongst 25–34 year olds permanent sickness was associated with all illness, mental illness and injury and poisoning.

Table 4

Housing tenure specific annual consultation rates per person for all illness, mental disorders, and injury and poisoning; crude rates and multivariable rate ratios (95% confidence limits) controlling for social and economic factors*

Characteristic	Tenure			
	Owner occupied	Council	Other rented	Communal
16–24 years				
All illness				
Rate	1.78	2.26	2.29	1.59
Multivariable rate ratio (95% CI)	I	1.17 (1.11 to 1.22)	1.23 (1.17 to 1.29)	0.90 (0.82 to 0.99)
Mental illness				
Rate	0.08	0.19	0.18	0.11
Multivariable rate ratio (95% CI)	I	1.34 (1.07 to 1.68)	1.76 (1.40 to 2.20)	1.16 (0.73 to 1.84)
Injury and poisoning				
Rate	0.27	0.38	0.35	0.23
Multivariable rate ratio (95% CI)	I	1.21 (1.10 to 1.33)	1.22 (1.10 to 1.34)	1.06 (0.86 to 1.31)
25–39 years				
All illness				
Rate	1.84	2.97	2.57	2.64
Multivariable rate ratio (95% CI)	I	1.30 (1.25 to 1.35)	1.21 (1.16 to 1.27)	1.14 (0.98 to 1.32)
Mental illness				
Rate	0.11	0.42	0.41	0.63
Multivariable rate ratio (95% CI)	I	1.79 (1.53 to 2.09)	1.58 (1.33 to 1.89)	1.84 (1.05 to 3.24)
Injury and poisoning				
Rate	0.25	0.38	0.32	0.22
Multivariable rate ratio (95% CI)	I	1.23 (1.13 to 1.33)	1.18 (1.07 to 1.29)	0.88 (0.62 to 1.23)

* Social class, ethnic group, employment status, urban/rural residence, smoking status, and marital status.

DISCUSSION

These analyses showed variations in consulting patterns among young men according to measures of socio-economic status. Although young men are generally perceived as being infrequent users of general practitioner services,³ mean consultation rates were greater than 2 per person per year suggesting that young men do present to primary care. Furthermore, rates of consultation that were socio-economically patterned were observed. Our results are based on a large database of individual-level socio-economic data collected prospectively and are, therefore, robust and likely to be broadly representative. Although the study practices were volunteers there was at least one practice per health district in England and Wales. The study was restricted to 70.2 per cent of men listed on the practices' age-sex register, a potential source of bias given that non-responders had lower consultation rates. However, some 12 per cent of all non-responders had moved or were not contactable.¹¹ Up to one third of these non-responders may have been ineligible (ONS - personal communication), and practice list inflation amongst young men may be even greater.²⁴ The effective response rate is therefore likely to be higher than 70.2 per cent, a reasonable response rate for this age-group of men in a general practice-based study. There was little difference between included and excluded subjects in terms of age, distance from practice and area of residence.

Previous multivariable analyses have been performed on a number of age/sex groups as part of the Fourth National Survey of Morbidity in General Practice.¹¹ The current study focuses on consultation patterns in young-men. Because there was clear evidence that consultation rates varied between subjects, all analyses used negative binomial regression to compute rate ratios and confidence intervals allowing for between-subject variability.²² In addition, we presented age-band specific results within the 16–39 year old age group since we found strong statistical evidence of interaction between age and socio-economic variables on consultation rates.

The crude consultation rates clearly show large increases according to different measures of socio-economic disadvantage. By simultaneously controlling for the different measures of deprivation used in this study, we have shown that social class, housing tenure and employment status are each independently associated with higher consultation rates. Amongst 25–39 year olds, adjusted consultation rates for any reason were 15 per cent higher in social class IV/V than in class I/II. There was no association between social class and overall consultation rates amongst 16–24 year olds. In contrast, housing tenure and employment status were associated with high overall consultation rates amongst both 16–24 and 25–39 year olds, suggesting that social class may not be a good measure of deprivation amongst young men beginning their employment careers.

Amongst 25–39 year olds in particular, consultations for mental illness and injury and poisoning were associated with lower social class, and council or rented tenure. Furthermore, consultations for mental illness were associated with working part time, waiting/seeking employment, being a student and permanent sickness. These findings suggest that some of the socio-economic gradient in the older age group is likely to be secondary to health selection i.e. poor health influenced social circumstances. Consultations for preventive health care were lower amongst men from social class IV/V than in those from social class I/II suggesting the inverse care law operates amongst young-men.²⁵ We were unable to examine health care utilisation amongst young men not registered with a general practitioner, although this omission is likely to mean that the socio-economic gradients that were observed in this study are underestimates.

Hospital admission rates, which are influenced by variations in supply and demand, have been criticised as a poor proxy for morbidity.²⁶ General practice data may provide a more complete picture of the interactions between disease and health services because most people are registered with a general practitioner,²⁷ and because general practice

Table 5 Employment status specific annual consultation rates per person for all illness, mental disorders, and injury and poisoning; crude rates and multivariable rate ratios (95% confidence limits) controlling for social and economic factors*

Characteristic	Employment status in the last week					
	Full time	Part time	Waiting/seeking	Student	Permanently sick	Other†
16–24 years						
All illness						
Rate	1.89	2.08	2.26	1.66	5.14	3.72
Multivariable rate ratio (95% CI)	1	1.09 (0.96 to 1.23)	1.19 (1.13 to 1.26)	1.19 (1.10 to 1.30)	3.10 (2.67 to 3.59)	1.87 (1.28 to 2.72)
Mental illness						
Rate	0.07	0.12	0.28	0.06	1.15	1.14
Multivariable rate ratio (95% CI)	1	1.48 (0.84 to 2.61)	3.38 (2.66 to 4.30)	1.31 (0.88 to 1.95)	18.25 (9.60 to 34.70)	11.45 (2.33 to 56.23)
Injury and poisoning						
Rate	0.33	0.29	0.33	0.20	0.66	1.03
Multivariable rate ratio (95% CI)	1	0.87 (0.68 to 1.13)	0.97 (0.87 to 1.08)	0.93 (0.78 to 1.10)	2.23 (1.67 to 2.98)	2.97 (1.52 to 5.80)
25–39 years						
All illness						
Rate	1.89	2.57	2.83	2.17	6.12	2.84
Multivariable rate ratio (95% CI)	1	1.22 (1.09 to 1.38)	1.26 (1.21 to 1.32)	1.22 (1.07 to 1.38)	2.97 (2.73 to 3.24)	1.28 (1.07 to 1.54)
Mental illness						
Rate	0.11	0.32	0.56	0.35	1.61	0.29
Multivariable rate ratio (95% CI)	1	1.85 (1.17 to 2.92)	2.76 (2.31 to 3.29)	2.25 (1.38 to 3.68)	8.51 (6.14 to 11.80)	1.76 (0.85 to 3.66)
Injury and poisoning						
Rate	0.27	0.28	0.33	0.20	0.49	0.50
Multivariable rate ratio (95% CI)	1	0.95 (0.73 to 1.23)	0.97 (0.88 to 1.07)	0.90 (0.67 to 1.21)	1.56 (1.30 to 1.86)	1.49 (1.05 to 2.13)

* Social class, ethnic group, tenure, urban/rural residence, smoking status, and marital status.

† Employment status in the last week – other was: retired from paid work; looking after home or family.

consultations are generally for less severe disease. However, patient consulting rates represent the proportion of a particular disease or condition presented to doctors or nurses in general practice.²⁷ Therefore, these findings reflect a combination of socio-economic differences in morbidity, thresholds for consultation, lay support networks, and access to services, including A&E departments.²⁸

Comparison with other studies

The results of this analysis in young men are broadly consistent with previous research linking deprivation characteristics with general practice consultations^{29–30} and morbidity.^{2, 31} However, patterns in young men observed in this study do differ from patterns seen in other populations.^{32–34} Results from the Second National Survey of Morbidity in General Practice conducted in 1970–71 showed that in men aged 15–64 there was only a very slight social class gradient for patients consulting for all illnesses, a strong positive social class gradient for depressive neurosis and accidents, violence and poisoning and a negative gradient for anxiety neurosis.³⁴ In the General Household Survey consultations amongst middle-aged men were 28 per cent higher in those living in council compared with owner-occupied properties,²⁹ but there was only a non-significant 6 per cent increase in consultations when manual were compared with non-manual socio-economic groups. A steeper socio-economic gradient may have been masked by misclassification resulting from the relatively crude binary grouping of social class, and because the data were based on retrospective self-reports. The Health and Lifestyle Survey found no social class gradient in self reported mean number of symptoms experienced in the last month amongst 18–39 year old males, in contrast to a steep social class gradient in all other age and sex groups.³⁵ However, the Health and Lifestyle Survey may have been under-powered to detect small but important socio-economic differences among young men, and the use of an age group 18–39 may mask important differences within this group.

The increased consultation rates for mental illness amongst lower social classes and men living in council, rented or communal accommodation accords with the finding that rates of both suicide and parasuicide (two well accepted indicators of mental distress) are related to socio-economic deprivation.⁶ Our findings are in line with the known association between unemployment and health,³⁶ but we also found that 25–39 year old men who worked part time or who were students were more likely to consult for mental illness than those employed full-time. Non-smokers were more likely to consult for preventive health care, a possible example of the inverse care law.³⁷

The social class differences in consultations for episodes of illness are in the same direction as social class differences in mortality amongst young men.⁷ However, the mortality differences are stronger: all-cause mortality rates are two to three times higher among people in social class V than among those in class I/II, and social class differences in accidents and suicides are fivefold and seven to eight-fold respectively.⁷ The smaller difference in general practice consultation rates across social class may reflect high levels of unreported morbidity, later presentation, poorer compliance with treatment, or less use of preventive services amongst social classes IV/V compared with social classes I/II.

Implications

This study highlights the importance of a number of social and economic factors on the use made of general practitioner services by young men. Although it is generally acknowledged that general practice workload is influenced by deprivation,² the strength of the association between social and economic variables and consultation patterns amongst young men has not previously been described in detail. This study supports others in highlighting the resource, planning and workload implications of deprivation.^{12, 19, 38}

Our results clearly show that young men do present to general practice. The provision of preventive care by general practitioners is most effective when directed at groups at greatest risk.³⁹ However, we found that disadvantaged men who are at greater risk of premature mortality received less preventive health care than advantaged men.

The routine recording of socio-economic data in primary care may facilitate the identification and targeting of those most likely to benefit from help,⁴⁰ but our study implies that a range of variables should be recorded to give a complete assessment of the socio-economic determinants of health. Further research is required to investigate possible explanations for the observed variations in use of health services by young men, and determine the extent to which they reflect service delivery factors and/or socially patterned health behavioural factors.

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Key findings

- Mean annual consultation rates per person were 2.21 (95% CI: 2.17 to 2.25) in men aged 16 to 24 years and 2.52 (95% CI: 2.49 to 2.55) in those aged 25–39 years.
- Consulting patterns amongst young men varied according to measures of deprivation as measured by social class, housing tenure and employment status.
- Amongst 25–39 year olds, consultation rates for all illness, for mental illness, and for injury and poisoning were higher in social class IV/V than in class I/II.
- In contrast, consultations for preventive health care were lower amongst men from social class IV/V than in those from social class I/II.

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Trends in mortality and hospital admissions associated with atrial fibrillation in England and Wales

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INTRODUCTION

Up until the beginning of the 1990s, atrial fibrillation (Box 1) was considered by many clinicians to be a relatively innocuous condition. However, epidemiological and clinical studies have since confirmed that atrial fibrillation is an important risk factor for stroke, increasing the risk of stroke by three to seven fold.^{1,2,3,4} The annual risk of stroke in people with atrial fibrillation has been estimated to be between 4–8 per cent depending on comorbidities.⁵ About 15–25 per cent of strokes are due to cardio-embolism and atrial fibrillation is responsible for about half of these events. In patients with pre-existing non-valvular atrial fibrillation, 66–75 per cent of strokes are cardioembolic in mechanism. Because the prevalence of atrial fibrillation increases with age, the proportion by which the incidence of strokes in people with atrial fibrillation would be reduced if atrial fibrillation was not present also increases significantly with age, from 1.5 per cent at age 50–59 years to 23.5 per cent for those aged 80–89 years. In contrast, the proportion by which the incidence of strokes resulting from other cardiovascular conditions could be reduced if these conditions were prevented does not vary much with age.¹ Hence, as the population of the United Kingdom ages, the public health importance of atrial fibrillation as a cause of stroke and subsequent death and disability will increase.

There is little published information on the mortality associated with atrial fibrillation at the population level. Most information is derived from cohort studies such as the Framingham Heart Study and from small investigations which have looked at highly selected populations enrolled in clinical trials or in hospital based studies.^{6,7} These studies have shown that all cause mortality and mortality associated with a first or recurrent stroke is significantly higher in people with atrial fibrillation.

Atrial fibrillation is an important risk factor for stroke, affects about 0.4–1 per cent of the population, and is increasing in prevalence. In 1998 atrial fibrillation was mentioned on 1.5 per cent of death certificates for stroke and 3.8 per cent of death certificates for ischaemic heart disease. From 1968 onwards, death registration rates for atrial fibrillation declined steadily until 1983/4, remained constant until 1994, and then nearly doubled by 1999. Much of the increase is attributable to changes in death rates in the age group 85 years and over. Hospital discharge rates have doubled in the four years since 1995/96. The highest discharge rates are seen in the age group 85 years and over and rates in men are consistently higher than those in women. Against a background of declining death rates from stroke, coronary heart disease and rheumatic and valvular heart disease, the sustained rise in mentions of atrial fibrillation on death certificates seen since 1994, is likely to have multi-factorial aetiology, but two major factors are an increasing prevalence of atrial fibrillation and better awareness of its consequences among clinicians .

Box one

WHAT IS ATRIAL FIBRILLATION?

Atrial fibrillation is an irregularity of the heart rhythm which causes the heart to pump inefficiently. It is a cause of heart failure or stroke.

The main conditions associated with atrial fibrillation are high blood pressure, rheumatic heart disease, heart failure, coronary heart disease and hyperthyroidism.

Atrial fibrillation is often subdivided into valvular and non-valvular types, depending on whether there is an abnormality of the heart valves.

Atrial fibrillation can be treated by cardioversion (electric shock treatment to the heart) or more commonly by drugs which control the heart rhythm, such as digoxin.

People with atrial fibrillation are at increased risk of strokes. Drugs such as warfarin and aspirin are recommended for these patients to help reduce this risk.

We examined trends in mortality associated with atrial fibrillation coded as the underlying cause of death for the period 1968–99 in the population of England and Wales. Additionally for 1993–99, the period for which multi-cause coding of mortality data is available, we analysed death registrations for which atrial fibrillation was mentioned anywhere on the death certificate. We also examined trends in hospital admissions for atrial fibrillation to NHS hospitals in England during the period 1995/96 to 1998/99.

METHODS

Death registration rates

All deaths occurring in residents of England and Wales in which atrial fibrillation was coded as the underlying cause of death during the period 1968–99 were examined. Box 2 shows the codes that were used to select deaths associated with atrial fibrillation. In addition, from 1993 onwards, the death registrations contained details of all conditions mentioned on the death certificate (multi-cause coded data) as well as the underlying cause of death.

Box two

ICD Revision	Period	Code	Description
ICD-8	1968–78	427.9	Symptomatic heart disease, Other disorders of heart rhythm.
ICD-9	1979–99	427.3	Cardiac dysrhythmias, Atrial fibrillation and flutter

Age and sex specific death rates were calculated using the ONS mid year population estimates for England and Wales for the relevant year as denominators. To derive summary rates, death rates were directly age and sex standardised (a technique that makes allowances for changes in the age structure of the population) using the European standard population.

For deaths occurring during 1993–99, for which multi-cause coding of deaths is available, the death registrations were analysed as below:

- Atrial fibrillation coded as underlying cause of death and associated with the most common mentions of other conditions.
- Atrial fibrillation as any mention (other than underlying cause of death) and the most common underlying causes of death with which it was mentioned.

In addition trends in mortality associated with stroke and rheumatic heart and valvular heart disease were examined. The rationale for this is that atrial fibrillation has been shown to be a predisposing factor for ischaemic stroke and it is also strongly associated with valvular heart disease, which up until the second world war was most commonly caused by rheumatic heart disease. Thus trends in these conditions might help to explain trends observed in mortality rates due to atrial fibrillation.

Hospital admission rates

Hospital episodes statistics (HES) for England during the period 1995/96 to 1998/99 were obtained from the HES information service of the Department of Health. All first consultant episodes in which atrial fibrillation (ICD10 code I48X) was given as the primary diagnosis or as any secondary diagnosis were selected for analysis. For contract monitoring purposes the HES system divides a patient's stay in hospital into FCEs, (Finished Consultant Episodes). A patient may have many FCEs during a hospital stay (provider spell). The admission and discharge dates for all FCEs in a single provider spell will be the same. It is assumed that the primary diagnosis for the first FCE in a string is the principal reason for admission. It is also assumed that if atrial fibrillation was given as the primary diagnosis the patient was admitted for treatment of this condition or its consequences. If given as a secondary diagnosis it is assumed that atrial fibrillation contributed to the patient's morbidity but was not the main reason for admission. The data was divided into all ordinary (overnight admissions) and day case admissions and each group directly age standardised using the method described above.

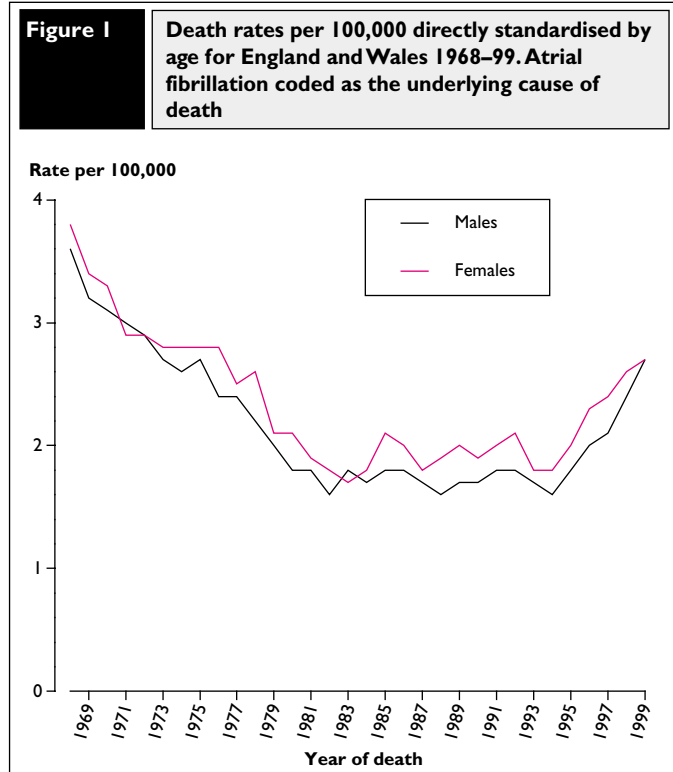
RESULTS

In 1993 atrial fibrillation was mentioned in 5,735 death registrations and it was coded as the underlying cause of death in 1,578 registrations. By 1999 this had risen to a total of 9,336 mentions and it was coded as the underlying cause of death in 2,597 of these registrations.

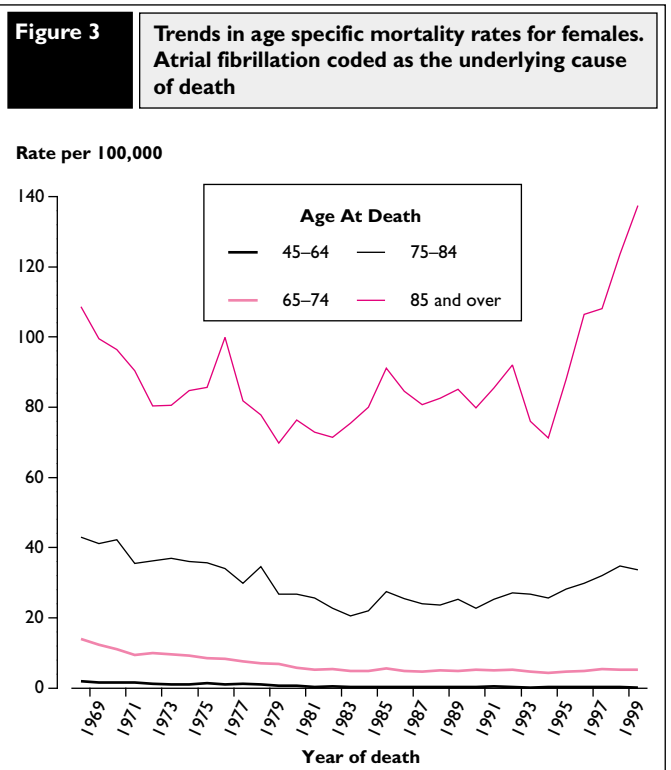
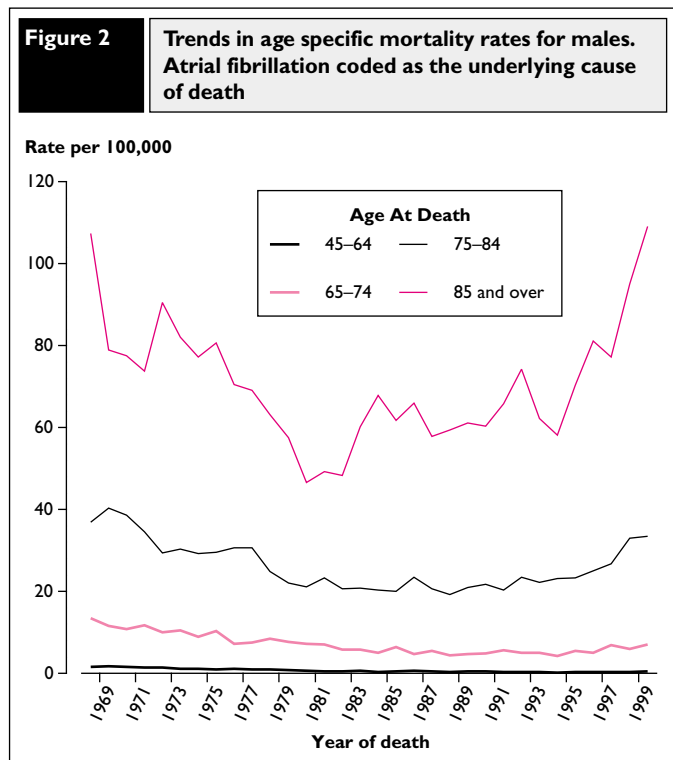
Trends In death registrations associated with atrial fibrillation

Figure 1 illustrates the trend in annual directly standardised deaths rates for which atrial fibrillation was coded as the underlying cause. Between 1968 and 1982, the death rate from atrial fibrillation fell by half. The rate then remained relatively constant until 1993 when it began a sustained rise and had nearly doubled again by 1999. The trends in death rates are very similar for both males and females with only small differences between them.

Figure 2 and Figure 3 illustrate the trends in age specific mortality rates over the period. The most striking feature is that the death rates are strongly age dependent in both sexes. The results confirm that much of the change in death registrations is caused by changes in the age group 85 years and over. Higher death rates in this age group in women also explains the female excess in the overall mortality rate. The appearance of the charts also suggests that there may be birth cohort affects.



Analysis of death registrations in which atrial fibrillation was coded as the underlying cause of death (Figure 4 and Figure 5) shows that the proportion of registrations in the age group 85 years and above has increased over time, particularly in women.



Trends in death registrations associated with strokes and valvular heart disease

If the decline in mortality associated with atrial fibrillation is caused by the declining prevalence in chronic rheumatic heart disease it might be expected that trends in registration rates associated with both conditions will be similar. During 1968 to 1998, directly standardised death rates for both cerebrovascular disease (Figure 6) and rheumatic heart disease and valvular heart disease (Figure 7), fell by half in both males and females. However, stroke mortality was higher in males in contrast to mortality from rheumatic and valvular heart disease, which was higher in females and of a similar magnitude to that of atrial fibrillation.

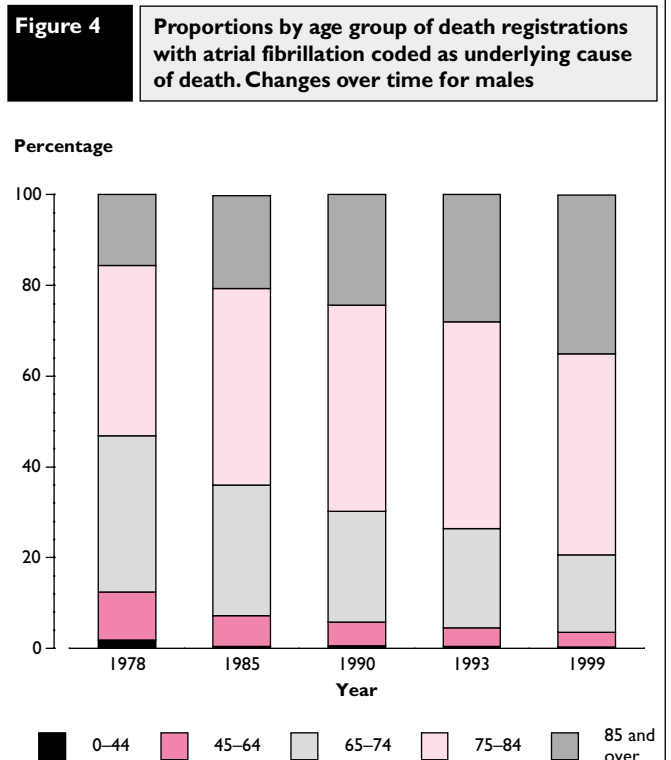
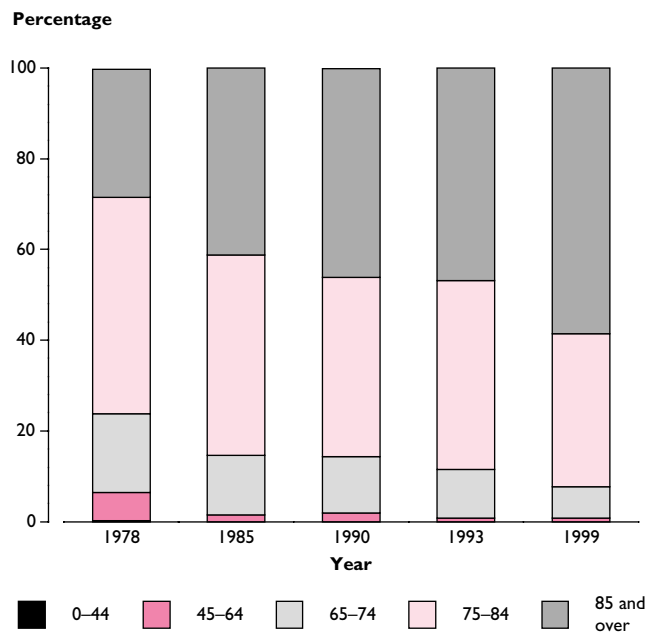


Figure 5 Proportions by age group of death registrations with atrial fibrillation coded as underlying cause of death. Changes over time for females



Multi-cause of death coding

When atrial fibrillation is coded as the underlying cause of death, cerebrovascular disease, acute ischaemia of the intestine, heart failure, broncho-pneumonia/pneumonia and arterial embolism are the five most commonly co-mentioned conditions on the death certificate (Table 1). Cerebrovascular disease was a co-mention on 52 per cent of death certificates and heart failure was a co-mention on 38 per cent of death certificates. This data is consistent with the known associations of atrial fibrillation with ischaemic stroke, heart disease, and systemic thromboembolic disease.

Table 2 shows the results of analysing the death registrations by underlying cause of death for which atrial fibrillation was a co-mention. The five most common underlying causes of death were coded as Ischaemic heart disease, cerebrovascular disease, heart failure, broncho-pneumonia/pneumonia and chronic obstructive pulmonary disease. Ischaemic heart disease was coded as underlying cause of death in 39 per cent of the registrations and cerebrovascular diseases coded as underlying cause of death in 14 per cent of the registrations. In most morbidity studies ischaemic heart disease is one of the principal associations with atrial fibrillation (up to 70 per cent of cases in some studies). It is likely that in many of the cases in which cerebrovascular disease was given as the underlying cause of death, atrial fibrillation was the 'true' underlying cause but not identified as such because of the way that the original death certificate had been completed.

Trends in hospital admissions

Before 1995-96, the data on atrial fibrillation derived from the Hospital Episode Statistics appears to be incomplete. Thus only data from 1995-96 onwards was analysed. As shown in Table 3 there was a striking increase in admission rates until 1998-99. This was seen in both sexes, although male rates were approximately double that for females. There was a two fold increase for admissions in which atrial fibrillation was given as the primary discharge diagnosis or as any secondary diagnosis. Day case discharge rates for atrial fibrillation also increased during this period. Increasingly, cardiologists are recommending direct current cardioversion for certain forms of atrial fibrillation and admission for

Figure 6 Death rates per 100,000 directly standardised by age for England and Wales 1968-98. Cerebrovascular disease (ICD8/ICD9 431-437) coded as the underlying cause of death

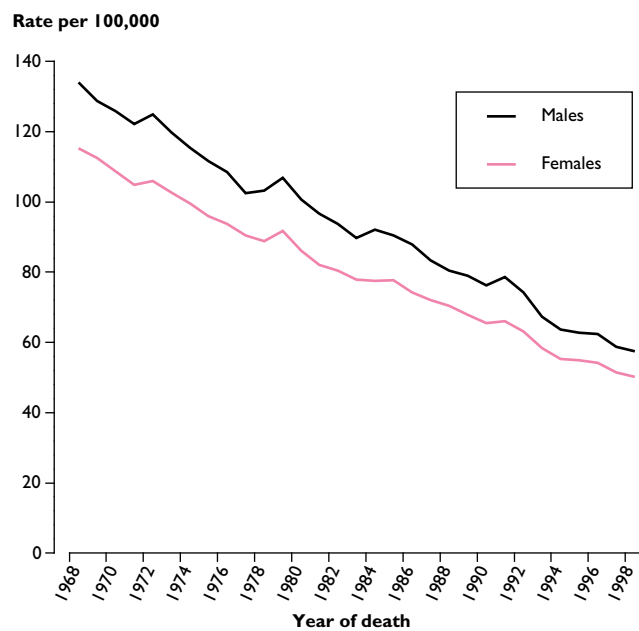
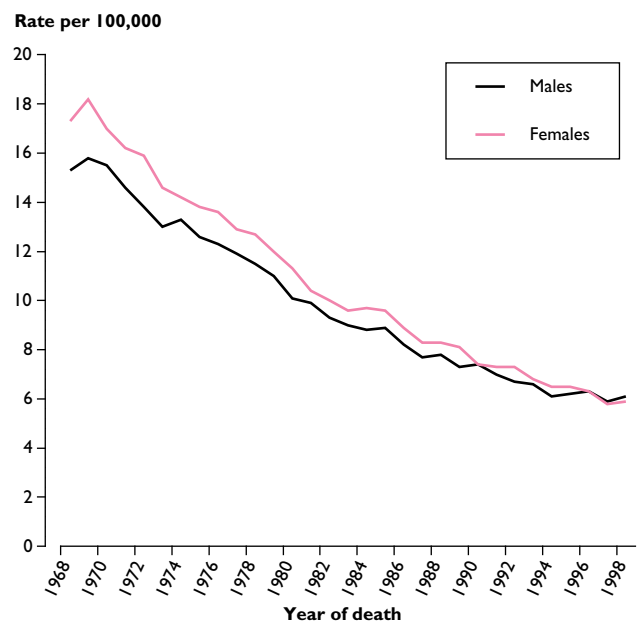


Figure 7 Death rates per 100,000 directly standardised by age for England and Wales 1968-98. Valvular heart disease (ICD8/ICD9 390-398, 424) coded as the underlying cause of death



this procedure might inflate discharge rates for atrial fibrillation (this procedure is often performed as a day case). However, although the day case hospital discharge rates for atrial fibrillation are increasing they account for only 14-18 per cent of the admissions. Table 4 illustrates the trends in age specific discharge rates. For both males and females the discharge rates are highly age dependent. In all age groups there has been an approximate doubling in discharge rates since 1995-96.

Table 1 Most common mentions as a proportion of all death registrations in which atrial fibrillation (ICD9 4273) was coded as the underlying cause of death. Data Pooled For 1993–99

ICD-9	Description	Number	Percentage
4273	Atrial fibrillation and flutter	14,065	100
431–437	Cerebrovascular disease	7,257	51.6
428	Heart failure	5,316	37.8
485	Bronchopneumonia	1,552	11.0
557	Acute vascular insufficiency of intestine	834	5.9
797	Senility without mention of psychosis	783	5.6
496	Chronic airways obstruction, not elsewhere classified	661	4.7
250	Diabetes mellitus	640	4.6
401	Essential hypertension	444	3.2
444	Arterial embolism and thrombosis	432	3.1
519	Other diseases of respiratory system	386	2.7
415	Acute pulmonary heart disease	325	2.3

Table 2 Most common diagnoses coded as underlying cause of death from death registrations, in which atrial fibrillation (ICD9 4273) was mentioned on the death certificate, but was not coded as the underlying cause of death. Data Pooled For 1993–99

ICD-9	Description	Number	Percentage
000–999	All deaths (excluding atrial fibrillation and flutter)	36,334	100
410–414	Ischaemic heart disease	13,998	38.5
431–437	Cerebrovascular disease	4,946	13.6
485–486	Bronchopneumonia/pneumonia, organism unspecified	2,907	8.0
496	Chronic airways obstruction	1,719	4.7
428	Heart failure	1,236	3.4
424	Other diseases of endocardium	789	2.2
443	Other peripheral vascular disease	685	1.9
394	Diseases of mitral valve	666	1.8
162	Malignant neoplasm of trachea, bronchus and lung	589	1.6
402	Hypertensive heart disease	368	1.0

DISCUSSION

Principal findings

There have been no comparable results published on the trends in mortality or discharge rates associated with atrial fibrillation using national data sources. In this respect the present investigation is unique. In 1998 atrial fibrillation was mentioned in a total of 8,674 death registrations. It was mentioned in 1.5 per cent of all registrations for cerebrovascular disease and in 3.8 per cent of registrations for ischaemic heart disease.

Table 3 Hospital discharge rates per 100,000. All ordinary and day case admissions for England 1995–1999. Directly standardised by age. Primary and Secondary diagnoses atrial Fibrillation (AF).

Year of discharge	Primary diagnosis AF		Secondary diagnosis AF		Day case admissions	
	Males	Females	Males	Females	Males	Females
Day case admissions						
1995/96	44.8	23.5	135.6	65.6	3.8	1.4
1996/97	69.7	36.2	195.2	94.6	8.6	3.3
1997/98	92.7	47.5	247.3	122.2	13.8	5.8
1998/99	105.7	51.8	286.2	136.1	18.8	7.3

Death registrations associated with atrial fibrillation halved between 1968 and 1982. The registration rate then remained relatively constant until 1994 when it began a sustained rise and had nearly doubled by 1999. Death registration rates are age dependent with the highest rates observed in those aged 85 years and over. The trend in overall rates are very similar for both males and females with only small differences between them. The results confirm that much of the change in mortality seen from 1968 to 1999 is caused by changes in the mortality experience of the most elderly age groups. Analysis of the death registrations in which there was any mention of atrial fibrillation showed that the most common mentions other than atrial fibrillation were heart failure, ischaemic heart disease, cerebrovascular disease, and broncho-pneumonia/pneumonia.

Table 4 Trends in age specific discharge rates per 100,000 for males and females. Atrial fibrillation as primary diagnosis. (First FCEs only)

Year of discharge	0–44 years		45–64 years		65–74 years		75–84 years		85 and over	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1995/96	4.5	1.1	58.0	24.9	149.6	105.5	186.1	172.1	1131.9	427.3
1996/97	6.7	2.0	90.8	39.2	236.6	155.9	284.6	269.4	1735.3	642.4
1997/98	8.4	2.5	117.0	50.6	321.2	210.4	402.8	350.1	2328.4	836.7
1998/99	10.5	2.8	135.7	52.7	365.9	231.8	453.3	388.0	2577.8	944.0

There has been a two fold increase in hospital discharge rates since 1995/96 in which atrial fibrillation was recorded as the primary discharge diagnosis or as any secondary diagnosis. This increase was in both sexes and in all age groups. Age group specific discharge rates are consistently higher in males than in females. Discharge rates, like mortality rates, are highly age dependent and the highest discharge rates are seen in the age group 85 years and above. Hospital discharge rates are higher in males. In the year 1998/99 atrial fibrillation was the primary diagnosis in 0.7 per cent of all admissions for diseases of the circulatory system (ICD-10 codes I00-I99)

Strengths and weaknesses of study

The main strength of this study is that it makes use of 32 years of death registrations for England and Wales, which enables trends to be reliably identified. Secondly, the use of data from England and Wales provides large numerators even though as a coded cause of death atrial fibrillation is uncommon. Thirdly, virtually all deaths are captured by the registration system thus it is unlikely that systematic errors will occur due to missing data. Similarly, four years worth of hospital episode statistics (HES) data for England was used to analyse discharge rates and although data capture may not be complete the number of episodes is large enough to ensure that the trends found should be valid and representative of the whole population.

In any study of this type which analyses death registrations to look at trends in causes of mortality the principal weakness is the problem of disentangling real trends from spurious ones caused by changes in certification practice, and coding frames and rules. During the period selected for this study there were two ICD revisions but fortunately the coding for atrial fibrillation was little affected. From 1984 to 1993 OPCS used a broader interpretation of ICD-9 rule 3 which resulted in a fall in the number of deaths ascribed to one of 11 conditions regarded as terminal, and an apparent increase in deaths from many chronic conditions.⁸ The accuracy with which the certifier, usually a doctor, completes the certificate, and the selection of the underlying cause of death by coders up until 1993 are other causes of misclassification. Since 1993 the introduction of automatic cause of death and multi cause coding enables it to be controlled for if necessary in the analysis. HES data also suffers from biases introduced by misclassification,

particularly the use of different rules by coders in the coding departments of NHS Trusts. A further problem with HES data is that it is very difficult in routine analysis of the data to identify multiple admissions for individual patients. The apparent male excess of discharges observed in all age groups may not be so much a reflection of higher incidence and prevalence rates of atrial fibrillation in males in the community as of their likelihood of being admitted to hospital as a consequence of it. However given the large number of discharges these errors will tend to be random and the overall effect will be a reduction in the true size of the effects observed.

Possible mechanisms and implications for clinicians and policy makers

It is difficult to explain the trends observed in death registrations associated with atrial fibrillation. The decline in death rates which occurred up until 1983 may have been related to the declining prevalence of rheumatic heart disease during the 20th century. The declining mortality from rheumatic and valvular heart disease observed during this period lends support to this hypothesis, particularly as the greatest falls occurred in the over 85 year olds. However it does not explain the rise in the 1990s. Some of the increase observed from 1993 may have been a result of the changed coding system introduced at this time which used automatic multi cause coding, but it is unlikely to explain the sustained increase observed between 1993–1999. The results of the first clinical trials reporting the benefits of antithrombotic treatment in preventing strokes in patients with atrial fibrillation were published between 1988 and 1994.^{9,10,11,12,13,14,15,16} It is likely that these findings increased awareness amongst clinicians of the role of atrial fibrillation as a risk factor for ischaemic stroke, leading to atrial fibrillation being mentioned more frequently in association with cerebrovascular disease. A proportion of deaths which otherwise would be attributed to cerebrovascular disease may therefore have been coded to atrial fibrillation as the underlying cause of death instead.

Apart from artefactual changes in the mortality rates over time produced by changes in certification practice and cause of death coding, it is likely that there has been a real increase in deaths associated with atrial fibrillation. The prevalence of atrial fibrillation appears to be increasing in those age groups most at risk of its consequences. In the USA, annual visits to physicians for atrial fibrillation increased from 1.3 million in 1980 to 3.1 million in 1992, and that crude hospital discharge rates for atrial fibrillation increased from 30.6 per 10,000 in 1982 to 59.5 per 10000 in 1993.^{17,18} This data is in agreement with the findings of the present study in which there was a greater than two fold increase in standardised discharge rates for England for atrial fibrillation in both males and females from 1995/96 to 1998/99. The Framingham heart study also found a three fold increase in the prevalence of atrial fibrillation from 3.2 per cent to 9.1 per cent in men aged 65–84 years during the period 1968–89. Thus it is likely that a significant proportion of the increase in mentions on death certificates is caused by a real increase in the prevalence of atrial fibrillation. Although rheumatic heart disease as a precursor of atrial fibrillation is now rare the improvements in survival rates from myocardial infarction and increased use of coronary artery revascularisation procedures are thought to contribute to the increasing prevalence of atrial fibrillation, particularly in the older age groups.¹⁹

As well as becoming more common, the morbidity associated with atrial fibrillation may be more severe. There is evidence that the stroke risk associated with atrial fibrillation is considerably increased in the presence of comorbidities, and these are also strongly age related.^{4,10,11,12,20} Even in patients with atrial fibrillation but without comorbidities, the risk of death is doubled and elderly patients with atrial fibrillation who suffer strokes are often more severely disabled and more likely to die than patients without atrial fibrillation.^{6,7} The

multi-cause data analysis presented in this study confirms the association between atrial fibrillation and cerebrovascular disease which has been found in numerous studies of morbidity. In this study cerebrovascular disease was a co-mention in 52 per cent of death registrations when atrial fibrillation was coded as the underlying cause of death and conversely atrial fibrillation was a co-mention in 14 per cent of registrations when cerebrovascular disease was given as the underlying cause of death.

It is also possible that part of the increase in mortality and hospital discharge rates found in the present study is produced by major bleeding complications accompanying the increasing use of antithrombotic treatments to prevent ischaemic stroke in patients with atrial fibrillation. In one large trial major bleeding episodes occurred with an overall frequency of 2.3 per cent per year when receiving warfarin and 1.1 per cent per year when receiving aspirin.²¹ This trial confirmed that the risk was strongly age related and major bleeds occurred in 1.7 per cent of those aged under 75 years and 4.2 per cent in those older than this. The risk of intracranial bleeding was 0.6 per cent and 1.8 per cent respectively. In the elderly sub group 71 per cent of the intracranial bleeds were fatal. Our analysis of death registrations found no evidence of bleeding complications, such as bleeding peptic ulcer, being common co-mentions with atrial fibrillation on death certificates. However, we cannot exclude the possibility that some of the strokes co-mentioned with atrial fibrillation were haemorrhagic and caused by antithrombotic treatment. Similarly, the hospital discharge rates show similar trends for atrial fibrillation as both primary or secondary diagnosis. It is possible that some of the admissions in which atrial fibrillation was a secondary diagnosis were for bleeding complications of antithrombotic treatment. However the data are likely to be complicated by the possible reluctance of medical practitioners to record that a death or other adverse event was associated with antithrombotic treatment.

The overall treatment rate with anticoagulants of patients with atrial fibrillation is now higher than the 21–31 per cent suggested by earlier UK studies.^{22,23,24} Data from the General Practice Research Database for the period 1994–98 has recently been published.²⁵ In this study, the proportion of patients with atrial fibrillation treated with oral anticoagulants in males aged 65–74 years increased from 24.8 per cent to 41.4 per cent (1.7 fold increase) and for females it increased from 26.8 per cent to 39.2 per cent (1.5 fold increase). Rates for older age groups also increased. In particular for the age group 75–84 years of age there were 2.2 fold and 1.9 fold increases in anticoagulation over the period for males and females respectively. However, the rates of anticoagulation are still too low to explain more than a small proportion of the death registrations associated with atrial fibrillation.

The results of this study together with evidence from other investigations have implications for clinicians and policy makers. The prevalence of atrial fibrillation is increasing and it is affecting predominantly the older age groups, the proportion of which is rising in all industrial societies. Anticoagulants to prevent strokes are still underused in patients with atrial fibrillation. The National Service Framework for Coronary Heart Disease sets a standard that all eligible patients with atrial fibrillation over 60 years old should be prescribed warfarin or aspirin.²⁶ The expanding use of antithrombotic treatment, particularly warfarin has implications for the health service. The use of these drugs requires careful and regular monitoring as well as good patient compliance. They are associated with significant side effects which deters some clinicians from using them, particularly in the elderly. There is a need to monitor the impact of these interventions on the overall incidence of stroke and arterial thromboembolism and that associated with atrial fibrillation in particular. The monitoring of death registrations has traditionally been one way of measuring the impact of preventative or treatment interventions on disease. In the case of atrial

fibrillation and stroke, this may be inappropriate and misleading. Nevertheless this study provides useful baseline data on the trends in death registrations associated with atrial fibrillation and confirms in death what has been suspected in life, namely that the condition is associated with stroke, ischaemic heart disease, and heart failure.

Unanswered questions and future research

In conclusion the reason for the recent increase in death registration rates associated with atrial fibrillation is likely to be multi factorial and warrant further investigation. The analysis done on registrations from 1993 onwards which were multi-cause coded could be compared with the results of previous analyses done at the time of coding changes. Research needs to be conducted to examine whether the increasing use of antithrombotic treatment is leading to an increase in major complications. There also needs to be improved recording of adverse drug reactions particularly those leading to deaths and hospital admissions. This would provide useful information on the hazards of warfarin therapy and enable better risk stratification models to be developed to aid the targeted treatment of those patients with atrial fibrillation who are most likely to benefit from antithrombotic treatment.

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Key findings

- Atrial fibrillation is an important risk factor for stroke, affects about 0.4–1 per cent of the population, and is increasing in prevalence. In 1998 atrial fibrillation was mentioned on 1.5 per cent of death certificates for stroke and 3.8 per cent of death certificates for ischaemic heart disease.
 - There is a female excess in deaths associated with atrial fibrillation throughout the period 1968–1999. The biggest changes in age specific mortality rates associated with atrial fibrillation during the period have occurred in the age groups 85 years and above.
 - Mortality rates in England and Wales associated with atrial fibrillation coded as the underlying cause of death have almost doubled since 1993.
 - Heart failure, ischaemic heart and cerebrovascular diseases and bronchopneumonia/pneumonia are the most common co-mentions with atrial fibrillation on death certificates.
 - Since 1995/96 there has been a 2 fold increase in hospital discharge rates associated with atrial fibrillation as a primary or secondary discharge diagnosis. In 1999 it was given as the primary discharge diagnosis in 0.7 per cent of all admissions to hospital for diseases of the circulatory system.
 - The highest discharge rates have been in the age group 85 years and above.
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Symbols

- .. not available
- : not applicable
- nil or less than half the final digit shown
- blank not yet available

Notes to tables

Changes to tables

With the introduction of *Health Statistics Quarterly*, the previous *Population Trends* tables have been reviewed and some small changes introduced, in particular, a new table, Table 2.2, showing key demographic and health indicators for the constituent countries of the United Kingdom.

For most tables, years start at 1971 and then continue at five-year intervals until 1991. Individual years are shown thereafter. If a year is not present the data are not available.

Population

The estimated and projected populations of an area include all those usually resident in the area, whatever their nationality. Members of HM forces stationed outside the United Kingdom are excluded. Students are taken to be resident at their term-time addresses.

Figures for the United Kingdom do not include the population of the Channel Islands or the Isle of Man.

The population estimated for mid-1991 onwards are final figures based on the 1991 Census of Population with allowance for subsequent births, deaths and migration.

Live births

For England and Wales, figures relate to numbers occurring in a period; for Scotland and Northern Ireland, figures relate to those registered in a period. See also Note on page 63 of *Population Trends 67*.

Perinatal mortality

In October 1992 the legal definition of a stillbirth was changed, from baby born dead after 28 completed weeks of gestation or more, to one born dead after 24 completed weeks of gestation or more.

Expectation of life

The life tables on which these expectations are

based use current death rates to describe mortality levels for each year. Each individual year shown is based on a three-year period, so that for instance 1986 represents 1985–87. More details may be found in *Population Trends 60*, page 23.

Deaths

Figures for England and Wales represent the numbers of deaths registered in each year up to 1992, and the number of deaths occurring in each year from 1993. Provisional figures are registrations.

Figures for both Scotland and Northern Ireland represent the number of deaths registered in each year.

Age-standardised mortality

Directly age-standardised rates make allowances for changes in the age structure of the population. The age-standardised rate for a particular condition is that which would have occurred if the observed age-specific rates for the condition had applied in a given standard population. Tables 2.2 and 6.3 use the European Standard Population. This is a hypothetical population standard which is the same for both males and females allowing standardised rates to be compared for each sex, and between males and females.

Abortions

Figures relate to numbers occurring in a period.

Marriages and divorces

Marriages are tabulated according to date of solemnisation. Divorces are tabulated according to date of decree absolute, and the term 'divorces' includes decrees of nullity.

Government Office Regions

Figures refer to Government Office Regions (GORs) of England which were adopted as

the primary classification for the presentation of regional statistics from April 1997.

Health Regional Office areas

Figures refer to new health regions of England which are as constituted on 1 April 1996.

Sources

Figures for Scotland and Northern Ireland shown in these tables (or included in totals for the United Kingdom or Great Britain) have been provided by their respective General Register Offices, except for the projections in Table 1.2 which are provided by the Government Actuary.

Rounding

All figures are rounded independently; constituent parts may not add to totals. Generally numbers and rates per 1,000 population are rounded to one decimal place (e.g. 123.4); where appropriate, for small figures (below 10.0), two decimal places are given (e.g. 7.62). Figures which are provisional or estimated are given in less detail (e.g. 123 or 7.6 respectively) if their reliability does not justify giving the standard amount of detail. Where, for some other reason, figures need to be treated with particular caution, an explanation is given as a footnote.

Latest figures

Figures for the latest quarters and years may be provisional (see note above on rounding) and will be updated in future issues when later information becomes available. Where figures are not yet available, cells are left blank. Population estimates and rates based on them may be revised in the light of results from future censuses of populations.

Table I.1 Population and vital rates: international Selected countries

Year	United Kingdom (1)	Austria (2)	Belgium (2)	Denmark (2)	Finland (2)	France (2)	Germany (2)*	Greece (2)	Irish Republic (2)	Italy (2)	Luxembourg (2)	Netherlands (2)	Portugal (2)
Population (thousands)													
1971	55,928	7,501	9,673	4,966	4,612	51,251	78,313	8,831	2,978	54,073	342	13,194	8,644
1976	56,216	7,566	9,818	5,073	4,726	52,909	78,337	9,167	3,228	55,718	361	13,774	9,356
1981	56,352	7,569	9,859	5,121	4,800	54,182	78,408	9,729	3,443	56,502	365	14,247	9,851
1986	56,852	7,588	9,862	5,120	4,918	55,547	77,720	9,967	3,546	56,596	368	14,572	10,011
1991	57,808	7,813	10,004	5,154	5,014	57,055	80,014	10,247	3,534	56,751	387	15,070	9,871
1992	58,006	7,914	10,045	5,171	5,042	57,374	80,625	10,322	3,558	56,859	393	15,184	9,867
1993	58,191	7,992	10,084	5,188	5,066	57,654	81,156	10,379	3,576	57,049	398	15,290	9,881
1994	58,395	8,030	10,116	5,206	5,088	57,900	81,438	10,426	3,590	57,204	404	15,383	9,902
1995	58,606	8,047	10,137	5,233	5,108	58,139	81,678	10,454	3,609	57,301	410	15,459	9,916
1996	58,801	8,059	10,157	5,263	5,125	58,375	81,915	10,476	3,636	57,397	416	15,530	9,927
1997	59,009	8,072	10,181	5,285	5,140	58,610	82,035	10,499	3,673	57,512	421	15,611	9,946
1998	59,237	8,075	10,203	5,304	5,153	58,847	82,047	10,522		57,588	426	15,707	9,968
1999	59,501												
Population changes (per 1,000 per annum)													
1971-76	1.0	1.7	3.0	4.3	4.9	6.5	0.1	7.6	16.8	6.1	10.7	8.8	16.5
1976-81	0.5	0.1	0.8	1.9	3.1	4.8	0.2	12.3	13.3	2.8	2.5	6.9	10.6
1981-86	1.8	0.5	0.1	0.0	4.9	5.0	-1.8	4.9	6.0	0.3	1.8	4.6	3.2
1986-91	3.4	5.9	2.9	1.3	3.9	5.4	5.9	5.6	-0.7	0.5	10.2	6.8	-2.8
1991-92	3.4	12.9	4.1	3.3	5.6	5.6	7.6	7.3	6.8	1.9	13.9	7.6	-0.4
1992-93	3.2	9.8	3.9	3.3	4.8	4.9	6.6	5.5	5.1	3.4	14.3	7.0	1.4
1993-94	3.5	4.8	3.1	3.5	4.3	4.3	3.5	4.6	3.9	2.7	14.3	6.1	2.2
1994-95	3.6	2.1	2.1	5.2	3.9	4.1	2.9	2.7	5.3	1.7	14.6	4.9	1.4
1995-96	3.3	1.6	1.9	5.7	3.3	4.1	2.9	2.1	7.5	1.7	14.4	4.6	1.1
1996-97	3.5	1.6	2.4	4.2	3.0	4.0	1.5	2.2	10.2	2.0	13.0	5.2	1.9
1997-98	3.9		2.2	3.6	2.5	4.0	0.1	2.2		1.3	11.9	6.1	2.2
1998-99	4.5												
Live birth rate (per 1,000 per annum)													
1971-75	14.1	13.3	13.4	14.6	13.1	16.0	10.5	15.8	22.2	16.0	11.6	14.9	20.3
1976-80	12.5	11.5	12.5	12.0	13.6	14.1	10.5	15.6	21.3	12.6	11.2	12.6	17.9
1981-85	12.9	12.0	12.0	10.2	13.4	14.2	10.7	13.3	19.2	10.6	11.6	12.2	14.5
1986-90	13.6	11.6	12.1	11.5	12.7	13.8		10.6	15.8	9.8	12.2	12.8	11.9
1991	13.7	12.1	12.6	12.5	13.0	13.3	10.4	10.1	15.0	9.9	12.9	13.2	11.8
1992	13.5	12.1	12.4	13.1	13.3	13.0	10.1	10.1	14.4	9.7	13.1	13.0	11.6
1993	13.1	11.9	12.0	13.0	12.8	12.3	9.9	9.8	13.8	9.6	13.4	12.8	11.5
1994	12.9	11.5	11.5	13.4	12.8	12.3	9.5	10.0	13.4	9.3	13.5	12.7	11.0
1995	12.5	11.0	11.4	13.3	12.3	12.5	9.4	9.7	13.5	9.2	13.2	12.4	10.8
1996	12.5	11.0	11.4	12.9	11.8	12.6	9.7	9.6	13.9	9.2	13.7	12.3	11.1
1997	12.3	10.4	11.4	12.8	11.5	12.4	9.9	9.7	14.2	9.2	13.1	12.4	11.4
1998	12.1	10.1	11.2	12.5	11.1	12.6	9.5	9.6		9.0	12.6	12.8	11.4
1999	11.8												
Death rate (per 1,000 per annum)													
1971-75	11.8	12.6	12.1	10.1	9.5	10.7	12.3	8.6	11.0	9.8	12.2	8.3	11.0
1976-80	11.9	12.3	11.6	10.5	9.3	10.2	12.2	8.8	10.2	9.7	11.5	8.1	10.1
1981-85	11.7	12.0	11.4	11.1	9.3	10.1	12.0	9.0	9.4	9.5	11.2	8.3	9.6
1986-90	11.4	11.1	10.8	11.5	9.8	9.5		9.3	9.1	9.4	10.5	8.5	9.6
1991	11.3	10.7	10.5	11.6	9.8	9.2	11.4	9.3	8.9	9.7	9.7	8.6	10.5
1992	11.0	10.5	10.3	11.8	9.9	9.1	11.0	9.5	8.7	9.6	10.2	8.6	10.2
1993	11.3	10.3	10.7	12.1	10.1	9.2	11.1	9.4	8.7	9.7	9.8	9.0	10.7
1994	10.7	10.0	10.4	11.7	9.4	9.0	10.9	9.4	8.6	9.7	9.4	8.7	10.0
1995	11.0	10.1	10.5	12.1	9.6	9.1	10.8	9.6	8.9	9.5	9.3	8.8	10.4
1996	10.8	10.0	10.4	11.6	9.6	9.2	10.8	9.6	8.7	9.5	9.4	8.9	10.8
1997	10.7	9.8	10.2	11.3	9.6	9.0	10.5	9.5	8.6	9.6	9.4	8.7	10.5
1998	10.6	9.7	10.3	11.0	9.6	9.2	10.4	9.6		9.9	9.1	8.8	10.7
1999	10.6												

* Including former GDR throughout.

≠ Estimates prepared by the Population Division of the United Nations - Excludes Hong Kong.

† Rates are based on, births to, or deaths, Japanese nationals only.

§ Rates are for 1990-1995.

** Estimates prepared by Eurostat.

Population estimated as follows:

(1) At 30 June.

(2) Estimated Mid year population as given in Council of Europe report: Recent Demographic Developments in Europe 1999.

(3) EU15, the 15 member countries of the European Union.

(4) At 1 July as given in the United Nations Demographic Yearbook or United Nations Monthly Bulletin of Statistics.

Note figures may not add due to rounding.

Table 1.1
continued

Population and vital rates: international

Selected countries

Spain (2)	Sweden (2)	European Union (3)	Russian Federation (2)	Australia (4)	Canada (4)	New Zealand (4)	China [≠] (4)	India (4)	Japan [†] (4)	USA (4)	Year
Population (thousands)											
34,192	8,098	342,596	130,934	13,067	22,026	2,899	852,290	551,311	105,145	207,661	1971
35,939	8,222	350,409	135,027	14,033	23,517	3,163	937,170 [≠]	617,248	113,094	218,035	1976
37,741	8,320	356,490	139,225	14,923	24,900	3,195	1,008,460 [≠]	675,185	117,902	229,958	1981
38,536	8,370	359,573	144,154	16,018	26,204	3,317	1,086,733 [≠]	767,199	121,672	240,680	1986
38,919	8,617	366,258	147,885	17,284	28,030	3,480	1,170,100 [≠]	851,900	123,964	252,618	1991
39,006	8,668	368,033	148,312	17,489	28,380	3,510	1,183,600 [≠]	868,900	124,425	255,391	1992
39,083	8,719	369,706	148,146	17,667	28,700	3,550	1,196,400 [≠]	886,250	124,829	258,080	1993
39,147	8,781	371,009	147,968	17,855	29,040	3,600	1,208,800 [≠]	903,940 [≠]	125,178	260,602	1994
39,210	8,827	372,132	147,774	18,072	29,350	3,660	1,220,520 [≠]	921,990 [≠]	125,472	263,040	1995
39,270	8,841	373,188	147,373	18,311	29,670	3,710	1,232,460 [≠]	939,540 [≠]	127,761	265,460	1996
39,323	8,846	374,163	146,938	18,520	29,990	3,760	1,255,700	995,220	126,070	268,010	1997
39,371	8,851	363,224	146,534	18,730	30,250	3,790		970,930	126,410	270,560	1998
											1999
Population changes (per 1,000 per annum)											
10.2	3.1	4.6	6.3	14.8	13.5	18.2	19.9	23.9	15.1	10.0	1971-76
10.0	2.4	3.5	6.2	12.7	11.8	2.0	15.2	18.8	8.5	10.9	1976-81
4.2	1.2	1.7	7.1	14.7	10.5	7.6	15.5	27.3	6.4	9.3	1981-86
2.0	5.9	3.7	5.2	15.8	13.9	9.8	15.3	22.1	3.8	9.9	1986-91
2.2	5.9	4.9 ‡	2.9	11.9	12.5	8.6	11.5	20.0	3.7	11.0	1991-92
2.0	5.8	4.5 ‡	-1.1	10.2	11.3	11.4	10.8	20.0	3.2	10.5	1992-93
1.6	7.1	3.5 ‡	-1.2	10.6	11.8	14.1	10.4	20.0	2.8	9.8	1993-94
1.6	5.3	3.0 ‡	-1.3	12.2	10.7	16.7	9.7	20.0	2.3	9.4	1994-95
1.5	1.6	2.8	-2.7	13.2	10.9 ‡	13.7	9.8	19.0	2.3	9.2	1995-96
1.3	0.6	2.6	-3.0	1.4	10.8	1.3	9.5	16.7	2.5	9.6	1996-97
1.2	0.6	-29.2	-2.7	11.3	8.7	8.0	9.2	16.4	2.7	9.5	1997-98
											1998-99
Live birth rate (per 1,000 per annum)											
19.2	13.5	14.7		18.8	15.9	20.4	27.2	35.6	18.6	15.3	1971-75
17.1	11.6	13.1		15.7	15.5	16.8	18.6	33.4	14.9	15.2	1976-80
12.8	11.3	12.2		15.6	15.1	15.8	19.2	..	12.6	15.7	1981-85
10.8	13.2	12.0		15.1	14.8	17.1			10.6	16.0	1986-90
10.2	14.3	11.7	12.1	14.9	14.3	17.4		29.5	9.9	16.3	1991
10.2	14.2	11.5	10.7	15.1	14.0	17.2		29.0	9.7	16.0	1992
9.9	13.5	11.2	9.3	14.7	13.4	16.5	18.5§	28.7	9.5	15.6	1993
9.5	12.8	10.9	9.5	14.5	13.2	15.9		28.7	9.9	15.2	1994
9.3 ‡	11.7	10.8	9.2	14.2	12.8	15.8		28.3	9.5	14.8	1995
9.2 ‡	10.8	10.8	8.9	13.8	12.2	15.4		27.3	9.6	14.7	1996
9.2 ‡	10.2	10.8	8.6	13.6	11.9	15.3			9.5	14.6	1997
9.2	10.1	10.7 **	8.8	13.3		14.6			9.6	14.6	1998
						15.0					1999
Death rate (per 1,000 per annum)											
8.5	10.5	10.8		8.2	7.4	8.4	7.3	15.5	6.4	9.1	1971-75
8.0	10.9	10.6		7.6	7.2	8.2	6.6	13.8	6.1	8.7	1976-80
7.7	11.0	10.4		7.3	7.0	8.1	6.7	..	6.1	8.6	1981-85
8.2	11.1	10.2		7.2	7.3	8.2			6.4	8.7	1986-90
8.6	11.0	10.2	11.4	6.9	7.0	7.7		9.8	6.7	8.6	1991
8.5	10.9	10.0	12.2	7.1	6.9	7.9		10.1	6.9	8.5	1992
8.7	11.1	10.2	14.3	6.9	7.1	7.6	7.2§	9.3	7.0	8.8	1993
8.6	10.5	9.9	15.5	7.1	7.1	7.5		9.3	7.0	8.8	1994
8.8	10.6	10.0	14.9	6.9	7.1	7.6		9.0	7.4	8.8	1995
8.9	10.6	10.0	14.1	7.0	7.1	7.6		8.9	7.1	8.7 ‡	1996
8.9	10.6	9.8	13.7	7.0	7.2	7.3			7.3	8.6	1997
9.1	10.5	9.9 **	13.6	6.8		6.9			7.5	8.6	1998
						7.4					1999

See notes opposite.

Table 1.2

Population: national
Numbers (thousands) and percentage age distribution

Constituent countries of the United Kingdom

Mid-year	United Kingdom	Great Britain	England and Wales	England	Wales	Scotland	Northern Ireland
Estimates							
1971	55,928	54,388	49,152	46,412	2,740	5,236	1,540
1976	56,216	54,693	49,459	46,660	2,799	5,233	1,524
1981	56,357	54,815	49,634	46,821	2,813	5,180	1,543
1986	56,859	55,285	50,162	47,342	2,820	5,123	1,574
1991	57,814	56,207	51,100	48,208	2,891	5,107	1,607
1992	58,013	56,388	51,277	48,378	2,899	5,111	1,625
1993	58,198	56,559	51,439	48,533	2,906	5,120	1,638
1994	58,401	56,753	51,621	48,707	2,913	5,132	1,648
1995	58,612	56,957	51,820	48,903	2,917	5,137	1,655
1996	58,807	57,138	52,010	49,089	2,921	5,128	1,669
1997	59,014	57,334	52,211	49,284	2,927	5,123	1,680
1998	59,237	57,548	52,428	49,495	2,933	5,120	1,689
1999	59,501	57,809	52,690	49,753	2,937	5,119	1,692
of which (percentages)							
0-4	6.1	6.1	6.1	6.1	5.8	5.8	7.1
5-15	14.3	14.2	14.2	14.2	14.5	13.9	17.2
16-44	40.8	40.8	40.7	40.9	38.2	41.5	41.9
45-64M/59F	20.8	20.8	20.8	20.8	21.6	20.8	18.5
65M/60F-74	10.7	10.8	10.7	10.7	11.8	11.3	9.4
75 and over	7.3	7.4	7.4	7.4	8.1	6.7	5.8
Projections[≠]							
2001	59,954	58,246	53,137	50,187	2,950	5,109	1,708
2006	60,860	59,119	54,021	51,052	2,969	5,098	1,742
2011	61,773	60,002	54,915	51,922	2,993	5,087	1,771
2016	62,729	60,930	55,853	52,831	3,021	5,078	1,799
2021	63,642	61,820	56,763	53,715	3,047	5,058	1,821
of which (percentages)							
0-4	5.6	5.6	5.6	5.6	5.5	5.3	5.9
5-15	12.2	12.1	12.1	12.1	12.2	11.8	13.3
16-44	35.9	35.9	36.0	36.0	34.8	34.9	37.0
45-64†	27.1	27.2	27.1	27.1	26.3	28.3	26.6
65-74†	10.4	10.5	10.4	10.4	11.4	10.9	9.4
75 and over	8.7	8.8	8.8	8.7	9.7	8.8	7.8

[≠] These projections are based on the mid-1998 population estimates.

[†] Between 2010 and 2020, state retirement age will change from 65 years for men and 60 years for women, to 65 years for both sexes.

Note: Figures may not add exactly due to rounding.

Table 1.3

Population: subnational
 Numbers (thousands) and percentage age distribution

Health Regional Office areas of England*

Mid-year	Northern and Yorkshire	Trent	Eastern	London	South East	South West	West Midlands	North West
Estimates								
1971	6,723	4,483	4,380	7,750	7,136	4,132	5,146	6,662
1976	6,729	4,557	4,448	7,307	7,378	4,299	5,178	6,588
1981	6,718	4,608	4,781	7,018	7,621	4,300	5,187	6,488
1986	6,692	4,634	4,938	7,013	7,892	4,910	5,197	6,397
1991	6,285	5,035	5,150	6,890	8,266	4,718	5,266	6,600
1992	6,309	5,060	5,175	6,905	8,302	4,746	5,278	6,603
1993	6,323	5,081	5,193	6,933	8,329	4,768	5,290	6,617
1994	6,332	5,096	5,223	6,968	8,379	4,798	5,295	6,616
1995	6,337	5,109	5,257	7,007	8,446	4,827	5,306	6,614
1996	6,338	5,121	5,293	7,074	8,500	4,842	5,317	6,605
1997	6,336	5,128	5,334	7,122	8,569	4,876	5,321	6,598
1998	6,339	5,134	5,377	7,187	8,620	4,901	5,333	6,604
1999	6,336	5,148	5,419	7,285	8,699	4,936	5,336	6,595
of which (percentages)								
0-4	5.9	5.9	6.1	6.9	6.0	5.6	6.2	6.0
5-15	14.4	14.2	14.1	13.6	14.1	13.7	14.7	14.9
16-44	40.1	40.0	40.0	46.8	40.3	38.0	39.8	40.2
45-64M/59F	21.0	21.3	21.4	18.1	21.3	21.7	21.2	20.9
65M/60F-74	11.2	11.2	10.9	8.5	10.6	11.9	11.0	10.8
75 and over	7.3	7.5	7.6	6.1	7.8	9.1	7.2	7.2
Projections[‡]								
2001	6,365	5,184	5,448	7,215	8,757	4,977	5,343	6,582
2006	6,382	5,232	5,582	7,337	8,985	5,097	5,358	6,553
2011	6,405	5,277	5,702	7,470	9,191	5,213	5,372	6,530
2016	6,435	5,324	5,823	7,608	9,396	5,333	5,391	6,521
2021	6,464	5,371	5,941	7,736	9,594	5,452	5,411	6,515
of which (percentages)[§]								
0-4	5.5	5.4	5.5	6.4	5.5	4.9	5.7	5.7
5-15	12.2	11.9	12.1	12.5	12.1	11.2	12.5	12.5
16-44	35.5	35.2	34.5	41.5	34.9	32.8	34.9	35.6
45-64†	27.4	27.5	27.2	26.3	27.4	27.8	27.3	27.4
65-74†	10.9	10.9	11.2	7.7	10.9	12.4	10.7	10.5
75 and over	8.5	9.0	9.5	5.6	9.2	10.8	8.9	8.3

* The Regional Office boundaries were revised from 1 April 1999. See *Health Statistics Quarterly 03 In Brief* for details of the changes. Earlier years' figures have been revised to reflect the new boundaries.

‡ These projections are based on the mid-1996 population estimates and are consistent with the 1996-based national projections produced by the Government Actuary's Department.

† Between 2010 and 2020, state retirement age will change from 65 years for men and 60 years for women, to 65 years for both sexes.

§ The percentages shown in this table are correct and show the proportion in each age group for 2021. These replace the percentage figures shown in *Health Statistics Quarterly* numbers 01, 02 and 03, and *Population Trends* 95 and 96, which were miscalculated.

Note: Figures may not add exactly because of rounding.

Table 1.4

Population: subnational
 Numbers (thousands) and percentage age distribution

Government Office Regions of England

Mid-year	North East	North West*	Yorkshire and the Humber	East Midlands	West Midlands	East	London	South East	South West
Estimates									
1971	2,679	7,108	4,902	3,652	5,146	4,454	7,529	6,830	4,112
1976	2,671	7,043	4,924	3,774	5,178	4,672	7,089	7,029	4,280
1981	2,636	6,940	4,918	3,853	5,187	4,854	6,806	7,245	4,381
1986	2,601	6,852	4,906	3,919	5,197	5,012	6,803	7,492	4,560
1991	2,603	6,885	4,983	4,035	5,265	5,150	6,890	7,679	4,718
1992	2,609	6,890	5,002	4,062	5,278	5,175	6,905	7,712	4,746
1993	2,612	6,903	5,014	4,083	5,290	5,193	6,933	7,737	4,768
1994	2,610	6,902	5,025	4,102	5,295	5,223	6,968	7,784	4,798
1995	2,605	6,900	5,029	4,124	5,306	5,257	7,007	7,847	4,827
1996	2,600	6,891	5,036	4,141	5,317	5,293	7,074	7,895	4,842
1997	2,594	6,885	5,037	4,156	5,321	5,334	7,122	7,959	4,876
1998	2,590	6,891	5,043	4,169	5,333	5,377	7,187	8,004	4,901
1999	2,581	6,881	5,047	4,191	5,336	5,419	7,285	8,078	4,936
of which (percentages)									
0-4	5.7	6.0	6.0	5.9	6.2	6.1	6.9	6.0	5.6
5-15	14.4	14.8	14.5	14.2	14.7	14.1	13.6	14.0	13.7
16-44	40.1	40.1	40.4	40.0	39.8	40.0	46.8	40.2	38.0
45-64M/59F	21.1	21.0	20.8	21.5	21.2	21.4	18.1	21.3	21.7
65M/60F-74	11.6	10.9	10.9	11.0	11.0	10.9	8.5	10.6	11.9
75 and over	7.1	7.2	7.4	7.4	7.2	7.6	6.1	7.8	9.1
Projections[‡]									
2001	2,579	6,871	5,071	4,234	5,343	5,448	7,215	8,134	4,977
2006	2,555	6,843	5,098	4,312	5,358	5,582	7,337	8,344	5,098
2011	2,536	6,820	5,130	4,384	5,372	5,702	7,470	8,534	5,213
2016	2,521	6,813	5,165	4,455	5,391	5,823	7,609	8,722	5,333
2021	2,509	6,808	5,200	4,523	5,411	5,941	7,736	8,905	5,452
of which (percentages)[◇]									
0-4	5.4	5.7	5.6	5.4	5.7	5.5	6.4	5.4	4.9
5-15	12.1	12.4	12.2	12.0	12.5	12.1	12.5	12.1	11.2
16-44	35.1	35.4	35.9	35.1	34.9	34.5	41.5	34.9	32.8
45-64†	27.7	27.5	27.3	27.4	27.3	27.2	26.3	27.4	27.8
65-74†	11.2	10.6	10.6	11.1	10.7	11.2	7.7	10.9	12.4
75 and over	8.4	8.4	8.4	9.0	8.9	9.5	5.6	9.3	10.8

* The North West GOR was created on 3 August 1998 as a merger of the former North West and Merseyside GORs.

‡ These projections are based on the mid-1996 population estimates and are consistent with the 1996-based national projections produced by the Government Actuary's Department.

† Between 2010 and 2020, state retirement age will change from 65 years for men and 60 years for women, to 65 years for both sexes.

◇ The percentages shown in this table are correct and show the proportion in each age group for 2021. These replace the percentage figures shown in *Health Statistics Quarterly* numbers 01, 02 and 03, and *Population Trends* 95 and 96, which were miscalculated.

Note: Figures may not add exactly because of rounding.

Table 1.5

Population: age and sex
Numbers (thousands)

Constituent countries of the United Kingdom

Mid-year	All ages	Age group													Under 16	16-64/59	65/60 and over
		Under 1	1-4	5-14	15-24	25-34	35-44	45-59	60-64	65-74	75-84	85-89	90 and over				
United Kingdom																	
Persons																	
1971	55,928	899	3,654	8,916	8,144	6,971	6,512	10,202	3,222	4,764	2,159	358	127	14,257	32,548	9,123	
1976	56,216	677	3,043	9,176	8,126	7,868	6,361	9,836	3,131	5,112	2,348	390	147	13,797	32,757	9,663	
1981	56,357	730	2,726	8,147	9,019	8,010	6,774	9,540	2,935	5,195	2,677	..	..	12,543	33,780	10,035
1986	56,859	749	2,892	7,161	9,280	8,047	7,719	9,212	3,069	5,020	2,988	..	..	11,676	34,847	10,336
1991	57,814	794	3,094	7,175	8,247	9,057	7,955	9,500	2,888	5,067	3,139	640	258	11,742	35,469	10,602	
1993	58,198	758	3,129	7,417	7,729	9,293	7,787	10,070	2,839	5,169	3,022	689	295	11,966	35,590	10,641	
1994	58,401	758	3,116	7,484	7,555	9,376	7,836	10,277	2,807	5,223	2,954	704	309	12,075	35,691	10,634	
1995	58,612	734	3,101	7,528	7,448	9,411	7,931	10,445	2,784	5,127	3,055	721	326	12,107	35,849	10,656	
1996	58,807	719	3,044	7,596	7,323	9,423	8,093	10,582	2,772	5,058	3,126	729	341	12,099	36,035	10,673	
1997	59,014	736	2,976	7,667	7,230	9,360	8,294	10,697	2,781	5,005	3,176	734	358	12,107	36,213	10,693	
1998	59,237	715	2,956	7,709	7,190	9,232	8,505	10,820	2,818	4,965	3,205	742	380	12,110	36,397	10,730	
1999	59,501	708	2,916	7,763	7,199	9,064	8,746	10,951	2,861	4,929	3,222	750	393	12,114	36,634	10,753	
Males																	
1971	27,167	461	1,874	4,576	4,137	3,530	3,271	4,970	1,507	1,999	716	97	29	7,318	17,008	2,841	
1976	27,360	348	1,564	4,711	4,145	3,981	3,214	4,820	1,466	2,204	775	101	31	7,083	17,167	3,111	
1981	27,412	374	1,400	4,184	4,596	4,035	3,409	4,711	1,376	2,264	922	..	..	6,439	17,646	3,327
1986	27,698	384	1,483	3,682	4,743	4,063	3,872	4,572	1,463	2,206	1,064	..	..	5,998	18,264	3,437
1991	28,248	407	1,588	3,688	4,226	4,591	3,987	4,732	1,390	2,272	1,152	167	47	6,033	18,576	3,639	
1993	28,477	388	1,603	3,808	3,968	4,723	3,903	5,016	1,373	2,333	1,118	187	56	6,140	18,644	3,693	
1994	28,595	389	1,596	3,841	3,880	4,769	3,928	5,118	1,363	2,363	1,097	193	59	6,194	18,689	3,712	
1995	28,731	376	1,588	3,862	3,824	4,796	3,984	5,201	1,358	2,330	1,148	201	63	6,208	18,780	3,742	
1996	28,860	369	1,560	3,897	3,759	4,808	4,073	5,270	1,355	2,310	1,186	206	67	6,206	18,884	3,770	
1997	28,992	377	1,526	3,933	3,709	4,782	4,181	5,326	1,360	2,298	1,216	211	72	6,210	18,984	3,798	
1998	29,128	366	1,516	3,953	3,687	4,721	4,294	5,387	1,380	2,290	1,237	218	79	6,210	19,094	3,824	
1999	29,299	363	1,495	3,980	3,694	4,642	4,425	5,454	1,400	2,284	1,255	223	83	6,211	19,243	3,845	
Females																	
1971	28,761	437	1,779	4,340	4,008	3,441	3,241	5,231	1,715	2,765	1,443	261	97	6,938	15,540	6,282	
1976	28,856	330	1,479	4,465	3,980	3,887	3,147	5,015	1,665	2,908	1,573	289	116	6,714	15,590	6,552	
1981	28,946	356	1,327	3,963	4,423	3,975	3,365	4,829	1,559	2,931	1,756	..	..	6,104	16,134	6,708
1986	29,160	364	1,408	3,480	4,538	3,985	3,847	4,639	1,606	2,814	1,924	..	..	5,678	16,583	6,899
1991	29,566	387	1,505	3,487	4,021	4,466	3,968	4,769	1,498	2,795	1,987	472	210	5,709	16,894	6,963	
1993	29,720	370	1,526	3,609	3,761	4,570	3,883	5,053	1,465	2,836	1,904	503	240	5,826	16,946	6,948	
1994	29,805	369	1,520	3,644	3,675	4,608	3,908	5,159	1,444	2,861	1,856	511	250	5,881	17,002	6,983	
1995	29,881	358	1,513	3,665	3,624	4,616	3,947	5,244	1,427	2,797	1,907	519	263	5,898	17,068	6,914	
1996	29,948	350	1,484	3,699	3,565	4,615	4,020	5,312	1,418	2,748	1,941	523	274	5,893	17,152	6,903	
1997	30,022	359	1,450	3,734	3,521	4,579	4,113	5,372	1,421	2,707	1,960	522	286	5,897	17,229	6,896	
1998	30,108	349	1,440	3,756	3,503	4,511	4,211	5,433	1,438	2,674	1,968	525	301	5,900	17,302	6,906	
1999	30,202	345	1,421	3,783	3,505	4,422	4,321	5,497	1,460	2,645	1,967	527	309	5,903	17,391	6,908	
England and Wales																	
Persons																	
1971	49,152	782	3,170	7,705	7,117	6,164	5,736	9,034	2,853	4,228	1,926	323	115	12,334	28,710	8,108	
1976	49,459	585	2,642	7,967	7,077	6,979	5,608	8,707	2,777	4,540	2,093	351	135	11,973	28,894	8,593	
1981	49,634	634	2,372	7,085	7,873	7,086	5,996	8,433	2,607	4,619	2,388	383	157	10,910	29,796	8,928	
1986	50,162	655	2,528	6,243	8,134	7,088	6,863	8,136	2,725	4,470	2,673	465	184	10,190	30,759	9,213	
1991	51,100	702	2,728	6,281	7,237	8,008	7,056	8,407	2,553	4,506	2,810	576	233	10,303	31,351	9,446	
1993	51,439	670	2,764	6,504	6,768	8,219	6,887	8,929	2,507	4,596	2,704	623	268	10,515	31,445	9,480	
1994	51,621	671	2,752	6,568	6,612	8,293	6,925	9,118	2,478	4,644	2,642	636	281	10,618	31,530	9,473	
1995	51,820	649	2,739	6,613	6,521	8,329	7,003	9,272	2,458	4,554	2,734	651	297	10,653	31,676	9,491	
1996	52,010	636	2,688	6,683	6,411	8,342	7,146	9,397	2,447	4,490	2,800	658	311	10,655	31,851	9,505	
1997	52,211	651	2,632	6,751	6,332	8,290	7,325	9,503	2,456	4,440	2,844	661	327	10,672	32,018	9,522	
1998	52,428	633	2,615	6,793	6,303	8,177	7,515	9,613	2,490	4,400	2,871	669	348	10,682	32,192	9,554	
1999	52,690	628	2,581	6,847	6,318	8,034	7,734	9,730	2,529	4,367	2,885	676	360	10,694	32,421	9,574	
Males																	
1971	23,897	402	1,626	3,957	3,615	3,129	2,891	4,414	1,337	1,778	637	86	26	6,334	15,036	2,527	
1976	24,089	300	1,358	4,091	3,610	3,532	2,843	4,280	1,304	1,963	690	91	29	6,148	15,169	2,773	
1981	24,160	324	1,218	3,639	4,011	3,569	3,024	4,178	1,227	2,020	825	94	32	5,601	15,589	2,970	
1986	24,456	336	1,297	3,211	4,156	3,579	3,445	4,053	1,302	1,972	954	115	35	5,236	16,143	3,076	
1991	24,995	360	1,401	3,231	3,710	4,065	3,539	4,199	1,234	2,027	1,035	151	43	5,296	16,442	3,257	
1993	25,198	343	1,416	3,341	3,476	4,184	3,456	4,458	1,218	2,082	1,004	170	51	5,397	16,495	3,306	
1994	25,304	344	1,410	3,371	3,396	4,225	3,475	4,551	1,209	2,109	985	175	53	5,448	16,533	3,323	
1995	25,433	333	1,403	3,394	3,348	4,252	3,523	4,626	1,204	2,078	1,032	183	57	5,465	16,619	3,349	
1996	25,557	327	1,378	3,430	3,291	4,265	3,602	4,689	1,201	2,059	1,066	188	61	5,466	16,716	3,375	
1997	25,684	334	1,350	3,463	3,249	4,243	3,700	4,740	1,206	2,048	1,094	192	66	5,475	16,810	3,399	
1998	25,817	324	1,342	3,484	3,233	4,190	3,803	4,795	1,224	2,040	1,113	197	72	5,479	16,915	3,422	
1999	25,985	322	1,323	3,511	3,244	4,123	3,923	4,854	1,243	2,034	1,129	202	76	5,484	17,060	3,441	
Females																	
1971	25,255	380	1,544	3,749	3,502	3,036	2,845	4,620	1,516	2,450	1,289	236	89	6,000	13,673	5,581	
1976	25,370	285	1,284	3,876	3,467	3,447	2,765	4,428	1,473	2,577	1,403	261	106	5,826	13,725	5,820	
1981	25,474	310	1,154	3,446	3,863	3,517	2,972	4,255	1,380	2,599	1,564	289	126	5,309	14,207	5,958	
1986	25,706	319	1,231	3,032	3,978	3,509	3,418	4,083	1,422	2,498	1,718	349	149	4,953	14,616	6,137	
1991	26,104	342	1,328	3,050	3,527	3,943	3,517	4,208	1,319	2,479	1,775	425	191	5,007	14,908	6,189	
1993	26,241	326	1,348	3,163	3,293	4,035	3,431	4,471	1,289	2,514	1,700	453	218	5,117	14,950	6,173	
1994	26,317	327	1,342	3,197	3,216	4,069	3,449	4,567	1,270	2,536	1,656	461	228	5,170	14,997	6,150	
1995	26,387	316	1,335	3,219	3,172	4,076	3,480	4,646	1,254	2,477	1,702	468	240	5,188	15,058	6,141	
1996	26,453	310	1,310	3,253													

**Table 1.5
continued**

Population: age and sex
Numbers (thousands)

Constituent countries of the United Kingdom

Mid-year	All ages	Age group														
		Under 1	1-4	5-14	15-24	25-34	35-44	45-59	60-64	65-74	75-84	85-89	90 and over	Under 16	16-64/59	65/60 and over
England																
Persons																
1971	46,412	739	2,996	7,272	6,731	5,840	5,421	8,515	2,690	3,976	1,816	306	109	11,648	27,128	7,636
1976	46,660	551	2,491	7,513	6,688	6,599	5,298	8,199	2,616	4,274	1,972	332	127	11,293	27,275	8,092
1981	46,821	598	2,235	6,678	7,440	6,703	5,663	7,948	2,449	4,347	2,249	362	149	10,285	28,133	8,403
1986	47,342	618	2,385	5,885	7,692	6,717	6,484	7,672	2,559	4,199	2,518	438	174	9,608	29,070	8,665
1991	48,208	663	2,574	5,916	6,840	7,599	6,665	7,920	2,399	4,222	2,645	543	220	9,711	29,627	8,870
1993	48,533	633	2,611	6,125	6,394	7,803	6,508	8,415	2,356	4,308	2,541	587	253	9,913	29,720	8,899
1994	48,707	634	2,601	6,186	6,246	7,873	6,545	8,593	2,329	4,355	2,481	600	265	10,012	29,803	8,893
1995	48,903	615	2,589	6,231	6,158	7,909	6,622	8,738	2,310	4,270	2,568	613	280	10,048	29,946	8,909
1996	49,089	603	2,543	6,298	6,054	7,922	6,761	8,856	2,299	4,210	2,629	620	293	10,053	30,114	8,922
1997	49,284	616	2,490	6,364	5,980	7,873	6,933	8,956	2,308	4,164	2,670	623	308	10,071	30,275	8,939
1998	49,495	599	2,475	6,406	5,954	7,765	7,117	9,060	2,340	4,127	2,694	630	327	10,083	30,443	8,968
1999	49,753	595	2,443	6,459	5,965	7,634	7,329	9,169	2,378	4,098	2,707	637	339	10,097	30,665	8,990
Males																
1971	22,569	380	1,537	3,734	3,421	2,965	2,733	4,161	1,261	1,671	599	107	25	5,982	14,209	2,377
1976	22,728	283	1,280	3,858	3,413	3,339	2,686	4,031	1,228	1,849	649	85	27	5,798	14,320	2,610
1981	22,795	306	1,147	3,430	3,790	3,377	2,856	3,938	1,154	1,902	777	89	30	5,280	14,717	2,798
1986	23,086	317	1,224	3,026	3,931	3,392	3,255	3,822	1,224	1,853	900	109	33	4,937	15,254	2,895
1991	23,588	340	1,322	3,043	3,507	3,859	3,344	3,957	1,159	1,900	975	143	41	4,991	15,539	3,058
1993	23,782	325	1,338	3,146	3,282	3,974	3,267	4,202	1,145	1,951	945	160	48	5,089	15,590	3,103
1994	23,882	326	1,332	3,175	3,207	4,012	3,286	4,289	1,136	1,977	926	166	50	5,137	15,626	3,119
1995	24,008	315	1,327	3,198	3,160	4,039	3,333	4,360	1,132	1,948	969	173	54	5,155	15,709	3,144
1996	24,129	309	1,304	3,233	3,106	4,051	3,410	4,420	1,129	1,931	1,002	177	58	5,158	15,803	3,167
1997	24,251	316	1,278	3,265	3,067	4,030	3,504	4,468	1,134	1,921	1,027	181	62	5,168	15,893	3,191
1998	24,378	307	1,270	3,285	3,052	3,978	3,603	4,519	1,151	1,913	1,045	186	68	5,172	15,994	3,212
1999	24,543	305	1,252	3,312	3,061	3,918	3,720	4,575	1,169	1,908	1,060	191	72	5,178	16,134	3,231
Females																
1971	23,843	359	1,459	3,538	3,310	2,875	2,688	4,354	1,429	2,305	1,217	309	85	5,666	12,918	5,259
1976	23,932	269	1,211	3,656	3,275	3,260	2,612	4,168	1,387	2,425	1,323	246	100	5,495	14,968	5,481
1981	24,026	292	1,088	3,248	3,650	3,327	2,807	4,009	1,295	2,445	1,472	273	119	5,004	13,416	5,605
1986	24,257	301	1,161	2,859	3,761	3,325	3,229	3,850	1,335	2,346	1,618	330	141	4,671	13,816	5,770
1991	24,620	324	1,253	2,873	3,333	3,739	3,322	3,964	1,239	2,323	1,670	400	179	4,720	14,088	5,812
1993	24,751	309	1,273	2,979	3,111	3,829	3,241	4,212	1,211	2,357	1,597	427	205	4,824	14,131	5,796
1994	24,825	309	1,268	3,010	3,039	3,862	3,259	4,304	1,193	2,378	1,555	434	214	4,874	14,177	5,774
1995	24,896	300	1,262	3,033	2,998	3,871	3,289	4,378	1,178	2,322	1,598	441	226	4,893	14,237	5,765
1996	24,960	293	1,239	3,065	2,948	3,872	3,351	4,437	1,170	2,279	1,627	443	235	4,894	14,311	5,755
1997	25,033	300	1,213	3,099	2,913	3,843	3,429	4,488	1,174	2,244	1,643	442	246	4,903	14,382	5,748
1998	25,117	292	1,205	3,120	2,902	3,787	3,514	4,540	1,189	2,214	1,649	444	260	4,911	14,450	5,756
1999	25,210	290	1,191	3,146	2,904	3,716	3,609	4,594	1,209	2,190	1,647	446	267	4,919	14,531	5,760
Wales																
Persons																
1971	2,740	43	173	433	386	325	315	519	164	252	110	16	6	686	1,582	472
1976	2,799	33	151	453	388	379	309	509	161	267	121	19	7	680	1,618	501
1981	2,813	36	136	407	434	383	333	485	158	272	139	21	8	626	1,663	525
1986	2,820	37	143	358	441	371	378	464	166	271	155	26	10	582	1,690	548
1991	2,891	39	154	365	397	409	391	486	154	284	165	33	13	592	1,724	576
1993	2,906	36	153	379	375	416	379	514	151	288	163	36	15	602	1,725	580
1994	2,913	36	151	382	367	420	379	525	149	289	161	36	16	606	1,727	580
1995	2,917	35	149	383	363	420	380	534	148	284	166	37	17	605	1,730	581
1996	2,921	34	145	385	357	420	385	541	148	280	171	38	18	602	1,737	582
1997	2,927	35	141	387	352	417	392	547	148	276	174	39	19	601	1,743	583
1998	2,933	34	140	388	349	413	398	553	150	273	177	39	20	599	1,749	585
1999	2,937	33	138	388	353	400	405	561	151	269	178	39	21	597	1,756	584
Males																
1971	1,329	22	89	222	194	164	158	253	76	107	38	6	1	352	827	150
1976	1,361	17	78	233	197	193	157	249	75	114	41	5	2	350	849	162
1981	1,365	18	70	209	221	193	168	240	73	118	48	5	2	321	871	173
1986	1,370	19	73	185	225	187	190	231	79	119	54	7	2	300	889	181
1991	1,407	20	79	188	203	206	195	242	74	128	60	8	2	305	904	199
1993	1,417	19	78	195	193	210	189	256	73	131	60	9	3	309	905	203
1994	1,422	19	77	196	190	213	189	262	72	131	60	10	3	311	907	204
1995	1,425	18	76	196	188	214	190	266	72	130	62	10	4	310	910	206
1996	1,428	17	74	197	185	214	192	269	72	128	65	10	4	308	913	207
1997	1,433	18	72	198	182	214	196	272	72	127	67	11	4	308	917	208
1998	1,439	17	72	199	181	212	199	275	73	126	68	11	4	307	922	210
1999	1,442	17	71	199	183	206	203	279	74	125	69	12	4	306	926	210
Females																
1971	1,412	21	85	211	191	161	157	265	88	146	73	16	4	335	755	322
1976	1,438	16	73	220	191	187	153	260	86	152	80	14	6	330	770	339
1981	1,448	18	66	199	213	190	165	246	85	154	91	16	6	305	791	352
1986	1,450	18	70	173	217	184	188	233	87	152	101	20	8	282	800	367
1991	1,484	19	75	177	194	203	195	244	80	156	105	25	11	288	820	377
1993	1,490	18	75	185	181	206	190	258	78	157	103	26	13	293	819	377
1994	1,491	18	74	186	177	207	190	263	77	158	101	27	13	295	820	376
1995	1,491	17	73	187	175	206	190	268	76	154	104	27	14	295	820	376
1996	1,493	16	71	188	172	206	193	272	76	151	106	28	15	294	824	375
1997	1,494	17	69	189	170	204	196	275	76	148	107	28	15	293	826	375
1998	1,495	16	68	189	168	201	198	278	76	147	109	28	16	292	827	375
1999	1,495	16	67	189	170	195	202	282	77	144	109	27	17	291	831	374

**Table 1.5
continued****Population: age and sex**
Numbers (thousands)

Constituent countries of the United Kingdom

Mid-year	All ages	Age group														
		Under 1	1-4	5-14	15-24	25-34	35-44	45-59	60-64	65-74	75-84	85-89	90 and over	Under 16	16-64/59	65/60 and over
Scotland																
Persons																
1971	5,236	86	358	912	781	617	612	926	294	430	183	29	9	1,440	2,986	810
1976	5,233	67	291	904	806	692	591	897	282	460	202	31	11	1,352	3,023	858
1981	5,180	69	249	780	875	724	603	880	260	460	232	35	14	1,188	3,110	882
1986	5,123	66	257	657	870	742	665	849	273	435	251	41	15	1,063	3,171	889
1991	5,107	66	259	634	754	809	699	853	265	441	259	50	19	1,023	3,174	910
1993	5,120	64	260	648	705	825	694	888	262	451	249	52	21	1,032	3,176	912
1994	5,132	63	261	651	690	829	703	902	260	456	243	53	21	1,038	3,183	911
1995	5,137	61	261	649	677	827	715	911	258	450	250	55	22	1,036	3,187	914
1996	5,128	59	255	647	663	821	728	919	256	446	255	56	23	1,028	3,185	915
1997	5,123	60	247	649	651	809	744	924	255	443	259	56	24	1,021	3,185	917
1998	5,120	58	243	650	643	793	760	932	257	442	260	57	24	1,014	3,186	920
1999	5,119	57	238	651	641	771	776	942	259	440	262	58	25	1,008	3,190	921
Males																
1971	2,516	44	184	467	394	306	299	440	134	176	60	8	2	738	1,530	247
1976	2,517	34	149	463	408	347	290	429	128	193	65	8	2	693	1,556	269
1981	2,495	35	128	400	445	364	298	424	118	194	77	8	3	610	1,603	282
1986	2,474	34	131	337	445	375	332	410	127	184	86	10	3	545	1,647	283
1991	2,470	34	133	325	385	407	348	415	124	192	91	12	3	524	1,646	299
1993	2,479	33	133	332	360	415	345	434	123	197	88	13	4	528	1,648	302
1994	2,486	32	133	333	353	418	350	441	122	200	86	14	4	531	1,651	304
1995	2,489	31	133	332	346	416	356	446	121	198	90	14	4	530	1,653	307
1996	2,486	30	130	331	339	413	362	450	121	197	92	15	4	526	1,651	309
1997	2,484	31	126	332	333	407	371	453	121	196	95	15	5	522	1,651	311
1998	2,484	30	124	332	329	399	378	457	122	197	96	16	5	519	1,652	314
1999	2,486	29	122	333	327	388	386	462	123	196	98	16	5	516	1,654	315
Females																
1971	2,720	42	174	445	387	311	313	485	160	254	122	20	7	701	1,455	563
1976	2,716	32	142	440	398	345	301	468	154	267	137	23	8	659	1,468	589
1981	2,685	33	121	380	430	359	305	456	142	265	155	27	11	579	1,506	600
1986	2,649	32	126	320	425	368	334	439	146	250	165	32	12	518	1,525	606
1991	2,637	32	126	309	369	402	351	437	141	249	168	37	16	499	1,528	611
1993	2,642	32	127	316	345	409	349	454	139	254	161	39	17	504	1,528	609
1994	2,646	31	128	318	337	412	353	461	138	256	157	40	17	507	1,532	607
1995	2,647	30	128	317	331	411	359	465	136	252	160	40	18	506	1,534	607
1996	2,642	29	125	316	324	408	366	469	135	249	163	41	19	502	1,534	606
1997	2,638	29	121	317	318	403	374	471	135	247	164	41	19	498	1,534	605
1998	2,636	28	118	317	315	394	382	475	135	245	164	41	19	495	1,535	606
1999	2,634	28	116	318	314	383	390	480	136	244	165	41	20	492	1,536	606
Northern Ireland																
Persons																
1971	1,540	31	126	299	247	189	165	243	74	106	51	7	2	483	853	205
1976	1,524	26	111	306	243	198	163	231	73	111	53	8	2	471	840	212
1981	1,543	27	106	282	271	200	175	227	68	116	57	...	...	444	874	224
1986	1,574	28	107	261	277	217	190	227	71	115	64	...	...	423	917	234
1991	1,607	26	106	260	256	240	200	241	70	120	69	14	6	417	945	246
1993	1,638	25	105	265	256	249	205	252	70	122	69	14	6	419	969	250
1994	1,648	24	103	266	253	254	209	256	69	123	69	15	6	419	978	250
1995	1,655	24	102	265	250	255	213	261	69	123	71	15	7	418	985	252
1996	1,669	24	100	266	249	260	218	266	69	123	72	15	7	417	999	253
1997	1,680	25	98	267	247	261	225	270	70	122	73	16	7	415	1,010	255
1998	1,689	24	98	266	244	262	230	275	71	122	74	16	8	414	1,018	257
1999	1,692	23	97	265	241	259	236	279	72	122	75	16	7	411	1,022	258
Males																
1971	755	16	64	152	127	95	81	116	36	45	19	2	1	246	441	67
1976	754	13	58	157	127	102	81	111	34	47	19	3	0	242	442	70
1981	757	14	54	145	140	102	87	109	32	50	21	...	...	228	454	75
1986	768	14	55	134	142	109	95	110	33	50	23	...	...	217	474	77
1991	783	13	54	133	131	119	100	118	32	53	26	4	1	213	487	83
1993	801	13	54	136	132	124	102	123	32	54	26	4	1	215	501	85
1994	805	12	53	136	131	126	104	126	32	54	26	4	1	215	506	85
1995	809	12	52	136	129	127	106	128	32	54	26	4	1	214	509	86
1996	816	12	51	136	128	130	108	131	33	54	27	4	2	213	516	87
1997	823	12	50	137	128	131	111	133	33	54	28	4	2	213	523	87
1998	827	12	50	136	126	132	113	135	34	54	28	4	2	212	527	88
1999	829	12	50	136	124	131	116	137	35	54	28	5	2	211	529	89
Females																
1971	786	15	62	147	119	95	84	126	39	61	32	5	2	237	411	138
1976	769	13	53	149	116	96	81	120	38	64	33	6	2	229	398	143
1981	786	13	52	137	130	98	88	118	37	66	37	...	...	216	420	150
1986	805	13	52	127	135	107	96	118	38	65	41	...	...	206	442	157
1991	824	13	52	127	125	121	100	123	38	67	44	10	4	203	458	163
1993	838	12	51	129	123	125	103	128	38	69	44	11	5	205	468	165
1994	842	12	50	130	122	127	105	131	37	69	43	11	5	205	472	165
1995	846	12	50	129	121	128	107	133	36	69	44	11	5	204	476	166
1996	853	11	49	129	121	130	110	135	36	69	45	11	5	203	483	167
1997	857	12	48	130	119	129	114	137	37	68	45	11	6	202	487	168
1998	861	12	48	130	118	129	117	139	37	68	46	12	6	202	491	168
1999	863	11	47	129	117	128	120	141	38	68	46	12	6	201	493	169

Table 1.6

Population: age, sex and legal marital status
Numbers (thousands)

England and Wales

Mid-year	Total population	Males					Females				
		Single	Married	Divorced	Widowed	Total	Single	Married	Divorced	Widowed	Total
Aged											
16 and over											
1971	36,818	4,173	12,522	187	682	17,563	3,583	12,566	296	2,810	19,255
1976	37,486	4,369	12,511	376	686	17,941	3,597	12,538	533	2,877	19,545
1981	38,724	5,013	12,238	611	698	18,559	4,114	12,284	828	2,939	20,165
1986	39,887	5,673	11,886	919	695	19,173	4,613	11,994	1,164	2,943	20,714
1991	40,796	6,024	11,745	1,200	731	19,699	4,822	11,838	1,459	2,978	21,097
1993	40,925	6,147	11,580	1,342	732	19,801	4,906	11,661	1,610	2,946	21,124
1994	41,003	6,221	11,492	1,413	730	19,855	4,958	11,583	1,684	2,922	21,147
1995	41,167	6,345	11,415	1,480	729	19,968	5,058	11,488	1,754	2,898	21,199
1996	41,356	6,482	11,339	1,543	728	20,091	5,171	11,406	1,819	2,870	21,265
1997	41,540	6,622	11,256	1,604	726	20,209	5,292	11,319	1,882	2,838	21,331
1998	41,746	6,768	11,185	1,659	725	20,338	5,415	11,244	1,940	2,808	21,408
1999	41,996	6,936	11,128	1,716	721	20,501	5,539	11,185	2,001	2,771	21,495
16-19											
1971	2,666	1,327	34	0	0	1,362	1,163	142	0	0	1,305
1976	2,901	1,454	28	0	0	1,482	1,289	129	0	0	1,419
1981	3,310	1,675	20	0	0	1,694	1,523	93	0	0	1,616
1986	3,144	1,601	10	0	0	1,611	1,483	49	1	0	1,533
1991	2,680	1,372	8	0	0	1,380	1,267	32	0	0	1,300
1993	2,421	1,242	4	0	0	1,246	1,157	18	0	0	1,175
1994	2,360	1,212	3	0	0	1,215	1,131	14	0	0	1,145
1995	2,374	1,220	3	0	0	1,222	1,139	13	0	0	1,152
1996	2,436	1,251	2	0	0	1,253	1,171	12	0	0	1,183
1997	2,517	1,291	2	0	0	1,293	1,212	11	0	0	1,224
1998	2,578	1,322	2	0	0	1,324	1,242	11	0	0	1,254
1999	2,595	1,332	2	0	0	1,334	1,250	11	0	0	1,261
20-24											
1971	3,773	1,211	689	3	0	1,904	745	1,113	9	2	1,869
1976	3,395	1,167	557	4	0	1,728	725	925	16	2	1,667
1981	3,744	1,420	466	10	1	1,896	1,007	811	27	2	1,847
1986	4,203	1,794	322	14	0	2,130	1,382	658	32	1	2,072
1991	3,966	1,764	249	12	0	2,025	1,421	490	29	1	1,941
1993	3,770	1,742	182	8	0	1,933	1,432	381	23	1	1,838
1994	3,625	1,699	152	7	0	1,858	1,416	330	20	1	1,767
1995	3,495	1,658	127	6	0	1,791	1,404	282	17	0	1,703
1996	3,329	1,597	105	5	0	1,707	1,369	238	15	0	1,622
1997	3,177	1,536	87	4	0	1,628	1,333	204	12	0	1,549
1998	3,084	1,500	76	3	0	1,579	1,314	180	10	0	1,505
1999	3,085	1,511	68	3	0	1,582	1,328	165	9	0	1,503
25-29											
1971	3,267	431	1,206	16	1	1,654	215	1,367	29	4	1,614
1976	3,758	533	1,326	39	2	1,900	267	1,522	65	5	1,859
1981	3,372	588	1,057	54	1	1,700	331	1,247	89	4	1,671
1986	3,724	841	956	79	1	1,877	527	1,204	113	4	1,847
1991	4,246	1,183	894	85	1	2,163	800	1,158	123	2	2,083
1993	4,220	1,263	807	80	1	2,152	880	1,062	124	2	2,069
1994	4,168	1,293	754	76	1	2,124	908	1,011	122	2	2,044
1995	4,094	1,326	696	70	1	2,092	936	947	116	2	2,002
1996	4,045	1,368	639	64	1	2,071	977	887	109	2	1,975
1997	3,972	1,401	577	58	1	2,037	1,014	818	101	2	1,935
1998	3,883	1,422	520	51	0	1,994	1,047	750	91	2	1,889
1999	3,774	1,426	469	45	0	1,941	1,062	686	84	2	1,833
30-34											
1971	2,897	206	1,244	23	3	1,475	111	1,269	34	8	1,422
1976	3,220	236	1,338	55	3	1,632	118	1,388	75	8	1,588
1981	3,715	318	1,451	97	3	1,869	165	1,544	129	9	1,846
1986	3,341	356	1,200	125	2	1,683	206	1,292	154	6	1,658
1991	3,762	535	1,206	160	2	1,903	335	1,330	189	5	1,859
1993	3,999	662	1,194	174	2	2,032	418	1,338	205	5	1,967
1994	4,126	732	1,187	179	2	2,100	467	1,340	213	5	2,025
1995	4,235	799	1,177	182	2	2,160	518	1,333	218	5	2,075
1996	4,296	855	1,155	181	2	2,194	560	1,316	221	5	2,103
1997	4,318	903	1,125	177	3	2,207	598	1,287	222	5	2,111
1998	4,294	938	1,085	171	3	2,196	627	1,247	219	5	2,098
1999	4,260	976	1,041	163	2	2,182	652	1,205	216	5	2,078

Note: Population estimates by marital status for 1971 and 1976 are based on the 1971 Census and those for 1981 and 1986 are based on the 1981 Census and have not been rebased using the 1991 Census.

**Table 1.6
continued****Population: age, sex and legal marital status**
Numbers (thousands)

England and Wales

Mid-year	Total population	Males					Females				
		Single	Married	Divorced	Widowed	Total	Single	Married	Divorced	Widowed	Total
35-44											
1971	5,736	317	2,513	48	13	2,891	201	2,529	66	48	2,845
1976	5,608	286	2,442	104	12	2,843	167	2,427	129	42	2,765
1981	5,996	316	2,519	178	12	3,024	170	2,540	222	41	2,972
1986	6,863	397	2,743	293	12	3,444	213	2,816	350	39	3,419
1991	7,056	482	2,658	388	12	3,539	280	2,760	444	34	3,517
1993	6,887	522	2,500	423	12	3,456	316	2,612	473	31	3,431
1994	6,925	556	2,463	444	12	3,475	343	2,587	491	29	3,449
1995	7,003	601	2,446	464	12	3,523	374	2,568	509	29	3,480
1996	7,146	657	2,449	483	13	3,602	414	2,575	527	28	3,544
1997	7,325	725	2,458	503	13	3,700	459	2,593	545	28	3,625
1998	7,515	802	2,467	520	14	3,803	510	2,612	563	27	3,712
1999	7,734	890	2,483	537	14	3,923	570	2,634	579	27	3,811
45-64											
1971	11,887	502	4,995	81	173	5,751	569	4,709	125	733	6,136
1976	11,484	496	4,787	141	160	5,583	462	4,568	188	683	5,901
1981	11,040	480	4,560	218	147	5,405	386	4,358	271	620	5,635
1986	10,860	461	4,423	332	141	5,356	326	4,221	388	569	5,504
1991	10,960	456	4,394	456	127	5,433	292	4,211	521	503	5,527
1993	11,436	479	4,532	544	122	5,677	297	4,376	615	471	5,759
1994	11,596	489	4,564	587	120	5,759	300	4,422	659	456	5,837
1995	11,730	500	4,581	630	119	5,830	305	4,452	703	440	5,900
1996	11,844	512	4,587	673	118	5,890	310	4,473	746	425	5,954
1997	11,959	524	4,590	715	117	5,946	318	4,494	789	412	6,013
1998	12,103	541	4,604	758	117	6,019	328	4,523	832	401	6,085
1999	12,259	560	4,618	802	117	6,097	340	4,554	875	392	6,162
65 and over											
1971	6,592	179	1,840	17	492	2,527	580	1,437	32	2,016	4,065
1976	7,119	197	2,033	33	510	2,773	569	1,579	60	2,138	4,347
1981	7,548	216	2,167	54	534	2,971	533	1,692	90	2,263	4,578
1986	7,752	223	2,233	76	539	3,070	475	1,754	127	2,325	4,681
1991	8,127	231	2,337	99	589	3,257	427	1,858	153	2,433	4,870
1993	8,191	237	2,360	113	596	3,306	405	1,873	170	2,436	4,885
1994	8,203	239	2,368	121	595	3,323	393	1,879	179	2,429	4,880
1995	8,237	241	2,385	128	595	3,349	382	1,893	190	2,422	4,887
1996	8,259	242	2,401	137	594	3,375	370	1,904	201	2,410	4,884
1997	8,272	242	2,417	147	593	3,399	358	1,912	213	2,390	4,873
1998	8,288	242	2,432	156	592	3,422	347	1,921	225	2,372	4,866
1999	8,288	241	2,446	166	587	3,441	336	1,930	237	2,344	4,847

See note opposite.

Table 2.1 Vital statistics summary Constituent countries of the United Kingdom
Numbers (thousands) and rates

Year and quarter	All live births		Live births outside marriage		Marriages		Divorces		Deaths		Infant mortality***		Neonatal mortality†††		Perinatal mortality	
	Number	Rate*	Number	Rate†	Number	Rate**	Number	Rate††	Number	Rate*	Number	Rate†	Number	Rate†	Number	Rate††††
United Kingdom																
1971	901.6	16.1	73.9	82	459.4	..	79.6	..	645.1	11.5	16.2	17.9	10.8	12.0	20.7	22.6
1976	675.5	12.0	61.1	90	406.0	..	135.4	..	680.8	12.1	9.79	14.5	6.68	9.9	12.3	18.0
1981	730.8	13.0	91.3	125	397.8	49.4	156.4	11.3	658.0	11.7	8.16	11.2	4.93	6.7	8.79	12.0
1986	755.0	13.3	158.5	210	393.9	43.5	168.2	12.5	660.7	11.6	7.18	9.5	4.00	5.3	7.31	9.6
1991	792.5	13.7	236.1	298	349.7	36.0	173.5	13.0	646.2	11.3	5.82	7.4	3.46	4.4	6.45	8.1
1993	761.7	13.1	241.8	318	341.6	..	180.0	..	658.5	11.3	4.83	6.3	3.18	4.2	6.73	8.8
1994	750.7	12.9	240.1	320	331.2	..	173.6	..	627.6	10.7	4.63	6.2	3.09	4.1	6.74	9.0
1995	732.0	12.5	245.7	336	322.3	..	170.0	..	645.5	11.0	4.52	6.2	3.05	4.2	6.52	8.9
1996	733.4	12.5	260.4	355	317.5	..	171.7	..	636.0	10.8	4.50	6.1	3.00	4.1	6.41	8.7
1997	726.8	12.3	267.0	367	310.2	..	161.1	..	629.7	10.7	4.25	5.9	2.81	3.9	6.06	8.3
1998	717.1	12.1	269.7	376	304.8	..	160.1‡	..	629.2	10.6	4.08	5.7	2.72#	3.8	5.96#	8.3#
1999	700.2	11.8	271.3	387	301.1‡	..	158.7‡	..	632.1	10.6	4.05	5.8	2.73	3.9	5.79	8.2
1998 Dec	175.0	11.7	67.7	387	56.0	..	38.0‡	..	167.7	11.2	1.11	6.3	0.71	4.0	1.54	8.7
1999 March	171.9	11.7	66.5	387‡	36.9‡	..	40.0‡	..	181.6	12.4	1.07	6.2	0.68	3.9	1.50	8.7
June	177.0	11.9	67.2	379‡	83.4‡	..	39.3‡	..	143.0	9.6	1.02	5.8	0.70	3.9	1.48	8.3
Sept	180.3	12.0	70.5	391‡	124.6‡	..	40.1‡	..	139.1	9.3	0.98	5.4	0.71	3.9	1.44	7.9
Dec	170.9	11.4	67.4	393‡	56.2‡	..	39.3‡	..	168.4	11.2	0.98	5.7	0.65	3.8	1.37	8.0
2000 March	168.2‡	11.3‡	66.7‡	397‡	35.2‡	..	39.9‡	..	183.2‡	12.4‡	1.00‡	5.9‡	0.68‡	4.1‡	1.43‡	8.4‡
June	169.1‡	11.4‡	65.0‡	384‡	..	..	..	..	142.8‡	9.7‡	0.93‡	5.5‡	0.64‡	3.8‡	1.35‡	7.9‡
Sept	173.7‡	11.6‡	69.1‡	398‡	..	..	..	..	134.7‡	9.0‡	0.96‡	5.5‡	0.70‡	4.0‡	1.42‡	8.1‡
England and Wales																
1971	783.2	15.9	65.7	84	404.7	69.0	74.4	5.9	567.3	11.5	13.7	17.5	9.11	11.6	17.6	22.3
1976	584.3	11.8	53.8	92	358.6	57.7	126.7	10.1	598.5	12.1	8.34	14.3	5.66	9.7	10.5	17.7
1981	634.5	12.8	81.0	128	352.0	49.6	145.7	11.9	577.9	11.6	7.02	11.1	4.23	6.7	7.56	11.8
1986	661.0	13.2	141.3	214	347.9	43.5	153.9	12.9	581.2	11.6	6.31	9.6	3.49	5.3	6.37	9.6
1991	699.2	13.7	211.3	302	306.8	35.6	158.7	13.5	570.0	11.2	5.16	7.4	3.05	4.4	5.65	8.0
1993	673.5	13.1	216.5	322	299.2	33.9	165.0	14.2	578.8	11.3	4.24	6.3	2.80	4.2	6.03	8.9
1994	664.7	12.9	215.5	324	291.1	32.6	158.2	13.7	553.2	10.7	4.10	6.2	2.74	4.1	5.95	8.9
1995	648.1	12.5	219.9	339	283.0	31.0	155.5	13.6	569.7	11.0	3.98	6.1	2.70	4.2	5.70	8.8
1996	649.5	12.5	232.7	358	279.0	30.0	157.1	13.8	560.1	10.8	3.99	6.1	2.68	4.1	5.62	8.6
1997	643.1	12.3	238.2	370	272.5	28.7	146.7	13.0	555.3	10.6	3.80	5.9	2.52	3.9	5.38	8.3
1998	635.9	12.1	240.6	378	267.3	27.7	145.2	12.9	555.0	10.6	3.63	5.7	2.42	3.8	5.26	8.2
1999	621.9	11.8	241.9	389	263.5‡	26.8‡	144.6	12.9‡	556.1	10.6	3.62	5.8	2.44	3.9	5.14	8.2
1998 Dec	155.4	11.8	60.5	389	48.7	20.0	34.4‡	12.2‡	148.9	11.3	1.00	6.5	0.64	4.1	1.38	8.8
1999 March	152.1	11.7	59.0	388	32.5‡	13.4‡	36.4‡	13.2‡	159.1	12.2	0.98	6.4	0.62	4.1	1.34	8.7
June	157.3‡	12.0	59.8	380	73.2‡	29.8‡	35.7‡	12.8‡	125.6	9.6	0.89	5.6	0.60	3.8	1.29	8.2
Sept	160.1	12.1	63.0	393	109.5‡	44.1‡	36.7‡	13.0‡	122.4	9.2	0.89	5.6	0.65	4.0	1.30	8.1
Dec	152.5	11.5	60.2	395	48.4‡	19.5‡	35.8‡	12.7‡	149.0	11.2	0.87	5.7	0.57	3.8	1.21	7.9
2000 March	148.6‡	11.3‡	58.9‡	396‡	30.8‡	12.6‡	36.4‡	13.2‡	161.4‡	12.4‡	0.89‡	6.0‡	0.60‡	4.0‡	1.28‡	8.5‡
June	150.5‡	11.4‡	57.9‡	384‡	..	..	..	..	125.5‡	9.6‡	0.83‡	5.5‡	0.56‡	3.7‡	1.20‡	7.9‡
Sept	154.7‡	11.6‡	61.5‡	398‡	..	..	..	..	118.6‡	8.9‡	0.85‡	5.5‡	0.62‡	4.0‡	1.26‡	8.1‡
England																
1971	740.1	15.9	62.6	85	382.3	..	..	..	532.4	11.5	12.9	17.5	8.58	11.6	16.6	22.1
1976	550.4	11.8	50.8	92	339.0	..	..	..	560.3	12.0	7.83	14.2	5.32	9.7	9.81	17.6
1981	598.2	12.8	76.9	129	332.2	..	..	..	541.0	11.6	6.50	10.9	3.93	6.6	7.04	11.7
1986	623.6	13.2	133.5	214	328.4	..	146.0	..	544.5	11.5	5.92	9.5	3.27	5.2	5.98	9.5
1991	660.8	13.7	198.9	301	290.1	..	150.1	..	534.0	11.2	4.86	7.3	2.87	4.3	5.33	8.0
1993	636.5	13.1	203.6	320	283.3	..	156.1	..	541.1	11.1	4.00	6.3	2.65	4.2	5.70	8.9
1994	629.0	13.0	202.7	322	275.5	..	149.6	..	517.6	10.6	3.83	6.1	2.57	4.1	5.58	8.8
1995	613.2	12.5	206.8	337	268.3	..	147.5	..	532.6	10.9	3.74	6.1	2.55	4.2	5.41	8.8
1996	614.2	12.5	218.2	355	264.2	..	148.7	..	524.0	10.7	3.74	6.1	2.53	4.1	5.36	8.7
1997	608.2	12.3	223.4	367	258.0	..	138.7	..	519.1	10.5	3.60	5.9	2.37	3.9	5.09	8.3
1998	602.1	12.2	225.7	375	253.1	..	137.4	..	519.6	10.5	3.39	5.6	2.29	3.8	4.97	8.2
1999	589.4	11.8	226.7	385	249.5‡	..	..	..	519.6	10.4	3.38	5.7	2.29	3.9	4.86	8.2
1998 Dec	147.2	11.8	56.7	385	46.1	..	32.6	..	139.7	10.6	0.95	6.5	0.62	4.2	1.31	8.9
1999 March	144.1	11.7	55.4	384	30.8‡	..	34.5‡	..	148.6	12.1	0.91	6.3	0.58	4.0	1.26	8.7
June	149.0	12.0	56.1	377	69.3‡	..	33.9‡	..	117.2	9.5	0.83	5.6	0.57	3.8	1.23	8.2
Sept	151.7	12.1	59.0	389	103.5‡	..	34.8‡	..	114.3	9.1	0.83	5.5	0.61	4.0	1.23	8.0
Dec	144.7	11.5	56.2	390	45.9‡	..	34.0‡	..	139.5	11.1	0.81	5.6	0.53	3.7	1.13	7.8
2000 March	140.8‡	11.3‡	55.2‡	392‡	29.2‡	..	34.5‡	..	151.1‡	12.3‡	0.84‡	5.9‡	0.57‡	4.1‡	1.21‡	8.5‡
June	142.8‡	11.5‡	54.4‡	381‡	..	..	..	..	117.3‡	9.0‡	0.79‡	5.5‡	0.54‡	3.8‡	1.14‡	7.9‡
Sept	146.6‡	11.7‡	57.7‡	393	..	..	..	..	110.8‡	8.8‡	0.80‡	5.4‡	0.58‡	4.0‡	1.19‡	8.1‡

* Per 1,000 population of all ages.
† Per 1,000 live births.
** Persons marrying per 1,000 unmarried population 16 and over.
†† Persons divorcing per 1,000 married population.
*** Deaths under 1 year.
††† Deaths under 4 weeks.
**** Stillbirths and deaths under 1 week. In October 1992 the legal definition of a stillbirth was changed, from baby born dead after 28 completed weeks of gestation or more, to one born dead after 24 completed weeks of gestation or more.
†††† Per 1,000 live births and stillbirths.
‡ Provisional.
Final annual figures for Scotland (also affecting UK figures).

**Table 2.1
continued****Vital statistics summary**
Numbers (thousands) and rates

Constituent countries of the United Kingdom

Year and quarter	All live births		Live births outside marriage		Marriages		Divorces		Deaths		Infant mortality***		Neonatal mortality†††		Perinatal mortality	
	Number	Rate*	Number	Rate†	Number	Rate**	Number	Rate††	Number	Rate*	Number	Rate†	Number	Rate†	Number	Rate††††
Wales																
1971	43.1	15.7	3.1	71	22.4	..	..	..	34.8	12.7	0.79	18.4	0.53	12.3	1.07	24.4
1976	33.4	11.9	2.9	86	19.5	..	..	..	36.3	13.0	0.46	13.7	0.32	9.6	0.64	19.0
1981	35.8	12.7	4.0	112	19.8	..	..	..	35.0	12.4	0.45	12.6	0.29	8.1	0.51	14.1
1986	37.0	13.1	7.8	211	19.5	..	7.9	..	34.7	12.3	0.35	9.5	0.21	5.6	0.38	10.3
1991	38.1	13.2	12.3	323	16.6	..	8.6	..	34.1	11.8	0.25	6.6	0.16	4.1	0.30	7.9
1993	36.6	12.6	12.9	352	15.9	..	8.9	..	35.9	12.4	0.20	5.5	0.12	3.3	0.30	8.2
1994	35.4	12.2	12.7	360	15.5	..	8.6	..	33.9	11.6	0.22	6.1	0.14	4.1	0.33	9.3
1995	34.5	11.8	13.1	381	14.7	..	8.0	..	35.6	12.2	0.20	5.9	0.13	3.9	0.27	7.9
1996	34.9	11.9	14.4	412	14.8	..	8.4	..	34.6	11.8	0.20	5.6	0.13	3.6	0.26	7.5
1997	34.5	11.8	14.8	428	14.6	..	8.0	..	34.6	11.8	0.20	5.9	0.13	3.9	0.27	7.9
1998	33.4	11.4	14.8	444	14.2	..	7.8	..	34.0	11.6	0.19	5.6	0.12	3.6	0.27	8.0
1999	32.1‡	10.9‡	14.8‡	461‡	14.0	..	..	..	35.0	11.9	0.20	6.1	0.13	4.0	0.25	7.7
1998 Dec	8.0	10.9	3.8	468	2.6	..	1.8	..	8.9	12.1	0.05	6.0	0.02	3.0	0.06	6.9
1999 March	7.9	10.9	3.6	454	1.6‡	..	1.9‡	..	10.2	14.1	0.05	6.6	0.03	3.9	0.06	7.9
June	8.2	11.2	3.6	445	3.9‡	..	1.8‡	..	8.0	11.0	0.05	5.6	0.03	3.8	0.05	6.0
Sept	8.3	11.2	3.9	470	6.0‡	..	1.9‡	..	7.7	10.4	0.05	5.9	0.03	3.8	0.07	8.1
Dec	7.7	10.4	3.7	475	2.5‡	..	1.9‡	..	9.2	12.4	0.05	6.3	0.04	4.7	0.07	9.1
2000 March	7.8‡	10.7‡	3.7‡	470‡	1.6‡	..	1.9‡	..	10.0‡	13.7‡	0.04‡	5.6‡	0.03‡	3.8‡	0.06‡	7.9‡
June	7.7‡	10.5‡	3.5‡	451‡	..	..	..	..	7.9‡	10.9‡	0.04‡	4.6‡	0.02‡	3.0‡	0.05‡	6.7‡
Sept	8.1‡	10.9‡	3.9‡	478‡	..	..	..	..	7.4‡	10.0‡	0.05‡	5.9‡	0.04‡	4.5‡	0.06‡	7.6‡
Scotland																
1971	86.7	16.6	7.0	81	42.5	64.1	4.8	3.9	61.6	11.8	1.72	19.9	1.17	13.5	2.15	24.5
1976	64.9	12.5	6.0	93	37.5	53.8	8.1	6.5	65.3	12.5	0.96	14.8	0.67	10.3	1.20	18.3
1981	69.1	13.4	8.5	122	36.2	47.5	9.9	8.0	63.8	12.3	0.78	11.3	0.47	6.9	0.81	11.6
1986	65.8	12.9	13.6	206	35.8	42.8	12.8	10.7	63.5	12.4	0.58	8.8	0.34	5.2	0.67	10.2
1991	67.0	13.1	19.5	291	33.8	38.7	12.4	10.6	61.0	12.0	0.47	7.1	0.29	4.6	0.58	8.6
1993	63.3	12.4	19.9	313	33.4	37.6	12.8	11.0	64.0	12.5	0.41	6.5	0.25	4.0	0.61	9.6
1994	61.7	12.0	19.2	312	31.5	35.1	13.1	11.4	59.3	11.6	0.38	6.2	0.25	4.0	0.56	9.0
1995	60.1	11.7	20.3	337	30.7	33.7	12.2	10.7	60.5	11.8	0.38	6.2	0.24	4.0	0.58	9.6
1996	59.3	11.6	21.4	360	30.2	32.8	12.3	10.9	60.7	11.8	0.37	6.2	0.23	3.9	0.55	9.2
1997	59.4	11.6	22.4	377	29.6	31.7	12.2	11.0	59.5	11.6	0.32	5.3	0.19	3.2	0.47	7.8
1998	57.3	11.2	22.3	389	29.7	31.2	12.4	11.2	59.2	11.6	0.32	5.6#	0.21#	3.6#	0.50#	8.7#
1999	55.1	10.8	22.7	412	29.9	31.1	11.9	10.7	60.3	11.8	0.28	5.0	0.18	3.3	0.42	7.6
1998 Dec	14.1	10.9	5.7	404	5.9	24.7	3.0	10.8	15.2	11.8	0.08	5.9	0.05	3.2	0.12	8.3
1999 March	13.9‡	11.0‡	5.7‡	411‡	3.6	15.1	3.0	10.9‡	17.7	14.0	0.06	4.4	0.04	2.5	0.11	7.5
June	13.9‡	10.9‡	5.6‡	402‡	8.1	33.9	3.1	11.3‡	13.7	10.7	0.09	6.5	0.06	4.2	0.12	8.4
Sept	14.1‡	10.9‡	5.7‡	406‡	11.9	49.0	2.9	10.6‡	13.3	10.3	0.05	3.5	0.04	2.5	0.09	6.3
Dec	13.3‡	10.3‡	5.7‡	430‡	6.3	25.9	2.9	10.7‡	15.6	12.1	0.08	5.7	0.05	4.0	0.11	8.2
2000 March	13.7‡	10.8‡	5.9‡	433‡	3.6‡	15.0‡	2.9‡	10.6‡	17.2‡	13.5‡	0.09‡	6.3‡	0.06‡	4.2‡	0.11‡	7.8‡
June	13.2‡	10.4‡	5.5‡	418‡	8.4‡	34.9‡	3.0‡	10.9‡	13.7‡	10.7‡	0.07‡	5.5‡	0.05‡	3.8‡	0.11‡	8.4‡
Sept	13.4‡	10.4‡	5.7‡	427‡	12.4‡	51.0‡	2.7‡	9.6‡	12.9‡	10.0‡	0.08‡	5.7‡	0.06‡	4.1‡	0.12‡	8.7‡
Northern Ireland																
1971	31.8	20.7	1.2	38	12.2	..	0.3	..	17.6	12.8	0.72	22.7	0.51	15.9	0.88	27.2
1976	26.4	17.3	1.3	50	9.9	..	0.6	..	17.0	11.2	0.48	18.3	0.35	13.3	0.59	22.3
1981	27.2	17.0	1.9	69	9.6	45.4	1.4	4.2	16.3	10.6	0.36	13.2	0.23	8.3	0.42	15.3
1986	28.0	17.8	3.6	127	10.2	..	1.5	..	16.1	10.3	0.36	13.2	0.23	8.3	0.42	15.3
1991	26.0	16.2	5.3	203	9.2	37.7	2.3	6.8	15.1	9.4	0.19	7.4	0.12	4.6	0.22	8.4
1993	24.7	15.1	5.5	220	9.0	..	2.2	..	15.6	9.6	0.18	7.1	0.12	4.9	0.22	8.8
1994	24.1	14.6	5.3	221	8.7	..	2.3	..	15.1	9.2	0.15	6.1	0.10	4.2	0.24	9.7
1995	23.7	14.3	5.5	231	8.6	..	2.3	..	15.3	9.3	0.17	7.1	0.13	5.5	0.25	10.4
1996	24.4	14.6	6.3	260	8.3	..	2.3	..	15.2	9.1	0.14	5.8	0.09	3.7	0.23	9.4
1997	24.1	14.3	6.4	266	8.1	..	2.2	..	15.0	9.0	0.14	5.6	0.10	4.2	0.21	8.6
1998	23.7	14.0	6.7	284	7.8	..	2.5	..	15.0	8.9	0.13	5.6	0.09	3.9	0.20	8.1
1999	23.0	13.6	7.0	303	7.6	..	2.3	..	15.7	9.3	0.15	6.4	0.11	4.8	0.23	10.0
1998 Dec	5.4	12.9	1.6	296	1.4	..	0.6	..	3.6	8.5	0.02	4.0	0.02	3.3	0.05	8.2
1999 March	5.9	14.0	1.8	303	0.9	..	0.7	..	4.7	11.3	0.03	5.7	0.02	4.0	0.06	10.2
June	5.9	13.9	1.7	298	2.2	..	0.6	..	3.7	8.7	0.04	7.5	0.03	5.8	0.07	11.4
Sept	6.0	14.3	1.8	305	3.2	..	0.5	..	3.5	8.1	0.04	5.9	0.03	4.4	0.05	8.2
Dec	5.1	12.2	1.6	305	1.5	..	0.5	..	3.8	8.9	0.03	6.5	0.03	5.2	0.05	10.1
2000 March	5.8‡	13.9‡	1.8‡	318‡	0.8‡	..	0.6‡	..	4.7‡	11.2‡	0.03‡	4.5‡	0.02‡	3.8‡	0.04‡	7.4‡
June	5.3‡	12.6‡	1.6‡	308‡	2.2‡	..	0.7‡	..	3.6‡	8.5‡	0.03‡	5.2‡	0.02‡	4.1‡	0.04‡	7.2‡
Sept	5.5‡	12.8‡	1.8‡	326‡	..	..	..	..	3.2‡	7.5‡	0.03‡	5.3‡	0.02‡	3.8‡	0.04‡	7.0‡

Notes: 1. Rates for the most recent quarters will be particularly subject to revision, even when standard detail is given, as they are based on provisional numbers or on estimates derived from events registered in the period.

2. Figures for England and Wales represent the numbers of deaths registered in each year up to 1992, and the number of deaths occurring in each year from 1993. Provisional figures are registrations.

3. From 1972 figures for England and figures for Wales each exclude events for persons usually resident outside England and Wales. These events are however included in the totals for England and Wales combined, and for the United Kingdom.

4. From 1981 births to non-resident mothers in Northern Ireland are excluded from the figures for Northern Ireland, but included in the figures for the United Kingdom.

5. Figures may not add exactly due to rounding.

Table 2.2

Key demographic and health indicators

Constituent countries of the United Kingdom

Numbers (thousands), rates, percentages, mean age

	Population	Live births	Deaths	Dependency ratio		Live births			Expectation of life (in years) at birth		Infant mortality rate***	
				Children*	Elderly†	TFR**	Outside marriage as percentage of total live births	Mean age of mother at birth (years)	Age-standardised mortality rate††	Males		Females
United Kingdom												
1971	55,928.0	901.6	645.1	43.8	28.0	2.41	8.2	26.2	10,448	68.8	75.0	17.9
1976	56,216.1	675.5	680.8	42.1	29.5	1.74	9.0	26.4	10,486	69.6	75.2	14.5
1981	56,357.5	730.8	658.0	37.1	29.7	1.82	12.5	26.8	9,506	70.8	76.8	11.2
1986	56,858.5	755.0	660.7	33.5	29.6	1.78	21.0	27.0	8,897	71.9	77.7	9.5
1991	57,813.8	792.5	646.2	33.1	29.9	1.82	29.8	27.6	8,107	73.2	78.8	7.4
1993	58,197.7	761.7	658.5	33.3	29.9	1.76	31.8	28.1	8,037	73.7	79.1	6.3
1994	58,400.8	750.7	627.6	33.6	29.9	1.74	32.0	28.4	7,622	73.9	79.2	6.2
1995	58,611.7	732.0	645.5	33.8	29.8	1.71	33.6	28.5	7,706	74.1	79.4	6.2
1996	58,807.2	733.4	636.0	33.8	29.7	1.72	35.5	28.6	7,522	74.3	79.5	6.1
1997	59,014.0	726.8	629.7	33.6	29.6	1.72	36.7	28.8	7,370	74.6	79.6	5.9
1998	59,237.0	717.1	629.2	33.4	29.5	1.71	37.6	28.9	7,290	74.8‡	79.8‡	5.7
1999	59,500.9	700.2	632.1‡			1.69	38.7	29.0	7,255‡			5.8‡
England												
1971	46,411.7	740.1	532.4	42.9	28.1	2.37	8.5		10,278			17.5
1976	46,659.9	550.4	560.3	41.4	29.7	1.70	9.2	26.4	10,271			14.2
1981	46,820.8	598.2	541.0	36.4	29.9	1.79	12.9	26.8	9,298	71.1	77.0	10.9
1986	47,342.4	623.6	544.5	33.1	29.8	1.87	21.4	27.0	8,694	72.2	77.9	9.5
1991	48,208.1	660.8	534.0	32.8	29.9	1.81	30.1	27.7	7,941	73.4	79.0	7.3
1993	48,532.7	636.5	541.1	33.1	30.0	1.76	32.0	28.1	7,825	74.0	79.3	6.3
1994	48,707.5	629.0	517.6	33.4	29.9	1.74	32.2	28.4	7,440	74.1	79.4	6.1
1995	48,903.4	613.2	532.6	33.6	29.8	1.71	33.7	28.6	7,526	74.4	79.6	6.1
1996	49,089.1	614.2	524.0	33.6	29.8	1.73	35.5	28.7	7,333	74.6	79.7	6.1
1997	49,284.2	608.2	519.1	33.4	29.6	1.72	36.7	28.8	7,190	74.9	79.9	5.9
1998	49,494.6	602.1	519.6	33.3	29.5	1.72	37.5	29.0	7,128	75.1‡	80.0‡	5.6
1999	49,752.9	589.5	519.6			1.69	38.5	29.0	7,062			5.7
Wales												
1971	2,740.3	43.1	34.8	43.4	29.8	2.44	7.2		11,175			18.4
1976	2,799.3	33.4	36.3	42.0	30.9	1.79	8.7	26.0	10,858			13.7
1981	2,813.5	35.8	35.0	37.6	31.6	1.87	11.2	26.6	9,846	70.4	76.4	12.6
1986	2,819.6	37.0	34.7	34.4	32.5	1.86	21.1	26.5	9,012	71.6	77.6	9.5
1991	2,891.5	38.1	34.1	34.4	33.4	1.88	32.3	27.0	8,074	73.2	78.9	6.6
1993	2,906.5	36.6	35.9	34.6	33.6	1.84	35.2	27.4	8,227	73.5	79.0	5.5
1994	2,913.0	35.4	33.9	34.9	33.6	1.79	36.0	27.7	7,753	73.5	79.0	6.1
1995	2,916.8	34.5	35.6	35.1	33.6	1.78	38.1	27.8	7,953	73.8	79.2	5.8
1996	2,921.1	34.9	34.6	35.0	33.6	1.82	41.2	27.8	7,664	74.0	79.2	5.6
1997	2,926.9	34.5	34.6	34.7	33.5	1.82	42.8	28.0	7,578	74.4	79.4	5.9
1998	2,933.3	33.4	34.0	34.5	33.5	1.79	44.4	28.0	7,366	74.5‡	79.5‡	5.6
1999	2,937.0	32.1	35.0			1.74	46.1	28.1	7,532			6.1
Scotland												
1971	5,235.6	86.7	61.6	48.2	27.1	2.53	8.1		11,444	67.3	73.7	19.9
1976	5,233.4	64.9	65.3	44.7	28.4	1.80	9.3	26.0	11,675	68.2	74.4	14.8
1981	5,180.2	69.1	63.8	38.2	28.4	1.84	12.2	26.3	10,849	69.1	75.3	11.3
1986	5,123.0	65.8	63.5	33.5	28.0	1.67	20.6	26.6	10,135	70.2	76.2	8.8
1991	5,107.0	67.0	61.0	32.2	28.7	1.69	29.1	27.4	9,254	71.4	77.1	7.1
1993	5,120.2	63.3	64.0	32.3	28.7	1.61	31.3	27.9	9,529	71.7	77.3	6.5
1994	5,132.4	61.7	59.3	32.5	28.7	1.58	31.2	28.2	8,840	71.9	77.4	6.2
1995	5,136.6	60.1	60.5	32.6	28.6	1.55	33.7	28.4	8,887	72.1	77.6	6.2
1996	5,128.0	59.3	60.7	32.5	28.7	1.55	36.0	28.5	8,868	72.2	77.8	6.2
1997	5,122.5	59.4	59.5	32.3	28.7	1.58	37.7	28.6	8,623	72.4	77.9	5.3
1998	5,120.0	57.3	59.2	32.0	28.8	1.55	39.0	28.8	8,533	72.6‡	78.1‡	5.5
1999	5,119.2	55.1	60.3			1.51	41.2	28.9	8,618			5.0
Northern Ireland†††												
1971	1,540.4	31.8	17.6	56.6	24.0	3.13	3.8		11,607	67.6	73.7	22.7
1976	1,523.5	26.4	17.0	56.1	25.3	2.70	5.0	27.4	11,746	67.5	73.8	18.3
1981	1,543.0	27.2	16.3	50.6	25.3	2.59	7.0	27.5	10,567	69.2	75.5	13.2
1986	1,573.5	28.0	16.1	46.5	24.7	2.44	12.8	27.5	10,071	70.9	77.1	10.2
1991	1,607.3	26.0	15.1	44.0	25.6	2.16	20.3	28.0	8,564	72.6	78.4	7.4
1993	1,638.3	24.7	15.6	43.6	25.4	2.01	22.0	28.1	8,600	73.0	78.7	7.1
1994	1,647.9	24.1	15.1	43.3	25.4	1.94	22.1	28.6	8,256	73.1	78.6	6.1
1995	1,654.9	23.7	15.3	42.9	25.2	1.91	23.2	28.8	8,255	73.5	78.9	7.1
1996	1,669.1	24.4	15.2	42.3	25.1	1.95	26.0	28.8	8,057	73.8	79.2	5.8
1997	1,680.3	24.1	15.0	41.6	24.9	1.92	26.7	29.0	7,810	74.2	79.5	5.6
1998	1,688.6	23.7	15.0	40.8	25.0	1.89	28.5	29.0	7,438	74.3‡	79.5‡	5.6
1999	1,691.8	23.1	15.7			1.85	30.3	29.0	7,672‡			6.4‡

‡ Provisional.

* Percentage of children under 16 to working population (males 16–64 and females 16–59).

† Percentage of males 65 and over and females 60 and over to working population (males 16–64 and females 16–59).

** TFR (total fertility rate) is the number of children that would be born to a woman if current patterns of fertility persisted throughout her childbearing life. It is sometimes called the TPF (total period fertility rate).

†† Per million population. The age-standardised mortality rate makes allowances for changes in the age structure of the population. See Notes to tables.

*** Deaths under one year per 1,000 live births.

††† Northern Ireland data has been revised to take account of changed Northern Ireland population estimates from 1981.

Notes: 1. Some of these indicators are also in other tables. They are brought together to make comparison easier.
2. Figures for England and Wales represent the number of deaths registered in each year up to 1992, and the number of deaths occurring in each year from 1993.
3. From 1981 births to non residents mothers in Northern Ireland are excluded from the figures for Northern Ireland, but included in the figures for the United Kingdom.

Table 3.1

Live births: age of mother

England and Wales

Numbers (thousands), rates, mean age and TFRs

Year and quarter	Age of mother at birth							Age of mother at birth							Mean age (years)	TFR†	
	All ages	Under 20	20–24	25–29	30–34	35–39	40 and over	All ages	Under 20	20–24	25–29	30–34	35–39	40 and over			
	Total live births (numbers)							Age-specific fertility rates*									
1961	811.3	59.8	249.8	248.5	152.3	77.5	23.3	89.2	37.3	172.6	176.9	103.1	48.1	15.0	27.6	2.77	
1964(max)‡	876.0	76.7	276.1	270.7	153.5	75.4	23.6	92.9	42.5	181.6	187.3	107.7	49.8	13.7	27.2	2.93	
1966	849.8	86.7	285.8	253.7	136.4	67.0	20.1	90.5	47.7	176.0	174.0	97.3	45.3	12.5	26.8	2.75	
1971	783.2	82.6	285.7	247.2	109.6	45.2	12.7	83.5	50.6	152.9	153.2	77.1	32.8	8.7	26.2	2.37	
1976	584.3	57.9	182.2	220.7	90.8	26.1	6.5	60.4	32.2	109.3	118.7	57.2	18.6	4.8	26.4	1.71	
1977(min)‡	569.3	54.5	174.5	207.9	100.8	25.5	6.0	58.1	29.4	103.7	117.5	58.6	18.2	4.4	26.5	1.66	
1981	634.5	56.6	194.5	215.8	126.6	34.2	6.9	61.3	28.1	105.3	129.1	68.6	21.7	4.9	26.8	1.80	
1986	661.0	57.4	192.1	229.0	129.5	45.5	7.6	60.6	30.1	92.7	124.0	78.1	24.6	4.8	27.0	1.77	
1991	699.2	52.4	173.4	248.7	161.3	53.6	9.8	63.6	33.0	89.3	119.4	86.7	32.1	5.3	27.7	1.82	
1992	689.7	47.9	163.3	244.8	166.8	56.7	10.2	63.5	31.7	86.2	117.3	87.2	33.4	5.8	27.9	1.80	
1993	673.5	45.1	152.0	236.0	171.1	58.8	10.5	62.6	31.0	82.7	114.1	87.0	34.1	6.2	28.1	1.76	
1994	664.7	42.0	140.2	229.1	179.6	63.1	10.7	61.9	29.0	79.4	112.1	88.7	35.8	6.4	28.4	1.75	
1995	648.1	41.9	130.7	217.4	181.2	65.5	11.3	60.4	28.5	76.8	108.6	87.3	36.2	6.8	28.5	1.72	
1996	649.5	44.7	125.7	211.1	186.4	69.5	12.1	60.5	29.8	77.5	106.9	88.6	37.2	7.2	28.6	1.73	
1997	643.1	46.4	118.6	202.8	187.5	74.9	12.9	59.8	30.2	76.6	104.8	88.8	38.9	7.6	28.8	1.73	
1998	635.9	48.3	113.5	193.1	188.5	78.9	13.6	59.0	30.9	75.5	102.2	89.9	39.8	7.8	28.9	1.72	
1999	621.9	48.4	110.7	181.9	185.3	81.3	14.3	57.6	30.8	73.7	99.2	89.2	39.8	8.1	29.0	1.70	
1997	March	158.1	11.5	29.8	50.4	45.7	17.7	3.1	59.6	31	77	105	88	38	7	28.7	1.70
	June	163.3	11.3	29.5	51.6	48.4	19.2	3.3	60.9	30	76	107	92	40	8	28.9	1.75
	Sept	164.9	11.8	30.3	52.1	48.1	19.3	3.3	60.8	30	78	107	90	40	8	28.8	1.78
	Dec	156.8	11.8	29.0	48.7	45.4	18.7	3.2	57.8	30	75	101	86	38	7	28.8	1.70
1998	March	155.8	11.7	27.8	47.9	46.2	18.8	3.3	58.7	31	74	102	89	39	8	28.9	1.68
	June	158.6	11.4	27.5	48.6	48.1	19.7	3.3	59.1	29	73	103	92	40	8	29.0	1.71
	Sept	166.1	12.7	29.8	50.6	48.9	20.7	3.6	61.2	32	79	107	93	41	8	28.9	1.81
	Dec	155.4	12.4	28.5	46.1	45.4	19.6	3.4	57.3	31	75	98	86	39	8	28.9	1.70
1999	March	152.1	12.0	27.1	45.0	45.1	19.6	3.4	57.1	31	73	99	88	39	8	28.9	1.69
	June	157.3	11.8	27.2	46.2	48.0	20.5	3.6	58.4	30	73	101	92	40	8	29.1	1.72
	Sept	160.1	12.5	28.7	46.8	47.5	20.9	3.7	58.8	32	75	102	91	41	8	29.0	1.74
	Dec	152.4	12.0	27.8	43.9	44.8	20.3	3.6	56.0	30	72	96	86	39	8	29.0	1.66
2000	March‡	148.6	11.4	26.4	42.5	44.1	20.6	3.7	55.2	29	69	95	86	40	8	29.1	1.64
	June‡	150.5	11.1	26.0	42.8	45.7	21.3	3.6	55.8	28	68	97	90	41	8	29.2	1.66
	Sept‡	154.8	11.8	27.8	43.6	46.1	21.7	3.8	56.7	29	71	98	90	41	8	29.1	1.69

* Births per 1,000 women in the age-group; all quarterly age-specific fertility rates are adjusted for days in the quarter. They are not adjusted for seasonality, and therefore have been revised from those previously published.

† TFR (total fertility rate) is the number of children that would be born to a woman if current patterns of fertility persisted throughout her childbearing life. It is sometimes called the TPRF (total period fertility rate). During the post Second World War period the TFR reached a maximum in 1964 and a minimum in 1977.

‡ Provisional.

Note:

The rates for women of all ages, under 20, and 40 and over are based upon the populations of women aged 15–44, 15–19, and 40–44 respectively.

Table 3.2 Live births outside marriage: age of mother and type of registration England and Wales
 Numbers (thousands), mean age and percentages

Year and quarter	Age of mother at birth								Mean age (years)	Age of mother at birth								Registration*		
	All ages	Under 20	20-24	25-29	30-34	35-39	40 and over	All ages		Under 20	20-24	25-29	30-34	35-39	40 and over	Joint		Sole		
																Same address†	Different address†			
Live births outside marriage (numbers)								Percentage of total live births in age-group								As a percentage of all births outside marriage				
1971	65.7	21.6	22.0	11.5	6.2	3.2	1.1	23.7	8.4	26.1	7.7	4.7	5.7	7.0	9.0	45.5		54.5		
1976	53.8	19.8	16.6	9.7	4.7	2.3	0.7	23.3	9.2	34.2	9.1	4.4	5.2	8.6	10.1	51.0		49.0		
1981	81.0	26.4	28.8	14.3	7.9	1.3	0.9	23.4	12.8	46.7	14.8	6.6	6.2	3.9	12.5	58.2		41.8		
1986	141.3	39.6	54.1	27.7	13.1	5.7	1.1	23.8	21.4	69.0	28.2	12.1	10.1	12.6	14.7	46.6	19.6	33.8		
1991	211.3	43.4	77.8	52.4	25.7	9.8	2.1	24.8	30.2	82.9	44.9	21.1	16.0	18.3	21.3	54.6	19.8	25.6		
1992	215.2	40.1	77.1	55.9	28.9	10.9	2.3	25.2	31.2	83.7	47.2	22.8	17.3	19.3	22.9	55.4	20.7	23.9		
1993	216.5	38.2	75.0	57.5	31.4	11.9	2.5	25.4	32.2	84.8	49.4	24.4	18.4	20.2	23.5	54.8	22.0	23.2		
1994	215.5	35.9	71.0	58.5	34.0	13.4	2.7	25.8	32.4	85.5	50.6	25.5	18.9	21.2	25.2	57.5	19.8	22.7		
1995	219.9	36.3	69.7	59.6	37.0	14.4	3.0	26.0	33.9	86.6	53.3	27.4	20.4	22.0	26.2	58.1	20.1	21.8		
1996	232.7	39.3	71.1	62.3	40.5	16.2	3.2	26.1	35.8	88.0	56.5	29.5	21.7	23.4	26.7	58.1	19.9	21.9		
1997	238.2	41.1	69.5	63.4	42.2	18.2	3.7	26.2	37.0	88.7	58.6	31.3	22.5	25.0	28.6	59.5	19.3	21.2		
1998	240.6	43.0	67.8	62.4	43.9	19.6	3.9	26.3	37.8	89.1	59.7	32.3	23.3	24.8	29.0	60.9	18.3	20.8		
1999	241.9	43.0	67.5	61.2	45.0	20.8	4.3	26.4	38.9	89.0	61.0	33.6	24.3	25.6	30.2	61.8	18.2	19.9		
1997 March	58.5	10.2	17.4	15.7	10.2	4.2	0.9	26.1	37.0	88.7	58.4	31.0	22.4	23.9	28.7	58.4	19.5	22.1		
June	58.9	10.1	17.1	15.5	10.6	4.7	0.9	26.3	36.1	89.1	58.0	30.1	22.0	24.3	28.4	59.6	19.4	21.0		
Sept	61.4	10.5	17.9	16.5	10.9	4.7	0.9	26.2	37.3	88.8	58.9	31.8	22.7	24.4	27.8	59.9	18.9	21.2		
Dec	59.3	10.4	17.2	15.7	10.4	4.6	0.9	26.2	37.8	88.3	59.2	32.2	23.0	24.8	29.3	60.0	19.2	20.7		
1998 March	58.5	10.4	16.5	15.3	10.7	4.6	1.0	26.3	37.5	89.0	59.5	31.9	23.1	24.4	29.6	60.5	18.4	21.1		
June	58.4	10.3	16.2	15.4	10.8	4.7	0.9	26.4	36.8	89.6	59.1	31.8	22.5	24.0	28.3	61.0	18.2	20.8		
Sept	63.2	11.3	17.9	16.3	11.5	5.2	1.0	26.3	38.1	89.2	60.0	32.3	23.6	25.2	28.5	60.9	18.4	20.7		
Dec	60.5	11.0	17.2	15.4	10.9	5.0	1.0	26.3	38.9	88.5	60.4	33.3	24.0	25.6	29.6	61.2	18.4	20.4		
1999 March	59.0	10.8	16.4	15.0	10.9	5.0	1.0	26.3	38.8	89.7	60.5	33.4	24.1	25.4	29.5	61.4	18.2	20.4		
June	59.8	10.5	16.5	15.3	11.2	5.2	1.1	26.5	38.0	89.2	60.6	33.0	23.4	25.3	31.3	61.6	18.2	20.1		
Sept	62.9	11.1	17.7	16.0	11.7	5.4	1.1	26.4	39.3	88.7	61.7	34.1	24.7	25.6	29.3	62.2	18.1	19.6		
Dec	60.2	10.6	17.0	14.9	11.1	5.3	1.1	26.4	39.5	88.4	61.2	34.0	24.8	26.2	30.8	62.0	18.4	19.5		
2000 March‡	58.9	10.2	16.5	14.8	10.9	5.4	1.2	26.5	39.6	89.7	62.6	34.7	24.7	26.1	31.7	62.5	18.1	19.4		
June‡	57.9	10.0	16.1	14.3	10.9	5.5	1.1	26.6	38.4	89.6	61.9	33.5	23.8	25.7	30.7	62.9	17.8	19.2		
Sept‡	61.6	10.6	17.6	15.2	11.3	5.7	1.2	26.5	39.8	89.7	63.3	35.0	24.4	26.5	30.5	62.7	18.1	19.2		

* Births outside marriage can be registered by both the mother and father (joint) or by the mother alone (sole).
 † Usual address(es) of parents.
 ‡ Provisional.

Table 4.1

Conceptions: age of woman at conception

England and Wales (residents)

Numbers (thousands) and rates; and percentage terminated by abortion

Year and quarter	Age of woman at conception								
	All ages	Under 16	Under 18	Under 20	20-24	25-29	30-34	35-39	40 and over
(a) numbers (thousands)									
1990	871.5	8.1	44.8	113.3	244.5	284.2	161.4	56.0	12.0
1991	853.7	7.5	40.1	101.6	233.3	281.5	167.5	57.6	12.1
1992	828.0	7.2	37.6	93.4	215.9	274.9	172.0	59.6	12.2
1993	819.0	7.3	35.8	87.2	203.6	271.7	181.0	63.0	12.6
1994	801.6	7.8	36.1	85.4	190.4	261.8	185.0	66.2	12.9
1995	790.3	8.1	37.9	86.6	181.1	250.3	190.3	68.7	13.2
1996	816.9	8.9	43.5	94.9	179.8	252.6	200.0	75.5	14.1
1997	800.4	8.3	43.4	96.0	167.3	242.6	200.9	78.9	14.7
1998	797.0	8.5	44.1	101.6	163.3	232.4	201.4	82.9	15.4
1996 March	206.3	2.3	10.9	24.2	47.3	64.0	49.2	18.3	3.4
June	200.8	2.3	10.9	23.7	44.6	61.9	48.7	18.2	3.6
Sept	202.6	2.1	10.5	22.6	43.1	63.2	50.8	19.2	3.6
Dec	207.2	2.1	11.2	24.2	44.9	63.5	51.2	19.8	3.6
1997 March	194.1	2.0	10.6	23.2	41.6	59.4	47.7	18.6	3.6
June	198.5	2.2	11.0	23.9	41.8	59.9	49.8	19.5	3.8
Sept	199.2	2.0	10.4	23.3	40.4	60.7	51.2	19.9	3.6
Dec	208.6	2.1	11.4	25.6	43.5	62.6	52.2	20.8	3.8
1998 March	196.5	2.1	11.2	25.3	41.1	57.7	48.9	19.9	3.6
June	196.0	2.1	11.0	25.3	40.5	56.8	49.0	20.5	3.8
Sept	200.8	2.1	10.7	24.7	40.0	59.1	51.9	21.1	3.9
Dec	203.7	2.1	11.2	26.3	41.7	58.9	51.5	21.3	4.0
1999 March‡	191.5	1.9	10.4	24.9	39.6	54.3	48.4	20.6	3.8
June‡	190.4	2.0	10.5	24.4	39.1	53.8	47.9	21.2	4.1
Sept‡	193.8	2.0	10.4	24.1	38.3	54.7	50.6	22.0	4.1
(b) rates (conceptions per thousand women in age-group)									
1990	79.2	9.5	47.7	68.0	124.0	138.0	89.7	33.6	6.6
1991	77.7	8.9	44.6	64.1	120.2	135.1	90.1	34.4	6.6
1992	76.3	8.4	43.6	61.9	114.0	131.7	89.9	35.1	6.9
1993	76.1	8.1	42.5	59.9	110.8	131.4	92.0	36.5	7.4
1994	74.7	8.3	42.0	58.9	107.8	128.1	91.3	37.5	7.6
1995	73.7	8.6	42.0	58.9	106.3	125.0	91.7	37.9	7.9
1996	76.1	9.5	46.4	63.3	110.9	127.9	95.1	40.4	8.4
1997	74.4	8.9	45.9	62.6	108.0	125.4	95.2	41.0	8.7
1998	74.0	9.0	47.0	64.9	108.5	123.0	96.0	41.8	8.9
1996 March	77.3	10.0	47.5	65.6	115.1	129.6	94.6	39.8	8.1
June	75.2	9.8	46.9	63.9	109.8	125.9	93.4	39.4	8.6
Sept	75.0	9.1	44.4	59.9	106.3	127.7	96.1	40.8	8.5
Dec	76.7	9.0	47.3	63.8	112.0	128.9	96.7	41.6	8.5
1997 March	73.2	8.6	45.5	61.9	107.1	123.6	91.7	39.6	8.5
June	74.1	9.4	46.8	62.6	107.5	123.8	94.6	40.8	8.9
Sept	73.5	8.5	43.9	60.2	103.8	124.9	96.3	41.0	8.3
Dec	76.9	8.9	47.8	65.6	112.7	129.6	98.4	42.4	8.9
1998 March	74.1	9.1	48.3	66.0	109.7	122.7	94.3	41.3	8.5
June	73.0	9.0	47.1	65.0	107.5	120.1	93.7	41.7	8.9
Sept	73.9	8.9	45.4	62.7	105.4	124.5	98.3	42.1	9.0
Dec	75.0	8.9	47.3	66.6	109.9	125.1	97.8	42.1	9.2
1999 March‡	72.0	8.0	45.2	64.3	106.8	118.8	94.1	41.3	8.8
June‡	70.8	8.5	44.9	62.3	104.3	117.3	92.3	41.7	9.2
Sept‡	71.2	8.1	43.9	60.8	100.9	118.8	96.9	42.7	9.1
(c) percentage terminated by abortion									
1990	19.9	50.8	41.1	35.7	22.3	13.5	13.8	23.1	43.2
1991	19.4	51.1	39.9	34.5	22.2	13.4	13.7	22.0	41.6
1992	19.3	48.6	39.1	33.9	22.3	13.9	13.9	22.2	41.5
1993	19.2	49.9	39.2	34.3	22.8	13.9	13.5	21.5	40.2
1994	19.5	50.3	39.8	34.7	23.4	14.3	13.6	21.1	40.9
1995	19.7	47.6	38.7	34.6	24.2	14.8	13.6	20.7	38.0
1996	20.8	49.2	40.0	36.2	25.7	15.6	14.1	21.2	37.6
1997	21.3	49.7	40.6	36.8	26.7	16.4	14.2	21.0	38.0
1998	22.3	52.4	42.0	37.8	27.8	17.1	14.9	21.5	37.9
1996 March	21.0	47.2	39.5	36.1	25.5	15.9	14.4	21.8	37.1
June	21.3	49.2	40.7	36.6	26.5	16.0	14.4	21.8	38.2
Sept	19.7	50.4	39.1	35.2	24.7	14.9	13.3	20.2	37.3
Dec	21.1	50.2	40.8	37.0	26.3	15.8	14.2	21.0	37.9
1997 March	21.4	48.4	39.7	36.0	26.6	16.6	14.5	21.0	38.6
June	21.7	49.5	40.3	36.7	27.1	16.8	14.6	21.9	39.1
Sept	20.5	48.1	40.6	36.6	25.8	15.8	13.5	20.7	36.4
Dec	21.6	52.5	41.6	37.6	27.2	16.5	14.3	20.6	37.8
1998 March	22.3	51.4	41.2	37.3	27.7	17.3	15.2	21.7	37.0
June	22.8	52.7	42.2	38.2	28.4	17.6	15.3	22.2	38.9
Sept	21.7	52.5	42.2	37.9	27.3	16.6	14.4	21.3	37.6
Dec	22.2	53.0	42.3	37.7	28.0	17.0	14.7	21.0	38.2
1999 March‡	22.3	51.4	41.9	38.0	27.9	17.2	14.7	21.6	36.2
June‡	23.0	52.9	43.5	38.6	28.6	18.0	15.5	21.5	37.8
Sept‡	22.1	52.7	43.2	38.7	28.5	17.2	14.1	20.6	37.3

‡ Provisional

Notes: 1. Conceptions are estimates derived from birth registrations and abortion notifications.

2. Rates for women of all ages, under 16, under 18, under 20 and 40 and over are based on the population of women aged 15-44, 13-15, 15-17, 15-19 and 40-44 respectively.

Table 4.2 **Abortions: residents and non-residents; age and gestation (residents only)** *England and Wales*
 Numbers (thousands) and rates; and percentages for gestation weeks

Year and quarter	All ages			All women (residents)							Gestation weeks (percentages)			
	All** women	Residents**	Non-** residents	Age group							Under 9	9-12	13-19	20 and over
				Under 16	16-19	20-24	25-29	30-34	35-44	45 and over				
Numbers (thousands)											Percentages			
1971	126.8	94.6	32.2	2.3	18.2	24.5	17.3	14.2	15.9	0.5	16.6	57.9	21.8	1.0
1976	129.7	101.9	27.8	3.4	24.0	23.6	19.3	14.6	14.7	0.5	24.8	55.8	15.0	1.1
1981	162.5	128.6	33.9	3.5	31.4	34.3	21.9	18.7	17.6	0.6	31.0	53.4	13.5	1.3
1986	172.3	147.6	24.7	3.9	33.8	45.3	28.7	18.0	17.5	0.4	33.4	53.8	11.5	1.4
1991	179.5	167.4	12.1	3.2	31.1	52.7	38.6	23.4	17.9	0.4	35.2	52.9	10.6	1.2
1992	172.1	160.5	11.6	3.0	27.6	49.0	38.4	23.9	18.1	0.5	36.8	51.8	10.3	1.2
1993	168.7	157.8	10.9	3.1	25.8	46.8	38.1	24.7	18.8	0.5	39.2	49.7	9.9	1.2
1994	166.9	156.5	10.3	3.2	25.1	44.9	38.1	25.5	19.1	0.4	40.5	48.4	9.9	1.2
1995	163.6	154.3	9.3	3.2	24.9	43.4	37.3	25.8	19.2	0.5	41.9	47.3	9.6	1.2
1996	177.5	167.9	9.6	3.6	28.8	46.4	39.3	28.2	21.1	0.4	40.0	48.7	10.1	1.3
1997	179.7	170.1	9.6	3.4	29.9	45.0	40.2	28.9	22.3	0.5	41.2	47.9	9.6	1.2
1998	187.4	177.9	9.5	3.8	33.2	45.8	40.4	30.4	23.7	0.5	41.4	47.6	9.7	1.3
1999	183.2	173.7	9.5	3.6	32.8	45.0	38.5	29.1	24.1	0.5	42.5	46.5	9.5	1.4
1996 March	45.7	43.2	2.4	0.9	7.4	12.4	10.2	7.2	5.2	0.1	38.0	50.5	10.2	1.2
June	45.5	42.9	2.5	0.9	7.3	11.9	10.1	7.2	5.4	0.1	38.9	49.3	10.5	1.4
Sept	44.0	41.6	2.4	0.9	7.1	11.2	9.8	7.0	5.4	0.1	40.0	48.3	10.3	1.4
Dec	42.4	40.1	2.2	0.9	7.0	10.8	9.3	6.8	5.2	0.1	43.1	46.3	9.3	1.3
1997 March	46.2	43.6	2.5	0.9	7.7	11.8	10.3	7.3	5.5	0.1	37.4	50.2	11.1	1.3
June	45.2	42.8	2.4	0.8	7.4	11.4	10.2	7.2	5.6	0.1	41.3	48.0	9.4	1.2
Sept	45.1	42.7	2.4	0.9	7.5	11.1	10.0	7.3	5.8	0.1	42.0	47.2	9.6	1.2
Dec	43.3	41.0	2.3	0.8	7.4	10.7	9.6	7.0	5.4	0.1	44.5	46.0	8.3	1.2
1998 March	48.4	45.9	2.5	1.0	8.7	12.0	10.5	7.7	5.8	0.1	37.5	50.4	10.8	1.3
June	46.4	44.0	2.4	0.9	8.1	11.4	10.1	7.6	5.8	0.1	40.8	48.3	9.5	1.4
Sept	46.9	44.5	2.4	1.0	8.3	11.3	10.0	7.6	6.1	0.1	42.5	46.7	9.5	1.2
Dec	45.7	43.5	2.2	0.9	8.1	11.0	9.8	7.5	5.9	0.1	44.9	45.0	8.9	1.2
1999 March	47.5	45.2	2.4	0.9	8.7	11.8	10.0	7.5	6.1	0.1	40.1	48.2	10.3	1.5
June	45.3	42.9	2.4	0.9	8.0	11.1	9.6	7.2	5.9	0.1	42.3	46.9	9.3	1.4
Sept	45.8	43.4	2.4	0.9	8.2	11.2	9.5	7.4	6.1	0.1	43.1	46.1	9.3	1.4
Dec	44.6	42.3	2.4	0.9	7.9	10.9	9.4	7.0	6.0	0.1	44.7	44.7	9.2	1.4
2000† March	48.4	45.9	2.6	1.0	8.9	12.3	10.0	7.4	6.3	0.1	39.0	48.0	11.6	1.6
June	45.0	42.5	2.5	0.9	8.0	11.6	9.0	7.0	5.9	0.1	42.3	46.0	10.3	1.3
Sept	45.6	43.1	2.5	0.9	8.1	11.4	9.4	7.2	6.0	0.1	44.7	44.0	10.0	1.4
Rates (per thousand women 14-49)														
1971	:	8.4	:	3.5	13.9	13.1	10.7	10.0	5.6	0.3				
1976	:	8.9	:	4.4	16.9	14.2	10.4	9.2	5.3	0.3				
1981	:	10.6	:	4.5	19.4	19.1	13.3	10.3	5.9	0.4				
1986	:	11.7	:	5.4	22.0	21.9	15.5	10.9	5.1	0.3				
1991	:	13.1	:	5.6	24.0	27.2	18.6	12.7	5.1	0.3				
1992	:	12.5	:	5.4	22.4	25.9	18.4	12.5	5.2	0.3				
1993	:	12.3	:	5.3	22.0	25.5	18.4	12.6	5.5	0.3				
1994	:	12.2	:	5.2	22.0	25.4	18.6	12.6	5.6	0.2				
1995	:	12.0	:	5.2	21.7	25.5	18.6	12.4	5.5	0.2				
1996	:	13.0	:	5.8	24.3	28.6	19.9	13.4	6.0	0.2				
1997	:	13.3	:	5.5	24.5	29.0	20.8	13.7	6.1	0.3				
1998	:	13.9	:	6.1	26.5	30.4	21.4	14.5	6.4	0.3				
1999	:	13.6	:	5.7	26.0	29.9	21.0	14.0	6.3	0.3				
1996 March	:	13.5	:	5.7	25.0	30.7	20.7	13.8	5.9	0.2				
June	:	13.4	:	5.9	24.9	29.6	20.6	13.7	6.1	0.2				
Sept	:	12.8	:	5.9	24.0	27.5	19.7	13.3	6.1	0.2				
Dec	:	12.4	:	5.8	23.5	26.5	18.7	12.9	5.8	0.3				
1997 March	:	13.8	:	5.7	25.5	30.8	21.7	14.1	6.2	0.2				
June	:	13.4	:	5.4	24.1	29.6	21.1	13.8	6.2	0.3				
Sept	:	13.2	:	5.7	24.3	28.3	20.6	13.8	6.3	0.3				
Dec	:	12.7	:	5.3	24.0	27.4	19.7	13.1	5.9	0.3				
1998 March	:	14.6	:	6.4	28.2	32.4	22.4	14.9	6.4	0.3				
June	:	13.8	:	5.8	26.0	30.4	21.4	14.5	6.3	0.3				
Sept	:	13.8	:	6.1	26.2	29.9	21.1	14.4	6.6	0.3				
Dec	:	13.5	:	5.9	25.7	29.1	20.5	14.3	6.3	0.3				
1999 March	:	14.1	:	5.9	27.6	31.4	21.7	14.5	6.4	0.3				
June	:	13.4	:	5.4	25.5	29.6	20.9	13.9	6.2	0.3				
Sept	:	13.6	:	5.6	26.0	29.8	20.8	14.1	6.4	0.3				
Dec	:	13.2	:	5.8	25.0	29.0	20.5	13.5	6.3	0.3				
2000† March	:	14.3	:	6.0	27.9	31.9	22.5	14.4	6.4	0.3				
June	:	13.2	:	5.4	25.2	30.1	20.4	13.7	6.0	0.3				
Sept	:	13.4	:	5.8	25.4	29.6	21.2	14.1	6.1	0.3				

† Provisional.

* The denominators used to calculate rates are population projections (1998-based). Rates for Under 16 and 45 and over are based on female populations aged 14-15 and 45-49 respectively.

** Includes cases with not stated age and/or gestation weeks.

Table 5.1 Expectation of life (in years) at birth and selected age Constituent countries of the United Kingdom

Year	Males								Year	Females							
	At birth	At age								At birth	At age						
		5	20	30	50	60	70	80			5	20	30	50	60	70	80
United Kingdom*																	
1971	68.8	65.3	50.9	41.3	23.0	15.3	9.5	5.5	1971	75.0	71.4	56.7	47.0	28.3	19.8	12.5	6.9
1976	69.6	66.0	51.4	41.9	23.4	15.7	9.6	5.6	1976	75.2	72.0	57.3	47.5	28.7	20.3	12.9	7.2
1981	70.8	66.9	52.3	42.7	24.1	16.3	10.1	5.8	1981	76.8	72.7	57.9	48.1	29.2	20.8	13.3	7.5
1986	71.9	67.8	53.2	43.6	24.9	16.8	10.5	6.0	1986	77.7	73.5	58.7	48.9	29.8	21.2	13.8	7.9
1991	73.2	68.9	54.3	44.7	26.0	17.7	11.1	6.4	1991	78.8	74.4	59.6	49.7	30.7	21.9	14.4	8.4
1993	73.7	69.3	54.6	45.1	26.4	18.0	11.3	6.5	1993	79.1	74.6	59.8	50.0	30.9	22.1	14.5	8.4
1994	73.9	69.5	54.8	45.2	26.5	18.1	11.3	6.5	1994	79.2	74.7	59.9	50.1	31.0	22.2	14.5	8.4
1995	74.1	69.7	55.0	45.5	26.8	18.4	11.5	6.6	1995	79.4	74.9	60.1	50.3	31.2	22.4	14.6	8.5
1996	74.3	69.9	55.2	45.7	26.9	18.5	11.6	6.7	1996	79.5	75.0	60.1	50.3	31.2	22.4	14.6	8.5
1997	74.6	70.2	55.5	45.9	27.2	18.8	11.8	6.7	1997	79.6	75.1	60.3	50.5	31.4	22.6	14.7	8.5
1998‡	74.8	70.4	55.7	46.1	27.4	19.0	11.9	6.8	1998‡	79.8	75.3	60.4	50.6	31.5	22.6	14.8	8.6
England and Wales																	
1971	69.0	65.6	51.1	41.5	23.1	15.4	9.5	5.5	1971	75.2	71.6	56.9	47.1	28.4	20.0	12.6	7.0
1976	69.9	66.2	51.6	42.1	23.5	15.8	9.7	5.7	1976	76.0	72.2	57.4	47.7	28.8	20.4	13.0	7.2
1981	71.0	67.1	52.5	42.9	24.3	16.4	10.1	5.8	1981	77.0	72.9	58.1	48.3	29.4	20.9	13.4	7.5
1986	72.1	68.0	53.4	43.8	25.0	16.9	10.6	6.1	1986	77.9	73.6	58.9	49.0	30.0	21.4	13.9	7.9
1991	73.4	69.1	54.5	44.9	26.2	17.9	11.2	6.4	1991	79.0	74.6	59.8	49.9	30.8	22.1	14.5	8.4
1993	74.0	69.6	54.9	45.3	26.5	18.2	11.4	6.5	1993	79.3	74.8	60.0	50.2	31.1	22.3	14.6	8.5
1994	74.1	69.7	55.0	45.4	26.7	18.3	11.4	6.5	1994	79.4	74.9	60.1	50.3	31.2	22.3	14.6	8.5
1995	74.4	70.0	55.2	45.7	26.9	18.5	11.6	6.6	1995	79.6	75.1	60.3	50.4	31.3	22.5	14.7	8.6
1996	74.6	70.2	55.4	45.9	27.1	18.7	11.7	6.7	1996	79.7	75.2	60.3	50.5	31.4	22.6	14.7	8.6
1997	74.8	70.4	55.7	46.1	27.4	18.9	11.9	6.8	1997	79.8	75.3	60.5	50.7	31.6	22.7	14.8	8.6
1998‡	75.1	70.7	55.9	46.4	27.6	19.1	12.0	6.9	1998‡	80.0	75.5	60.6	50.8	31.7	22.8	14.9	8.6
England																	
1981	71.1	67.1	52.5	42.9	24.3	16.4	10.1	5.8	1981	77.0	72.9	58.2	48.4	29.4	20.9	13.4	7.5
1986	72.2	68.1	53.4	43.8	25.1	17.0	10.6	6.1	1986	77.9	73.7	58.9	49.1	30.0	21.4	13.9	7.9
1991	73.4	69.1	54.5	44.9	26.2	17.9	11.2	6.4	1991	79.0	74.6	59.8	49.9	30.9	22.1	14.5	8.4
1993	74.0	69.6	54.9	45.3	26.6	18.2	11.4	6.5	1993	79.3	74.9	60.0	50.2	31.1	22.3	14.6	8.5
1994	74.1	69.7	55.0	45.4	26.7	18.3	11.4	6.5	1994	79.4	74.9	60.1	50.3	31.2	22.3	14.6	8.5
1995	74.4	70.0	55.2	45.7	26.9	18.5	11.6	6.6	1995	79.6	75.1	60.3	50.4	31.3	22.5	14.7	8.6
1996	74.6	70.2	55.5	45.9	27.2	18.7	11.7	6.7	1996	79.7	75.2	60.3	50.5	31.4	22.6	14.7	8.6
1997	74.9	70.5	55.7	46.2	27.4	18.9	11.9	6.8	1997	79.9	75.4	60.5	50.7	31.6	22.7	14.8	8.6
1998‡	75.1	70.7	56.0	46.4	27.6	19.1	12.0	6.9	1998‡	80.0	75.5	60.6	50.8	31.7	22.8	14.9	8.6
Wales																	
1981	70.4	66.5	51.9	42.2	23.6	15.8	9.7	5.5	1981	76.4	72.3	57.5	47.7	28.9	20.4	13.1	7.4
1986	71.6	67.5	52.9	43.3	24.6	16.6	10.4	6.0	1986	77.6	73.3	58.5	48.7	29.7	21.1	13.8	7.8
1991	73.2	68.9	54.2	44.6	25.9	17.6	11.0	6.4	1991	78.9	74.4	59.6	49.8	30.7	21.9	14.4	8.4
1993	73.5	69.1	54.4	44.9	26.1	17.8	11.2	6.6	1993	79.0	74.5	59.7	49.9	30.8	22.0	14.4	8.4
1994	73.5	69.1	54.4	44.9	26.2	17.9	11.1	6.5	1994	79.0	74.5	59.7	49.8	30.8	22.0	14.4	8.4
1995	73.8	69.4	54.7	45.2	26.5	18.1	11.3	6.6	1995	79.2	74.7	59.8	50.0	30.9	22.2	14.5	8.5
1996	74.0	69.5	54.8	45.4	26.6	18.3	11.4	6.5	1996	79.2	74.7	59.8	50.0	31.0	22.2	14.5	8.5
1997	74.4	69.9	55.2	45.7	27.0	18.6	11.6	6.8	1997	79.4	74.9	60.0	50.2	31.1	22.4	14.6	8.5
1998‡	74.5	70.1	55.4	45.9	27.1	18.7	11.7	6.8	1998‡	79.5	75.0	60.1	50.3	31.2	22.4	14.6	8.5
Scotland																	
1971	67.3	64.0	49.5	40.1	22.0	14.6	9.1	5.4	1971	73.7	70.1	55.4	45.6	27.2	19.0	11.9	6.7
1976	68.2	64.4	49.9	40.4	22.3	14.9	9.2	5.3	1976	74.4	70.6	55.9	46.1	27.6	19.4	12.4	6.9
1981	69.1	65.2	50.6	41.1	22.9	15.4	9.5	5.5	1981	75.3	71.2	56.4	46.7	27.9	19.7	12.7	7.2
1986	70.2	66.0	51.4	41.9	23.5	15.8	9.9	5.7	1986	76.2	71.9	57.1	47.3	28.4	20.1	13.0	7.5
1991	71.4	67.1	52.5	43.0	24.6	16.6	10.4	6.1	1991	77.1	72.6	57.8	48.1	29.1	20.6	13.4	7.8
1993	71.7	67.3	52.7	43.2	24.8	16.8	10.5	6.0	1993	77.3	72.8	58.0	48.2	29.3	20.7	13.4	7.8
1994	71.9	67.5	52.8	43.4	24.9	16.9	10.6	6.1	1994	77.4	72.9	58.1	48.3	29.4	20.8	13.5	7.8
1995	72.1	67.7	53.1	43.6	25.2	17.2	10.8	6.2	1995	77.6	73.2	58.3	48.6	29.6	21.0	13.7	7.9
1996	72.2	67.8	53.1	43.7	25.3	17.3	10.9	6.3	1996	77.8	73.2	58.4	48.7	29.7	21.1	13.7	7.9
1997	72.4	67.9	53.3	43.9	25.5	17.5	11.0	6.4	1997	77.9	73.4	58.6	48.8	29.9	21.3	13.8	7.9
1998‡	72.6	68.1	53.5	44.1	25.7	17.7	11.1	6.4	1998‡	78.1	73.5	58.7	48.9	29.9	21.3	13.8	7.9
Northern Ireland*																	
1981	69.2	65.4	50.9	41.5	23.2	15.6	9.7	5.8	1981	75.5	71.6	56.8	47.1	28.3	20.0	12.8	7.3
1986	70.9	66.8	52.2	42.7	24.2	16.4	10.4	6.2	1986	77.1	72.9	58.1	48.3	29.3	20.8	13.4	7.8
1991	72.6	68.2	53.6	44.1	25.5	17.3	11.0	6.4	1991	78.4	74.0	59.2	49.4	30.3	21.6	14.2	8.3
1993	73.0	68.6	54.0	44.6	25.8	17.6	11.1	6.5	1993	78.7	74.3	59.4	49.6	30.6	21.8	14.3	8.4
1994	73.1	68.8	54.2	44.7	26.0	17.8	11.2	6.6	1994	78.6	74.2	59.4	49.6	30.6	21.9	14.3	8.4
1995	73.5	69.1	54.5	45.0	26.3	18.0	11.3	6.6	1995	78.9	74.5	59.6	49.8	30.8	22.0	14.4	8.4
1996	73.8	69.4	54.7	45.2	26.5	18.2	11.3	6.6	1996	79.2	74.7	59.9	50.0	30.9	22.1	14.4	8.4
1997	74.2	69.7	55.0	45.5	26.8	18.3	11.5	6.6	1997	79.5	75.0	60.2	50.3	31.2	22.4	14.6	8.4
1998‡	74.3	69.8	55.1	45.6	26.9	18.5	11.6	6.6	1998‡	79.5	75.0	60.2	50.4	31.3	22.4	14.5	8.3

Note: Figures from 1981 are calculated from the population estimates revised in the light of the 1991 Census. All figures are based on a three-year period; see Notes to tables for further information.

‡ Provisional.

* United Kingdom and Northern Ireland data has been revised to take account of changed Northern Ireland population estimates from 1981.

Table 6.1

Deaths: age and sex**
Numbers (thousands) and rates

England and Wales

Year and quarter	All ages	Age group												
		Under 1*	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85 and over
Numbers (thousands)														
Males														
1971	288.4	7.97	1.23	0.92	0.69	1.54	1.77	3.05	6.68	21.0	55.7	89.8	71.9	26.1
1976	300.1	4.88	0.88	0.68	0.64	1.66	1.66	3.24	5.93	20.4	52.0	98.7	80.3	29.0
1981	289.0	4.12	0.65	0.45	0.57	1.73	1.58	3.18	5.54	16.9	46.9	92.2	86.8	28.5
1986	287.9	3.72	0.57	0.32	0.38	1.43	1.75	3.10	5.77	14.4	43.6	84.4	96.2	32.2
1991	277.6	2.97	0.55	0.34	0.35	1.21	1.76	3.69	6.16	13.3	34.9	77.2	95.8	39.3
1993	279.6	2.41	0.51	0.28	0.34	0.91	1.60	3.81	5.78	13.4	33.3	78.9	93.8	44.5
1994	267.6	2.37	0.43	0.28	0.33	0.84	1.55	4.07	5.77	12.9	31.3	76.3	88.2	43.2
1995	274.4	2.31	0.39	0.27	0.34	0.91	1.53	4.04	5.88	13.5	31.0	75.0	92.3	47.1
1996	268.7	2.27	0.44	0.24	0.29	0.93	1.41	4.06	5.84	13.6	30.1	71.0	90.7	47.8
1997	264.9	2.14	0.41	0.27	0.33	0.95	1.44	3.94	5.71	13.5	28.9	68.0	90.2	49.1
1998	264.7	2.07	0.41	0.24	0.29	0.88	1.29	4.01	5.90	13.6	29.1	66.1	90.5	50.4
1999	264.3	2.08	0.41	0.22	0.28	0.90	1.27	3.85	5.93	13.6	28.7	64.3	90.4	52.3
Females														
1971	278.9	5.75	0.98	0.57	0.42	0.63	0.79	1.84	4.53	13.3	30.8	64.0	95.0	60.4
1976	298.5	3.46	0.59	0.45	0.42	0.62	0.67	1.94	4.04	12.8	29.6	67.1	104.7	72.1
1981	288.9	2.90	0.53	0.30	0.37	0.65	0.64	1.82	3.74	10.5	27.2	62.8	103.6	73.9
1986	293.3	2.59	0.49	0.25	0.27	0.56	0.67	1.65	3.83	8.8	25.8	58.4	106.5	83.6
1991	292.5	2.19	0.44	0.25	0.22	0.46	0.64	1.73	3.70	8.4	21.3	54.2	103.3	95.7
1993	299.2	1.84	0.37	0.19	0.25	0.39	0.58	1.80	3.63	8.6	20.4	55.2	100.9	105.0
1994	285.6	1.75	0.36	0.19	0.20	0.36	0.54	1.77	3.67	8.7	19.0	53.9	94.2	101.0
1995	295.2	1.68	0.33	0.20	0.21	0.38	0.50	1.86	3.64	9.0	18.9	53.0	97.2	108.4
1996	291.5	1.69	0.32	0.18	0.20	0.43	0.51	1.85	3.66	8.9	18.2	50.2	96.7	108.7
1997	290.4	1.66	0.30	0.18	0.21	0.43	0.49	1.72	3.74	9.0	18.0	48.3	95.5	110.9
1998	290.3	1.56	0.31	0.18	0.19	0.41	0.48	1.72	3.68	9.1	17.9	46.9	94.7	113.2
1999	291.8	1.55	0.30	0.17	0.22	0.39	0.47	1.67	3.79	9.0	18.0	45.1	93.9	117.2
Rates (deaths per 1,000 population in each age group)														
Males														
1971	12.1	19.8	0.76	0.44	0.37	0.90	0.93	0.97	2.31	7.07	20.1	50.5	113.0	231.8
1976	12.5	16.2	0.65	0.34	0.31	0.88	0.96	0.92	2.09	6.97	19.6	50.3	116.4	243.2
1981	12.0	12.6	0.53	0.27	0.29	0.82	0.83	0.89	1.83	6.11	17.7	45.6	105.2	226.5
1986	11.8	11.0	0.44	0.21	0.23	0.71	0.82	0.87	1.67	5.27	16.6	42.9	101.1	214.8
1991	11.2	8.3	0.40	0.21	0.23	0.69	0.86	0.94	1.76	4.62	13.8	38.5	93.6	197.1
1993	11.1	7.0	0.36	0.16	0.21	0.59	0.83	0.91	1.67	4.24	13.3	37.9	93.3	202.3
1994	10.6	6.9	0.31	0.16	0.20	0.55	0.83	0.96	1.66	3.99	12.4	36.2	89.5	188.6
1995	10.8	6.9	0.28	0.15	0.21	0.58	0.86	0.95	1.67	4.08	12.3	36.1	89.4	196.0
1996	10.5	7.0	0.32	0.13	0.18	0.58	0.83	0.95	1.62	4.02	12.0	34.5	85.1	192.1
1997	10.3	6.5	0.31	0.15	0.19	0.58	0.89	0.93	1.54	3.94	11.5	33.2	82.5	190.3
1998	10.3	6.4	0.31	0.14	0.17	0.53	0.82	0.96	1.55	3.94	11.3	32.4	81.2	187.2
1999	10.2	6.5	0.31	0.12	0.16	0.54	0.80	0.93	1.51	3.93	10.9	31.6	80.1	187.9
1998 Dec	10.8	7.2	0.28	0.12	0.13	0.51	0.70	0.94	1.53	3.97	11.7	33.8	86.3	207.1
1999 March	12.0	7.2	0.35	0.13	0.17	0.58	0.92	0.93	1.67	4.24	12.0	36.6	95.6	236.9
1999 June	9.4	6.2	0.28	0.12	0.15	0.55	0.78	0.98	1.50	3.79	10.5	29.6	73.5	162.8
1999 Sept	9.0	6.3	0.28	0.12	0.13	0.52	0.75	0.85	1.45	3.65	10.1	28.2	70.0	156.4
1999 Dec	10.4	6.3	0.31	0.13	0.18	0.52	0.76	0.98	1.43	4.04	11.0	32.2	81.6	196.4
2000 March‡	11.8	6.4	0.33	0.13	0.15	0.54	0.96	0.96	1.72	4.23	12.7	35.0	95.8	245.6
2000 June‡	9.4	6.3	0.26	0.12	0.16	0.49	0.72	0.87	1.58	3.83	10.6	28.8	74.0	178.1
2000 Sept‡	8.7	5.9	0.19	0.11	0.14	0.50	0.81	0.89	1.47	3.53	9.5	26.9	67.7	157.4
Females														
1971	11.0	15.1	0.63	0.29	0.24	0.39	0.42	0.60	1.59	4.32	10.0	26.1	73.6	185.7
1976	11.8	12.2	0.46	0.24	0.21	0.35	0.40	0.56	1.46	4.30	10.1	26.0	74.6	196.6
1981	11.3	9.4	0.46	0.19	0.19	0.32	0.35	0.52	1.26	3.80	9.5	24.1	66.2	178.2
1986	11.4	8.0	0.40	0.17	0.17	0.29	0.33	0.47	1.12	3.23	9.2	23.4	62.5	171.0
1991	11.3	6.4	0.33	0.16	0.15	0.28	0.33	0.45	1.06	2.91	8.1	22.0	58.6	163.8
1993	11.4	5.6	0.28	0.12	0.16	0.27	0.31	0.45	1.06	2.73	7.9	22.0	59.4	156.5
1994	10.9	5.4	0.27	0.11	0.13	0.25	0.30	0.44	1.06	2.68	7.3	21.3	56.9	146.6
1995	11.2	5.3	0.25	0.12	0.13	0.26	0.29	0.46	1.05	2.72	7.3	21.4	57.1	153.1
1996	11.0	5.4	0.24	0.10	0.12	0.29	0.31	0.45	1.03	2.62	7.1	20.7	55.8	150.8
1997	10.9	5.3	0.23	0.10	0.13	0.28	0.32	0.42	1.03	2.63	6.9	20.2	54.6	151.8
1998	10.9	5.0	0.24	0.11	0.12	0.26	0.32	0.43	0.99	2.62	6.8	19.9	53.9	151.5
1999	10.9	5.1	0.24	0.10	0.13	0.25	0.31	0.43	0.99	2.60	6.7	19.3	53.5	154.8
1998 Dec	11.7	5.7	0.29	0.11	0.13	0.22	0.32	0.40	1.01	2.73	7.2	20.8	57.6	165.9
1999 March	13.4	5.7	0.29	0.13	0.15	0.28	0.33	0.47	1.07	2.83	7.3	22.7	65.5	199.7
1999 June	9.8	5.1	0.23	0.06	0.12	0.22	0.33	0.42	0.97	2.53	6.3	17.7	48.1	134.9
1999 Sept	9.4	4.7	0.18	0.10	0.11	0.24	0.28	0.40	0.91	2.45	6.3	17.2	46.2	127.4
1999 Dec	11.1	5.0	0.25	0.11	0.13	0.24	0.32	0.42	1.03	2.61	6.9	19.7	54.3	157.9
2000 March‡	13.0	5.5	0.23	0.10	0.13	0.28	0.32	0.45	1.11	2.85	7.6	21.1	62.9	197.9
2000 June‡	9.7	4.7	0.21	0.08	0.10	0.24	0.30	0.41	1.00	2.57	6.5	17.1	47.5	136.3
2000 Sept‡	9.1	5.1	0.17	0.08	0.10	0.25	0.36	0.45	0.97	2.52	6.1	16.4	44.0	125.4

* Rates per 1,000 live births. ‡ Provisional registrations.

** 1998 deaths figures for England and Wales in *Health Statistics Quarterly* 03 and 04 were incorrectly shown as being final when they were still provisional. The final 1998 figures are those shown here.

Note: Figures represent the numbers of deaths registered in each year up to 1992 and the numbers of deaths occurring in each year from 1993.

Table 6.2

Deaths: subnational**
Rates

Health Regional Office areas of England*

Year and quarter	Northern and Yorkshire	Trent	Eastern	London	South East	South West	West Midlands	North West
Total deaths (deaths per 1,000 population of all ages)								
1993	11.8	11.4	10.4	9.9	10.9	12.0	11.0	12.1
1994	11.2	10.8	10.1	9.4	10.4	11.4	10.5	11.5
1995	11.3	11.0	10.4	9.6	10.7	11.9	10.9	11.6
1996	11.2	10.9	10.2	9.2	10.6	11.5	10.6	11.5
1997	11.0	10.8	10.1	8.9	10.4	11.5	10.5	11.4
1998	11.3	11.0	10.1	8.6	10.2	11.3	10.5	11.5
1999	11.0	10.8	10.1	8.6	10.3	11.5	10.6	11.3
1998 Dec	11.9	12.1	10.9	9.2	10.7	11.7	11.3	12.3
1999 March	13.1	12.8	12.3	10.2	12.5	13.8	12.8	13.6
1999 June	10.0	9.7	9.3	7.8	9.3	10.5	9.5	10.2
1999 Sept	9.5	9.4	8.8	7.3	9.0	10.1	9.0	10.0
1999 Dec	11.3	11.1	10.3	8.9	10.5	11.5	11.1	11.2
2000 March†	12.9	12.6	12.1	10.2	12.5	14.0	12.5	12.8
2000 June†	9.8	9.8	9.4	7.7	9.3	10.8	9.7	10.1
2000 Sept†	9.3	9.0	8.6	7.2	8.6	9.8	9.1	9.6
Infant mortality (deaths under 1 year per 1,000 live births)								
1993	6.8	7.0	5.4	6.4	5.4	5.8	7.0	6.5
1994	6.8	7.2	5.3	6.3	4.9	5.3	7.2	6.2
1995	6.6	6.4	5.2	6.4	5.2	5.3	7.1	6.6
1996	6.3	6.3	5.3	6.3	5.4	5.5	6.8	6.4
1997	6.2	5.9	4.8	5.8	5.0	5.8	7.0	6.7
1998	6.1	6.0	5.0	6.0	4.5	4.8	6.5	6.3
1999	6.0	6.1	4.6	6.0	5.0	4.7	6.9	6.5
1998 Dec	6.3	6.9	5.9	7.5	5.5	5.1	6.8	7.1
1999 March	7.3	6.5	4.5	5.5	6.0	5.8	7.6	7.4
1999 June	6.0	5.6	4.7	6.1	4.6	4.0	7.4	5.8
1999 Sept	4.8	6.4	4.4	6.2	4.6	4.0	6.4	6.7
1999 Dec	6.0	5.6	5.0	6.1	4.7	5.0	6.3	6.1
2000 March†	7.7	6.0	4.3	5.7	5.2	5.1	7.3	6.2
2000 June†	7.4	5.6	4.5	4.9	4.3	4.8	7.2	6.2
2000 Sept†	6.1	5.8	4.2	5.5	4.0	3.5	7.6	6.8
Neonatal mortality (deaths under 4 weeks per 1,000 live births)								
1993	4.2	4.7	3.7	4.5	3.7	3.7	4.8	4.0
1994	4.5	5.0	3.4	4.2	3.3	3.4	5.4	3.9
1995	4.5	4.5	3.4	4.3	3.5	3.7	5.3	4.2
1996	4.1	4.2	3.5	4.4	3.6	3.8	4.9	4.1
1997	4.1	3.9	3.3	3.6	3.4	3.9	5.0	4.3
1998	3.8	4.2	3.4	4.1	2.9	3.3	4.8	4.1
1999	4.0	4.4	3.0	4.1	3.2	3.2	4.8	4.3
1998 Dec	4.2	4.3	3.7	5.1	3.4	3.4	5.0	4.3
1999 March	4.8	4.6	2.7	3.7	3.4	3.8	4.9	4.6
1999 June	4.1	4.1	3.0	4.1	3.2	2.6	5.7	3.8
1999 Sept	3.4	5.3	3.4	4.6	3.5	2.7	4.5	4.7
1999 Dec	3.9	3.6	2.9	3.8	2.9	4.0	4.0	4.4
2000 March†	5.2	4.3	3.0	4.2	3.3	3.0	4.7	4.6
2000 June†	4.6	3.9	3.0	3.4	3.2	3.1	5.4	3.9
2000 Sept†	4.6	4.6	3.0	3.8	3.0	2.3	5.9	4.9
Perinatal mortality (stillbirths and deaths under 1 week per 1,000 total births)†								
1993	9.3	8.9	8.1	9.5	8.4	7.9	9.9	8.9
1994	9.2	9.1	7.8	9.5	7.6	7.9	10.6	9.2
1995	9.5	9.3	7.7	9.7	7.5	7.4	10.1	8.6
1996	8.5	8.7	7.5	9.6	7.8	7.5	10.2	8.7
1997	8.2	7.9	7.3	8.9	7.3	8.7	9.6	8.8
1998	8.6	8.7	7.4	9.0	6.8	7.3	9.3	8.8
1999	8.3	8.1	7.0	9.0	6.9	7.8	9.9	8.6
1998 Dec	8.8	8.5	8.6	9.9	7.5	8.2	9.4	9.7
1999 March	9.5	9.1	6.8	9.2	7.8	8.6	10.5	8.5
1999 June	9.0	8.1	7.7	9.0	6.7	7.0	10.8	7.9
1999 Sept	7.5	9.0	6.7	8.4	6.5	8.0	9.8	9.1
1999 Dec	7.2	6.3	6.9	9.2	6.7	7.8	8.6	8.9
2000 March†	10.0	6.8	7.1	10.0	7.7	6.4	9.9	8.9
2000 June†	9.4	9.1	6.0	8.1	6.5	7.0	9.9	8.3
2000 Sept†	8.1	8.8	7.2	9.4	6.6	5.9	9.6	8.5

* The Regional Office boundaries were revised from 1 April 1999. See *Health Statistics Quarterly 03 In Brief* for details of the changes. Earlier years' figures have been revised to reflect the new boundaries.

† In October 1992 the legal definition of a stillbirth was changed, from a baby born dead after 28 completed weeks of gestation or more, to one born dead after 24 completed weeks of gestation or more.

‡ Provisional registrations.

** 1998 deaths figures for England and Wales *Health Statistics Quarterly 03* and *04* were incorrectly shown as being final when they were still provisional. The final 1998 figures are those shown here.

Note: Figures represent the numbers of deaths registered in each year up to 1992 and the number of deaths occurring in each year from 1993.

Table 6.3

Deaths: selected causes (International Classification)* and sex***

England and Wales

Number (thousands) and rate for all deaths and age-standardised rates† per million population for selected causes

Year and quarter	All deaths		All causes	Malignant neoplasms									
				Oesophagus	Stomach	Colon, rectum, rectosigmoid junction and anus	Trachea, bronchus and lung	Melanoma of skin	Other neoplasm of skin	Breast	Cervix uteri	Ovary and other uterine	Prostate
	Number (thousands)	Rate**		(150)	(151)	(153,154)	(162)	(172)	(173)	(174)	(180)	(183)	(185)
Males													
1971	288.4	1,207	13,464	76	317	331	1,066	10	12	:	:	:	198
1976	300.1	1,246	13,613	84	292	339	1,091	14	12	:	:	:	211
1981	289.0	1,196	12,200	90	251	316	1,028	17	9	:	:	:	214
1986	287.9	1,177	11,349	101	224	313	949	18	9	:	:	:	263
1991	277.6	1,121	10,234	117	185	310	841	23	10	:	:	:	302
1993	279.6	1,109	10,010	123	162	294	766	25	8	:	:	:	296
1994	267.6	1,057	9,502	128	162	283	743	24	9	:	:	:	295
1995	274.4	1,079	9,582	126	148	281	712	26	9	:	:	:	296
1996	268.7	1,051	9,271	126	145	272	681	25	8	:	:	:	287
1997	264.9	1,031	9,019	125	136	267	649	25	7	:	:	:	277
1998	264.7	1,025	8,895	128	131	262	641	26	8	:	:	:	274
1999	264.3	1,017	8,779	127	126	250	609	27	7	:	:	:	270
1998 Dec	70.4	1,082	9,375	129	134	262	654	26	9	:	:	:	280
1999 Mar	74.0	1,155	9,941	122	135	252	610	24	7	:	:	:	270
1999 June	60.5	934	8,077	125	126	245	596	26	6	:	:	:	260
1999 Sept	59.0	901	7,803	125	118	243	603	29	8	:	:	:	263
1999 Dec	70.7	1,080	9,314	134	128	261	626	30	6	:	:	:	288
2000 Mar‡	75.7	1,182	10,176	138	119	254	611	29	7	:	:	:	270
2000 June‡	60.8	938	8,113	125	111	248	591	27	7	:	:	:	257
2000 Sept‡	57.0	8,709	7,535	122	119	248	577	28	7	:	:	:	255
Females													
1971	278.9	1,104	8,186	40	149	255	183	14	6	379	83	127	:
1976	298.5	1,176	8,303	43	136	262	219	16	6	393	78	125	:
1981	288.9	1,134	7,433	42	111	231	252	16	5	405	69	122	:
1986	293.3	1,141	6,947	47	89	220	285	19	4	420	69	121	:
1991	292.5	1,127	6,399	49	74	207	300	18	4	401	54	118	:
1993	299.2	1,140	6,347	51	66	190	294	22	3	376	47	116	:
1994	285.6	1,085	6,039	50	66	187	298	22	4	370	42	114	:
1995	295.2	1,119	6,128	52	61	179	294	20	4	359	42	116	:
1996	291.5	1,102	5,995	51	55	174	292	20	3	343	41	122	:
1997	290.4	1,095	5,925	51	57	169	285	20	3	336	37	115	:
1998	290.3	1,091	5,874	49	54	163	291	21	3	327	35	117	:
1999	291.8	1,093	5,859	52	50	161	289	20	3	318	33	112	:
1998 Dec	78.5	1,170	6,261	52	50	168	311	23	3	340	35	117	:
1999 Mar	85.1	1,293	6,768	52	51	160	284	19	3	323	32	113	:
1999 June	65.1	977	5,314	55	49	156	286	20	3	313	33	109	:
1999 Sept	63.3	941	5,152	49	49	164	280	21	2	311	33	114	:
1999 Dec	78.3	1,163	6,214	50	53	162	304	18	3	323	33	111	:
2000 Mar‡	85.6	1,300	6,809	55	46	157	294	23	2	322	34	113	:
2000 June‡	64.8	973	5,283	48	48	150	277	21	2	320	30	110	:
2000 Sept‡	61.5	914	5,008	51	48	150	277	20	3	303	35	110	:

* The Ninth Revision of the International Classification of Diseases, 1975, came into operation in England and Wales on 1 January 1979. National Statistics has produced a publication containing details of the effect of this Revision (*Mortality statistics: comparison of the 8th and 9th revision of the International Classification of Diseases, 1978 (sample)*, (Series DH1 no.10).

‡ Provisional registrations.

† Directly age-standardised to the European Standard population. See Notes to Tables.

** Per 100,000 population.

*** 1998 deaths figures for England and Wales in *Health Statistics Quarterly* 03 and 04 were incorrectly shown as being final when they were still provisional. The final 1998 figures are shown here.

- Notes
- Between 1 January 1984 and 31 December 1992, ONS applied the International Classification of Diseases Selection Rule 3 in the coding of deaths where terminal events and other 'modes of dying' such as cardiac arrest, cardiac failure, certain thromboembolic disorders, and unspecified pneumonia and bronchopneumonia, were stated by the certifier to be the underlying cause of death and other major pathology appeared on the certificate. In these cases Rule 3 allows the terminal event to be considered a direct sequel to the major pathology and that primary condition was selected as the underlying cause of death. Prior to 1984 and from 1993 onwards, such certificates are coded to the terminal event. National Statistics also introduced automated coding of cause of death in 1993, which may also affect comparisons of deaths by cause from 1993. Further details may be found in the annual volumes *Mortality statistics: Cause 1984*, Series DH2 no.11, and *Mortality statistics: Cause 1993 (revised) and 1994*, Series DH2 no.21.
 - On 1 January 1986 a new certificate for deaths within the first 28 days of life was introduced. It is not possible to assign one underlying cause of death from this certificate. The 'cause' figures for 1986 onwards therefore exclude deaths at ages under 28 days.
 - Figures represent the numbers of deaths registered in each year up to 1992, and the number of deaths occurring in each year from 1993. Provisional figures are registrations.

Table 6.3
continued**Deaths: selected causes (International Classification)* and sex*****

England and Wales

Number (thousands) and rate for all deaths and age-standardised rates† per million population for selected causes

Malignant neoplasms													Year and quarter
Bladder	Leukaemia	Diabetes mellitus	Ischaemic heart disease	Cerebro-vascular disease	Pneumonia	Bronchitis, emphysema and allied conditions	Asthma	Gastric, duodenal and peptic ulcers	Chronic liver disease and cirrhosis	Chronic renal failure	Motor vehicle traffic accidents	Suicides and undetermined deaths	
(188)	(204-208)	(250)	(410-414)	(430-438)	(480-486)	(490-492, 496)	(493)	(531-533)	(571)	(585)	(E810-E819)	(E950-E959, E980-E989 exc. E9888)	
													Males
124	74	82	3,801	1,541	920	944	21	107	35	48	198	124	1971
128	76	91	3,930	1,357	1,237	852	17	108	45	61	170	135	1976
121	74	82	3,664	1,141	1,054	683	28	90	49	44	113	151	1981
120	75	134	3,463	1,071	460	725	33	85	56	38	130	154	1986
121	76	130	2,981	939	390	605	31	73	70	24	117	158	1991
114	69	100	2,829	794	759	566	24	67	67	21	90	149	1993
109	68	97	2,595	755	679	494	23	67	67	20	86	148	1994
111	70	100	2,535	754	753	524	20	63	75	21	83	146	1995
104	65	96	2,410	743	725	480	19	63	88	19	87	137	1996
100	66	94	2,261	714	741	475	19	61	95	17	86	140	1997
98	66	93	2,200	699	709	460	18	59	105	17	79	147	1998
93	66	93	2,082	666	759	471	17	64	110	18	79	145	1999
97	66	85	1,945	624	537	354	17	55	106	16	76	145	1998 Sept
100	70	104	2,328	745	797	513	19	64	102	19	77	129	1998 Dec
94	66	102	2,342	766	1,077	654	19	76	107	22	72	154	1999 Mar
88	66	87	1,956	632	564	368	14	56	99	17	78	151	1999 June
95	66	83	1,798	574	529	337	19	55	109	15	83	149	1999 Sept
93	67	101	2,237	694	872	528	18	68	123	19	83	126	1999 Dec
96	67	109	2,354	744	1,216	661	20	74	120	20	83	147	2000 Mar†
91	64	81	1,933	596	624	359	16	55	104	16	88	134	2000 June†
91	70	75	1717	559	521	310	15	54	103	14	78	133	2000 Sept†
													Females
32	47	89	1,668	1,352	623	193	25	44	26	30	80	84	1971
35	48	81	1,774	1,212	824	183	22	49	29	35	65	83	1976
35	46	66	1,601	1,012	741	155	30	57	36	28	39	81	1981
36	46	100	1,554	930	349	194	35	52	38	21	49	67	1986
34	43	95	1,404	809	324	211	30	46	45	13	44	51	1991
34	43	73	1,330	711	569	223	27	45	43	12	34	48	1993
34	42	69	1,222	677	499	202	24	43	46	12	33	44	1994
32	41	72	1,179	677	553	227	24	42	49	11	29	46	1995
31	40	67	1,126	667	534	220	21	43	52	10	29	44	1996
31	43	65	1,060	639	559	225	23	41	55	9	28	45	1997
31	40	64	1,042	634	533	225	22	40	58	11	27	43	1998
30	44	64	975	618	578	240	22	39	61	9	27	45	1999
32	40	60	923	572	376	156	19	34	55	9	28	42	1998 Sept
29	45	69	1,092	664	625	262	25	42	65	11	24	35	1998 Dec
30	46	72	1,106	712	878	341	25	43	61	12	27	49	1999 Mar
30	39	61	910	580	419	169	17	36	60	7	24	45	1999 June
30	44	58	835	544	369	163	20	37	59	9	27	45	1999 Sept
31	49	66	1,051	639	649	288	25	40	65	10	31	40	1999 Dec
30	42	75	1,091	676	932	360	29	53	64	9	30	42	2000 Mar†
31	36	58	865	543	428	177	16	37	61	9	32	46	2000 June†
32	42	55	795	498	356	151	16	35	59	10	28	47	2000 Sept†

Report:

Deaths related to drug poisoning: England and Wales, 1995–99

INTRODUCTION

This report presents the latest figures from the Office for National Statistics database of deaths from drug related poisonings, covering the five year period from 1995 to 1999. The database contains information on deaths from 1993 and results for the five year periods 1993–97 and 1994–98 were published in *Health Statistics Quarterly 05*¹ and *Health Statistics Quarterly 07*² respectively.

BACKGROUND

In 1999 the Office for National Statistics (ONS) developed a database to facilitate research into deaths related to drug poisoning and to aid the identification of specific substances involved in these deaths.

The database currently contains all deaths in England and Wales between 1993 and 1999 where the underlying cause of death is regarded as resulting from drug-related poisoning, according to the current National Statistics (NS) definition.³ These are deaths coded according to the International Classification of Diseases, Ninth Revision, (ICD9) listed in Box One.

The database covers accidents and suicides involving drugs, as well as

poisonings due to drug abuse and drug dependence, but not other adverse effects of drugs. The range of substances it contains is wide, including legal and illegal, prescribed substances and over the counter medications. For each death the database includes every mention of a substance recorded on the death certificate or mentioned by the coroner. Almost all deaths on the database had a coroner’s inquest.

The underlying cause of death is recorded as well as other information about the deceased, as described in Box Two.

A fuller description of the database is given in *Health Statistics Quarterly 05*.

RESULTS

Number of deaths from drug-related poisoning by underlying cause

Table 1 gives the total numbers of deaths on the database for each year from 1995 to 1999, presented by their underlying cause. Each death is assigned an underlying cause of death which reflects the verdict of the coroner and the wording on the coroner’s certificate.

Table 1 Numbers of deaths from drug-related poisoning by underlying cause, England and Wales, 1995–99

		1995	1996	1997	1998	1999	1995–99	% of Total
Total	Males	1,643	1,811	1,932	1,944	2,043	9,373	100
	Females	920	910	926	978	900	4,634	100
Drug dependence/nondependent abuse 304, 305.2-9	Males	375	432	491	599	681	2,578	28
	Females	70	96	84	120	85	455	10
Accident E850-E858	Males	537	612	612	595	595	2,951	31
	Females	187	225	209	246	217	1,084	23
Suicide and Undetermined E950.0-5, E980.0-5	Males	725	757	826	746	755	3,809	41
	Females	661	582	629	609	597	3,078	66
Drug psychoses/assault 292, E962.0	Males	6	10	3	4	12	35	0
	Females	2	7	4	3	1	17	0

Table 1 also shows that overall the total number of deaths on the database rose from 2,563 in 1995 to 2,943 in 1999, an increase of 14 per cent. However these figures mask the different patterns for males and females. Between 1995 and 1999 the number of drug poisoning deaths increased by 24 per cent for males, yet decreased by two per cent for females.

Number of deaths from drug-related poisoning where selected substances were mentioned on the death certificate

Table 2 gives numbers of deaths where specific substances were mentioned on the death certificate. These figures need to be interpreted with some caution. In around ten per cent of deaths on the database only a general description, such as 'drug overdose', is recorded on the coroner's certificate of death. These deaths do not contribute to the count of any specific substances. Where a number of drugs are mentioned on the death certificate, it is not always possible to tell which of them was primarily responsible for the death. Some deaths may also be counted more than once in Table 2. For example, if heroin and cannabis are recorded on the death certificate, the death will be recorded once under heroin and once under cannabis.

As heroin breaks down in the body into morphine, the latter may be detected at post mortem and recorded on the death certificate. Therefore a combined figure for deaths where heroin and/or morphine were mentioned on the death certificate is included in Table 2, as well as counts for heroin and morphine separately. As heroin and morphine are

sometimes both mentioned on the death certificate, the combined heroin and/or morphine figures are always less than adding the separate heroin and morphine figures together.

In the period 1995–99, 21 per cent of deaths mentioned more than one drug, and 22 per cent of deaths contained a mention of alcohol. For the selected substances, the greatest increases have occurred in deaths where substances associated with drug abuse are mentioned.

Between 1995 and 1999 there was an increase in deaths mentioning heroin and/or morphine from 357 to 754 deaths (110 per cent increase). Cocaine and ecstasy deaths have also increased over the five year period. Deaths mentioning cocaine rose from 19 deaths in 1995 to 87 deaths in 1999 and ecstasy deaths increased from 10 to 26 deaths during the same period. In contrast deaths mentioning the 'over the counter' substances, paracetamol and aspirin have decreased, by 10 per cent and 46 per cent, respectively over the period.

European age-standardised death rates from selected substances

Figure 1 shows the trend in mortality rates from drug-related poisoning for both sexes and for selected substances from 1995 to 1999. The figure shows that there are very different patterns in drug related poisoning deaths between males and females over the period.

For males, the most marked change was for deaths mentioning heroin and/or morphine. Over the five year period age-standardised death rates

Table 2

Numbers of deaths where selected substances were mentioned on the death certificate, including with other or alcohol, England and Wales, 1995–99*

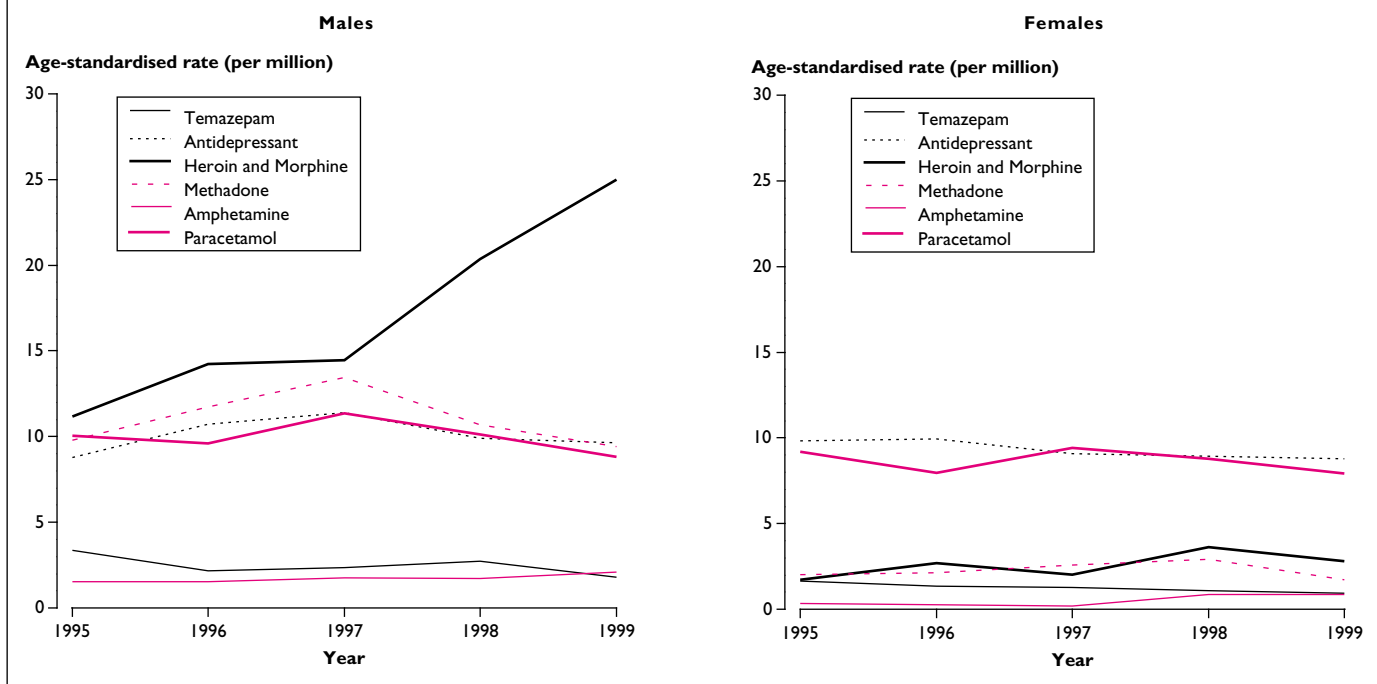
	1995			1996			1997			1998			1999			1995–99		
	Total mention	Mention with other drug	Mention with alcohol	Total mention	Mention with other drug	Mention with alcohol	Total mention	Mention with other drug	Mention with alcohol	Total mention	Mention with other drug	Mention with alcohol	Total mention	Mention with other drug	Mention with alcohol	Total mention	Mention with other drug	Mention with alcohol
All Deaths	2,563	529	516	2,721	558	612	2,858	592	630	2,922	634	689	2,943	624	670	14,007	2,937	3,117
All mentions of Heroin and Morphine	357	93	83	466	113	120	445	112	109	645	177	171	754	179	210	2,667	674	693
Heroin	162	33	33	241	51	62	255	47	56	414	100	107	482	102	128	1,554	333	386
Morphine	233	68	61	283	74	72	255	78	68	313	83	88	345	102	108	1,429	405	397
Methadone	310	130	58	368	141	87	421	152	102	363	165	82	298	130	79	1,760	718	408
Cocaine	19	10	2	18	8	5	38	21	5	65	40	18	87	56	12	227	135	42
All amphetamines	48	24	6	47	22	10	50	20	3	67	37	6	79	47	7	291	150	32
MDMA/Ecstasy	10	4	1	16	8	4	11	8	1	15	6	2	26	18	3	78	44	11
LSD	1	1	0	0	0	0	1	1	1	1	1	0	0	0	0	3	3	1
Cannabis	17	16	5	11	11	7	13	12	2	5	5	2	7	7	3	53	51	19
Temazepam	138	102	43	98	67	28	104	78	39	110	82	36	82	52	24	532	381	170
Diazepam	76	68	26	97	91	44	122	111	56	109	105	36	112	106	37	516	481	199
Nitrazepam	17	10	2	11	8	3	14	7	2	6	2	2	7	4	3	55	31	12
Barbiturates	46	8	0	30	10	7	20	6	1	35	12	5	26	7	3	157	43	16
All antidepressants	489	133	81	540	149	89	539	158	98	502	161	102	491	164	92	2,561	765	462
Dothiepin	235	56	39	279	60	47	262	60	41	244	60	47	219	58	39	1,239	294	213
Amitriptyline	145	32	31	168	54	26	177	61	37	183	68	36	162	57	25	835	272	155
Paracetamol including Compounds	526	161	106	480	145	106	562	152	129	523	159	130	473	161	107	2,564	778	578
Paracetamol	323	126	44	284	112	55	345	118	71	318	122	57	267	129	52	1,537	607	279
Co-proxamol	189	30	54	188	30	44	214	30	57	208	31	70	200	34	55	999	155	280
Aspirin	50	21	5	56	24	8	51	17	6	42	13	6	27	12	2	266	87	27

* The table includes amended figures from those featured in Table 2 in *Health Statistics Quarterly 07*.²

increased from 11 deaths per million in 1995 to 25 deaths per million in 1999 (an increase of 127 per cent), with the greatest increases occurring between 1997 and 1998 (a 40 per cent increase) and between 1998 and 1999 (a 23 per cent increase). Similarly deaths mentioning amphetamines have doubled over the five year period, although actual numbers are still very small. In contrast deaths mentioning methadone have decreased by 30 per cent since 1997.

Between 1995 to 1999, for females, there was little variation in the age-standardised death rates for key substances. Antidepressants and paracetamol remained the substances with the highest death rates throughout the period. Deaths mentioning heroin and/or morphine have shown the largest increase over the whole period. Death rates from this substance have increased from 1.7 deaths per million in 1995 to 2.8 deaths per million in 1999 and peaked at 3.6 deaths per million in 1998.

Figure 1 European age-standardised mortality rates for selected substances, males and females, England and Wales, 1995–99



Box one

ICD9 Underlying cause code	Description
292	drug psychoses
304	drug dependence
305.2-305.9	non dependent abuse of drugs
E850-E858	accidental poisoning by drugs, medicaments and biologicals
E950.0-E950.5	suicide and self-inflicted poisoning by solid or liquid substances
E980.0-E980.5	poisoning by solid or liquid substances, undetermined whether accidentally or purposely inflicted
E962.0	assault by poisoning – drugs and medicaments

Box two

For each death the database of poisonings related to drugs includes :

- The underlying cause of death.
- Every mention of a substance recorded on the death certificate or mentioned by the coroner.
- An indicator to show if alcohol is mentioned.
- Other information recorded at death registration such as age, sex, marital status, occupation and place of usual residence.

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Annual Update:

1999 Mortality Statistics: Cause (England and Wales)

INTRODUCTION

This article presents statistics on deaths occurring in England and Wales in 1999, analysed by sex, age, and cause. It is based on the annual reference volume in the DH2 series, for deaths by cause,¹ published on 19 December 2000. Deaths are classified according to the Ninth Revision of the International Classification of Diseases (ICD9).

In 1999, 556,118 deaths occurred in England and Wales, an increase of 1,103 over 1998 (Table 1). Although the crude death rate in 1998 was unchanged for females, it fell slightly for males, and levels of mortality as measured by age-standardised death rates continued to decline, for both males and females. The main causes of death² in 1999 were: malignant neoplasms (25 per cent of all deaths), ischaemic heart disease (21 per cent), respiratory disease (18 per cent) and cerebrovascular disease, including stroke (10 per cent). This distribution differs little from that of recent years.

Figures 1 and 2 show the relative change in age-specific all cause death rates for males and females, respectively, from 1989 to 1999.

Death rates declined in this period in all age groups and for both sexes, although the decline at ages 15–44 has been small. In all but the 15–44 age group the declining trend since 1989 has been greater for males than for females, and the decline has been greatest for both sexes for those aged 1–14 and 45–64.

CIRCULATORY DISEASES

Within the ICD chapter of circulatory diseases, two - ischaemic heart disease (ICD9 codes 410-414), and cerebrovascular disease (430-438) - are of major public health importance, and trends in these conditions are regularly monitored and reported on. However, there are other conditions of interest in this chapter, with significant levels of mortality, but less frequently analysed: pulmonary embolism and deep vein thrombosis (415.1, 451.1, 451.2, 451.9, 453.9), aortic aneurysm (441), and hypertensive disease (401-404) (excluding cerebrovascular disease).

Levels of mortality for ischaemic heart disease and for cerebrovascular disease are considerably higher than for these three conditions, as Table

Table 1

Deaths and death rates in England and Wales, 1971–99

Year	Total deaths	Crude death rate*	Age standardised rate**	Males			Females		
				Deaths	Crude death rate*	Age standardised rate**	Deaths	Crude death rate*	Age standardised rate**
1971	567,262	11.6	10,326	288,359	12.2	13,464	278,903	11.1	8,186
1981	577,890	11.6	9,374	289,022	12.0	12,200	288,868	11.3	7,433
1991	570,044	11.2	7,987	277,582	11.1	10,234	292,462	11.2	6,399
1992	558,313	10.9	7,724	271,732	10.8	9,870	286,581	10.9	6,197
1993	578,799	11.3	7,878	279,561	11.1	10,010	299,238	11.4	6,347
1994	553,194	10.7	7,486	267,555	10.6	9,502	285,639	10.9	6,039
1995	569,683	11.0	7,574	274,449	10.8	9,582	295,234	11.2	6,128
1996	560,135	10.8	7,376	268,682	10.5	9,271	291,453	11.0	5,995
1997	555,281	10.6	7,239	264,865	10.3	9,019	290,416	10.9	5,926
1998	555,015	10.6	7,166	264,707	10.3	8,894	290,308	10.9	5,874
1999	556,118	10.6	7,147	264,299	10.2	8,779	291,819	10.9	5,859

* Deaths per thousand population.

** Deaths per million, based on the European standard population.

2 indicates for 1999. Table 5 of the annual volume shows that these levels have declined during the last few years; thus, for ischaemic heart disease the age-standardised male rate fell from 2,595 per million in 1994 to 2,082 in 1999. The female rate fell from 1,222 to 975 over the same period. For cerebrovascular disease the decline was less: the male rate fell from 755 to 666 per million, and the female rate from 677 to 618.

Table 2 Age-standardised rates* for certain circulatory diseases, by sex, 1999

ICD9 codes		Males	Females
410-414	Ischaemic heart disease	2,082	975
430-438	Cerebrovascular disease	666	618
441	Aortic aneurysm	186	67
415.1, 451.1, 451.2, 451.9, 453.9	Pulmonary embolism and deep vein thrombosis	83	89
401-404	Hypertensive diseases	49	35

* Rates per million, using the European standard population.

Trends in the three conditions identified above are shown in Figures 3 and 4 (on a logarithmic scale) for the two recent periods 1993-95 and 1997-99. Amalgamation of these years helps to avoid some of the effects of small numbers in computing age-specific death rates. However, the comparisons show little difference in age-specific rates between the two periods. Figures for years prior to 1993 are omitted as some major coding changes took effect from that year.

Among these conditions, death rates for aortic aneurysm rise quickly after age 55; there is some evidence of a decline in age-specific rates for males 45-79, by up to 10 per cent. Longer term trends for aortic aneurysm are difficult to interpret, due to artefacts of classification.³ Some of the increase in the 1950's and 1960's could have been due to an increased prevalence of smoking, but it is not clear whether any decline in smoking would have an opposite effect.

Hypertensive diseases (diseases due to high blood pressure) as coded in ICD9 include essential hypertension and hypertensive heart and kidney disease, but exclude stroke and other cerebrovascular diseases, and deaths where both high blood pressure and ischaemic heart disease are mentioned by the certifier. Mortality rates from hypertensive diseases are lower for women at all ages, but there has been a small increase in mortality levels at ages 80 and over. By contrast, mortality rates for pulmonary embolism and deep vein thrombosis have declined for men aged over 60, by 10 per cent or more.

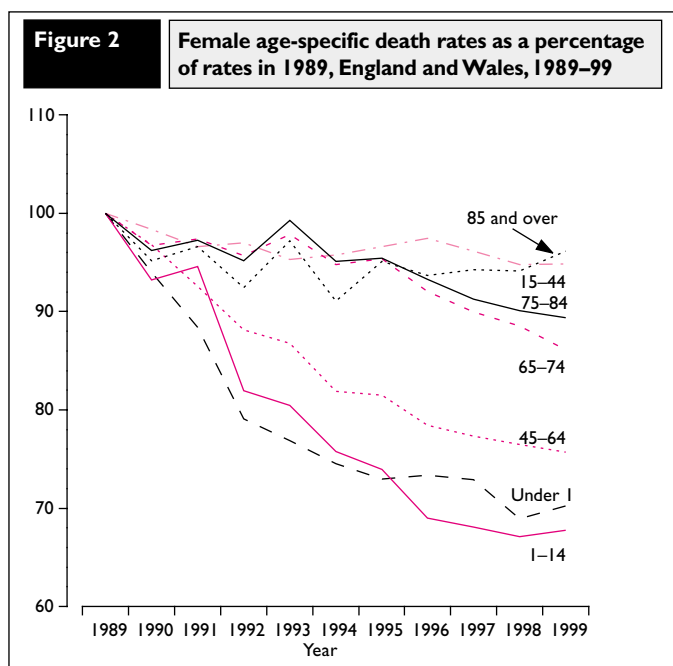
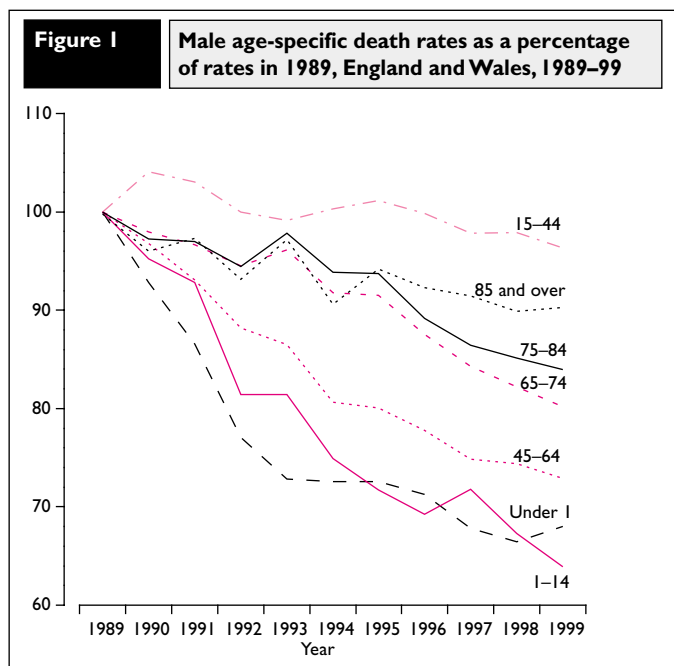


Figure 3

Male age-specific mortality rates for aortic aneurysm, pulmonary embolism and deep vein thrombosis, and hypertensive diseases, 1993-95 and 1997-99

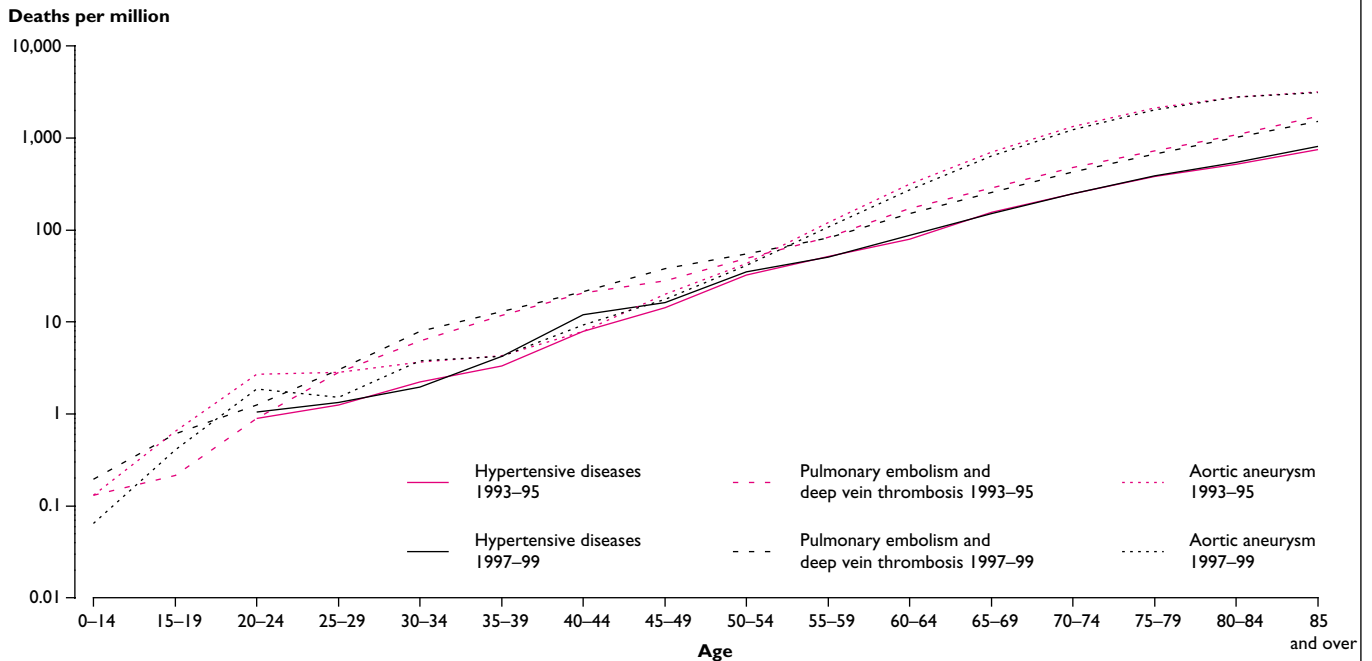
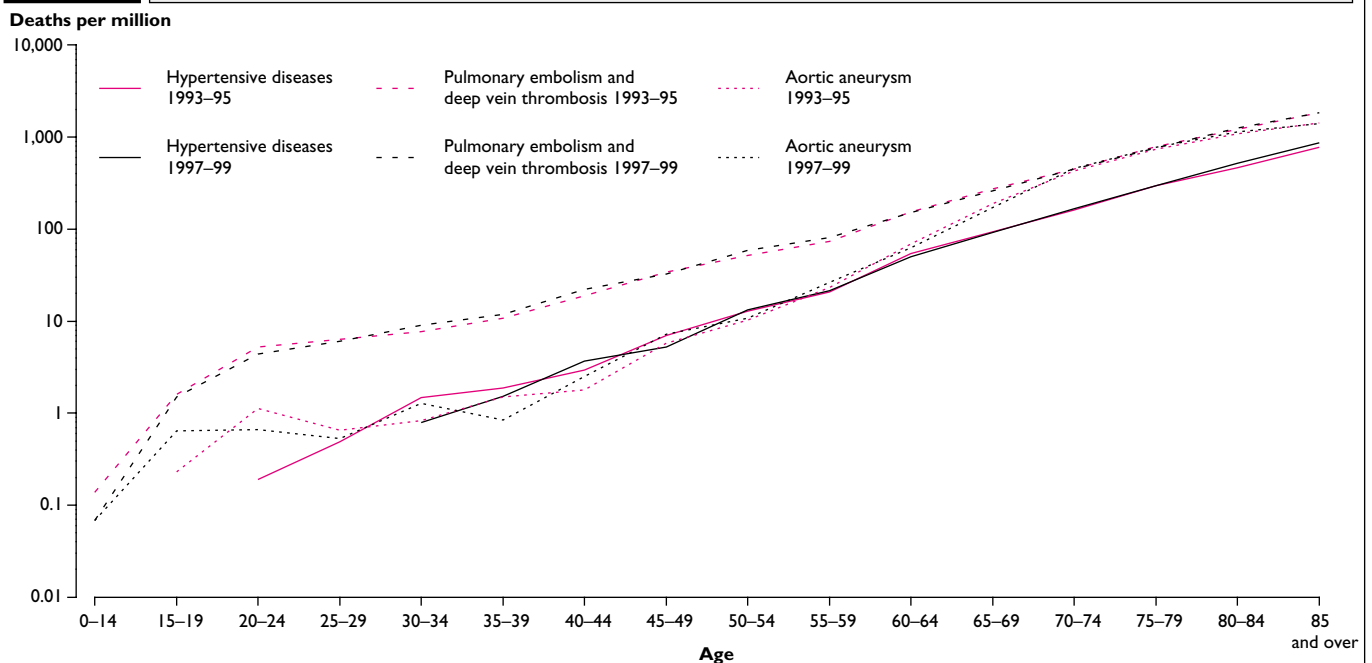


Figure 4

Female age-specific mortality rates for aortic aneurysm, pulmonary embolism and deep vein thrombosis, and hypertensive diseases, 1993-95 and 1997-99



ANALYSIS OF ALL CONDITIONS MENTIONED ON THE DEATH CERTIFICATE

The 1997 volume in the DH2 series⁴ re-introduced information on the number of causes mentioned at death certification. The underlying cause will usually be selected from one of the mentioned causes although occasionally it may be inferred from two or more mentioned causes. There is little variation overall in the ratio of mentions to underlying causes when analysed by sex. Overall, in 1999 there were 2.32 conditions mentioned per male death, and 2.24 per female death.

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- These are defined as: malignant neoplasms (ICD9 140-208); ischaemic heart disease (410-414); respiratory disease (460-519); and cerebrovascular disease, including stroke (430-438).
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Tim Devis and Julie Gastrell, *Office for National Statistics*

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