REVIEW

Child health statistics review, 1998

Mary Jane Platt

Many health professionals who are interested in child health actually spend most of their working time focusing on ill health and disease in individual children. Yet, each year, population based data, from either routine data collection sources (for example, national registration and notification systems) or from large scale population surveys specifically targeted at or including children, are published. Interpretation of these data can provide a valuable source of information on the health and lifestyles of children and young people, and build up a picture of the health of this segment of the population, and how it is changing over time.

This article, the seventh in a series of reviews of child health statistics, aims to use recently published data to describe trends in the health of children in the UK in the latter half of the 1990s.

Demography

The population of the UK continues to rise, and reached an estimated 58.8 million in 1996, 12.1 million (21%) of whom were under 16 years of age.¹ However, the rate of growth has slowed a little, reflecting a reduction in "natural change", that is the excess of births over deaths; the net migration into the UK remains steady.² Males outnumber females until age 45 years, when the trend is reversed.³ The UK is the second most populous country in the European Union (EU), making up 16% of the EU population, with only Germany having a larger population.⁴ As shown in table 1, the UK has both a higher birth and death rate than the EU average, at 12.5/1000 (733 400 births) and 10.9/1000 (638 900 deaths), respectively, in 1996. These figures have changed little in the last year, unlike the earlier years in this decade, when both rates were falling yearly. Population projections suggest that the population of the UK will continue to grow for the next 20 years. However, the proportion of the population under 16 years of age is forecast to decline from the current 20.1% to 17.8%.⁵

In 1996, in England and Wales, 816 000 conceptions were reported, 76/1000 women aged 15-44 years. Conceptions are measured as the sum of birth registrations and abortion notifications, and thus are an underestimate because spontaneous abortions (miscarriages) are not recorded. Just over 1% of reported conceptions were to girls aged under 16 years (8800 conceptions; 9.4/1000 girls aged 13-15 years), of which 51.1% were terminated by

abortion.⁶ Of the 649 489 live births in England and Wales in 1996,⁷ 36% were born outside of marriage, although, as in previous years, over half of these births (58%) were jointly registered by parents living at the same address, and a further 20% were jointly registered by parents living at different addresses. The total period fertility rate (TPFR), an estimate of the average number of births a woman has in her reproductive lifetime, remained steady at 1.73 in 1996.⁶ This is among the highest in Europe; only the Republic of Ireland, at 1.91 is significantly higher, although the TPFR in the USA was 2.02 in 1995.⁶ The mean age of mothers at first birth in England and Wales is 26.7 years, and for all births, 28.6 years.⁷ Life expectancy at birth for children born in England and Wales in 1995 was 74.4 years (men) and 79.6 years (women). As in previous years, this represents a small increase over the life expectancy reported in 1995 (74.1 and 79.4, respectively).⁸

Eight thousand eight hundred and eighty three pregnancies resulted in a multiple birth (13.8/1000 pregnancies), with the rate being highest among women aged 35-39 years. Most (97%) resulted in twins.⁶ Figure 1 shows the distribution of birth weights among live born infants in England and Wales in 1996. Nine per cent of infants weighed less than 2500 g at birth, with 1% weighing less than 1000 g.⁷ Gestational age is not available in routinely collected statistics in England and Wales.

Table 1 Vital statistics for constituent countries of the European Union, 1995-96

Country	Live birth rate (per 1000)	Death rate (per 1000)	Population (millions)
United Kingdom	12.5	10.9	58.8
Austria	11.0	10.0	8.1
Belgium*	11.4	10.4	10.2
Denmark*	12.9	11.6	5.3
Finland	11.8	9.6	5.1
France*	12.6	9.2	58.4
Germany*†	9.7	10.8	81.7
Greece*	9.7	9.6	10.5
Irish Republic*	13.9	8.7	3.6
Italy*	9.2	9.5	57.4
Luxembourg	13.7	9.4	0.4
Netherlands*	12.2	8.9	15.5
Portugal	11.1	10.8	9.9
Spain*	9.0	8.6	39.2
Sweden	10.8	10.6	8.8
European Union†	10.7	10.0	372.1

Source: Office for National Statistics. *Population trends* 1996;95:57.

*Provision data; †1995 figures.

Department of Public Health, The University of Liverpool, Whelan Building, Liverpool, L69 3GB, UK
M J Platt

Correspondence to:
Dr Platt.

Figure 1 Relative frequency of birth weight among infants born in England and Wales in 1996.⁷

Table 2 Deaths among children in England and Wales, 1996

Age group	Deaths (n)	Death rate
0-7 days (early neonatal period)	2066	3.2*
7-28 days (late neonatal period)	579	0.9*
1-12 months (postneonatal period)	1314	2.0*
Total deaths in first year	3959	6.1*
1-4 years	761	28†
5-9 years	411	12†
10-14 years	487	15†
Total deaths age 1-14 years	1659	18†

Source: Office for National Statistics. *Mortality statistics; childhood, infant and perinatal, 1996*. Series DH3 no 29. London: The Stationery Office, 1998.

*Per 1000 live births; †per 100 000 population of the same age.

Table 3 Mortality rates by birth weight, England and Wales, 1996

Birth weight (g)	Stillbirths (per 1000 total births)	Perinatal mortality (per 1000 total births)	Neonatal mortality (per 1000 live births)	Postneonatal mortality (per 1000 live births)	Infant mortality (per 1000 live births)
< 1000	278.5	525.0	405.7	46.7	452.4
1000-1499	83.6	124.1	59.1	19.5	78.6
1500-1999	38.4	49.8	15.1	9.4	24.5
2000-2499	12.4	16.4	5.8	5.9	11.7
2500-2999	4.0	5.4	1.9	2.3	4.2
3000-3499	1.6	2.2	1.0	1.2	2.2
3500-3999	1.0	1.5	0.7	0.8	1.6
≥ 4000	1.2	2.0	1.1	0.9	2.0

Source: Office for National Statistics. *Mortality statistics; childhood, infant and perinatal, 1996*. Series DH3 no 29. London: The Stationery Office, 1998.

Figure 2 Infant mortality rates, 1921-96, England and Wales.⁹

Mortality

There were 5618 deaths in England and Wales of children under the age of 15 years, and a further 3539 stillbirths (table 2).⁹ This is a continued decline in the death rate in all age groups except among children aged 1-4 years, where for the first time in 15 years, the rate in 1996 (28/100 000 children aged 1-4 years) was slightly higher than that reported in 1995 (26/100 000 children aged 1-4 years). However, as the number of deaths in children of this age is small, this might be chance variation, rather than anything more sinister. Within the other countries of the UK, the rates are broadly similar, with the exception, in 1996, of early neonatal death rates in Northern Ireland (6.2/1000 births), and among older children in Scotland (17/100 000 in children aged 5-9 years and 21/100 000 among children age 10-14 years). Although chance variation might again explain these differences, annual childhood death rates are consistently a little higher in Scotland and Northern Ireland compared with those in England and Wales.

INFANT MORTALITY

Table 3 gives the birth weight specific infant mortality rates for England and Wales in 1996, and shows a large survival difference between infants weighing less than 1000 g at birth and heavier infants. However, this differential might be skewed because late fetal losses (loss between 20th and 24th week of gestation) are not included among stillbirths, but if such an infant shows signs of life at birth, and dies subsequently, it would be included as a neonatal death. Associations also exist between infant mortality and maternal age (U-shaped curve, with young mothers (< 20 years) and older women (> 40 years) at increased risk of poor outcome); mother's country of birth (higher mortality among infants born to women whose country of birth was India and Pakistan); parity (with lowest mortality in women with one previous pregnancy); and social class (increasing mortality with decreasing social class). Infants from twin pregnancies have a higher risk of death in infancy, however, when stratified by birth weight, babies from multiple pregnancies have a lower infant mortality rate compared with similar weight singleton infants.⁹ Figure 2 shows the changing pattern in infant mortality over the last 75 years. The fall in postneonatal mortality in the earlier years had the greatest influence on infant mortality, possibly reflecting a general improvement in social settings. Late neonatal mortality started to improve in the post war period, coinciding with the introduction of the National Health Service. However, early neonatal mortality only started to improve greatly in the late 1970s with the introduction of neonatal intensive care.⁹

The Confidential Enquiry into Stillbirths and Deaths in Infancy (CESDI) has reviewed the management of mothers and infants where infant death was explained but unexpected, as well as intrapartum deaths related to ruptured uterus and shoulder dystocia. They concluded that among the sample of explained but unexpected infant deaths, in about half the cases,

Figure 3 Mortality rates of young people aged 1–15 years by sex and social class of parents, England and Wales, 1991–93.⁹ N, non-manual; M, manual.

Table 4 Number (percentage) of deaths by ICD category from injury and poisoning among children aged 1–15 years, England and Wales, 1996.

	Boys (total deaths = 1079)	Girls (total deaths = 765)
Fractures (ICD 800–829)	40 (12%)	21 (12%)
Intracranial injury (ICD 850–854)	85 (26%)	46 (25%)
Internal injury of chest abdomen and pelvis (ICD 860–869)	65 (20%)	36 (20%)
Toxic effects of substances (ICD 980–989)	25 (8%)	27 (15%)
All deaths from injury and poisoning	332	182

Source: Office for National Statistics. *Mortality statistics; childhood, infant and perinatal*, 1996. Series DH3 no 29, PP1 no 19. London: The Stationery Office, 1998. N, non-manual; M, manual.

death might have been avoided if carers or health professionals had behaved differently, suggesting that 60 such deaths a year might be avoidable.¹⁰ Among fetal/infant death associated with a ruptured uterus, the inquiry panels reported that in 75% of cases, with better management, the death might have been avoidable, and among fetal/infant death associated with shoulder dystocia, 66% of deaths might have been avoided.¹⁰

CHILDHOOD MORTALITY

As table 2 shows, there were 1659 deaths of children over the age of 1 year in 1996, 58% (968) of whom were boys. A further 185 young people died aged 15.⁹ Figure 3 shows the increased risk associated with lower social class, with more than double the death rate in social class V compared with social classes I and II seen in both sexes.¹¹ Although malignant neoplasms accounted for 16% (304) of the deaths in those under 16 years of age in 1996, a further 28% (514) of deaths in young people were attributed to injuries and poisoning. Table 4 shows the number of deaths from injuries and poisonings by international classification of diseases (ICD) category and sex. Apart from poisoning, which is more common in girls, the pattern of cause of death from accidents is similar in both sexes.⁹ When the external causes of these injuries and poisonings were examined, 48% (161) of the deaths in boys and 47% (85) in girls were related to transport accidents. A further 40 deaths were related to fires.⁹ Deaths in childhood, like those in infancy, are also related to social class. Analysis of deaths from accidents and poisonings show, over time, that despite an overall fall in mortality from injuries and poisonings, the social class differential is main-

tained, and has attenuated, as the rate of decline in social class V (~20%) has been slower than in social classes I and II (where the decline is over 32%).¹¹

Morbidity

There are limited data available on ill health among children. Routine data are published by the Office For National Statistics on cancer incidence, congenital anomalies, and infectious diseases. Special surveys—for example, the General Household Survey, and local registers—for example, district diabetes registers, may provide data for specific conditions, for specific geographical areas, or on a subsample of the population. Data are also available from general practitioners, such as the decennial morbidity surveys in general practice. Some data on service utilisation may also be available—for example, attendance at family planning, speech therapy, and other community clinics, or hospital discharge data. Much of this latter information is episode based, rather than person based, limiting its usefulness when attempting to estimate disease frequency. Furthermore, such data often do not have a defined population from which it has been drawn; thus, no rates can be calculated. Routine, population based data on health promotion/disease prevention activities are limited almost exclusively to vaccine uptake rates.

Morbidity, like mortality, varies by social class. There is variation by sex and social class in the rate of long standing illness reported by the General Household Survey; the rate among boys from manual households is ~20% higher than that reported in boys from non-manual households. For girls the differential is smaller, at about 10%.¹¹ Children from unskilled manual households also have poorer dental health; these children not only have a greater risk of tooth decay (68% in 12 year olds from unskilled manual households compared with 45% among non-manual households), but the average number of affected teeth is higher (two for each child in unskilled manual households compared with 1.1 for each child among non-manual households).¹¹

CONGENITAL ANOMALIES

There were 5465 babies for whom notification of congenital anomalies was made in 1996, (83.7/10 000 total births); a slight fall from the 1995 figures (5552 cases; 85.2/10 000).¹² In 15% (826) of infants, multiple anomalies were identified, and in 3% (145) the infants were from multiple pregnancies. Table 5 shows that congenital anomalies are more prevalent in boys, both among live and stillbirths. Analysis of data on stillbirth and neonatal death certificates gives some indication of the underreporting known to exist in the Congenital Anomaly Notification System; in 1996 there were 158 stillbirths with congenital anomalies notified, yet 240 stillbirth certificates identified a congenital anomaly as a main condition leading to death. Furthermore, there might also have been stillborn infants with notifiable congenital anomalies that were not the principal cause of death in the fetus. In liveborn

Table 5 Congenital anomalies notification rates (per 10 000 live/stillbirths) for liveborn and stillborn infants, England and Wales, 1996

	Boys	Girls
Liveborn	94.2	66.8
Stillborn	356.1	511.6

Source: Office for National Statistics. *Congenital anomaly statistics*. Series MB3 no. 11. London: The Stationery Office, 1998.

infants, among the most common congenital anomalies reported were musculoskeletal anomalies (1944), cleft lip and/or palate (542), heart and circulatory disorders (454), and chromosomal anomalies (417). Analysis of the data from stillbirth and neonatal death certificates suggests underreporting, particularly in central nervous system anomalies, circulatory, cardiac and respiratory anomalies, and in the reporting of chromosomal anomalies. In addition, 1929 abortions were carried out under statutory ground E (Human Fertilisation and Embryology Act 1990), the most common reasons being for chromosomal anomalies (561) and central nervous system anomalies (537).¹²

Variation by social class is also observed in the patterns of notifications of congenital anomalies. Central nervous system anomalies occur in ~23/100 000 live births in manual households, but in only 19/100 000 livebirths in non-manual households. There are some exceptions—for example, Down's syndrome is more common in non-manual households, possibly because of the mean higher age at childbearing (a risk factor for Down's syndrome) seen in non-manual social classes.¹²

Another valuable source of information on the health of young people comes from the Schools Health Education Unit (SHEU) at Exeter University. For over 20 years, this unit has annually surveyed samples of young people on their health and health related behaviours. Although the young people included in the sample are not selected randomly (schools usually approach the unit and request to be involved), the sample is large, and its results are consistent with other, more formal surveys. The 1997 sample included 8782 pupils from years 5 and 6 (aged 9–11 years) and 27 317 students from years 7–10 (aged 11–15 years).¹³ Results from SHEU show that 10% of girls and 13% of boys aged 14 were overweight, 16–19% of respondents aged 12–15 years reported that they had "asthma", and over 20% of boys age 13–15 years had been treated in a hospital following an accident in the 12 months before the survey.¹³

ACCIDENTS

Data on mortality resulting from accidents are presented above. Fortunately, most accidents do not result in death. Non-fatal accidents are common, and cause problems ranging from mild distress to lifelong disability. Many minor accidents do not present to the health services, and their magnitude can only be estimated. More serious accidents present to local accident and emergency departments. However, to reduce the incidence of accidents, it is necessary to understand the situations in which they occur. The consumer safety unit at the Department of Trade and Industry collects information on the characteristics of accidents occurring in the home (HASS) or following leisure activities (LASS) resulting in an attendance at an accident and emergency department. These data can then be used to target accident prevention programmes.¹⁴

Data from the 1996 HASS survey estimate that, within the UK, there are 565 000 attend-

ances among the under 5 year olds related directly to accidents in the home. Unsurprisingly, falls (43%), being struck by a static object (12%), and burns (6%) are the most common reasons for home accidents in this age group, and they are 30% more common in boys than girls.¹⁴ The number of attendances following accidents in older children (5–14 years) is lower, at about 439 000 each year, and again accidents are more prevalent among boys. Falls (37%) and being struck by a static object (14%) remain common reasons for attendance in this age group, but cuts (6%) and being hit by a moving object (8%) are also common in older children. The most common site of occurrence of the accident to children in the home is the living/dining area, with open wounds and other soft tissue injury the main type of injury observed. Less than 7% of accident and emergency attendances following home accidents in children under 5 years of age result in a hospital stay, as do less than 5% in those aged 5–14 years. Even if a hospital stay is required, it is short, with average stays of 3.1 days and 2.6 days, respectively, for those under 5 years and for older children.¹⁴

Data from LASS estimate that 167 000 children under 5 years, and 1 089 000 children aged 5–14 years attended accident and emergency departments after accidents occurring outside the home during 1996. Again, these attendances are more frequent in boys, and the mechanism of the accident (fall, cut, etc) is similar to that reported in HASS. The road and shopping areas are the most common site of accidents in preschool children; in older children, the road and school/educational facilities are the main accident sites. Of the 15% of injuries among 5–14 year olds occurring during sporting activities, 73% involved a ball without a stick, probably a football.¹⁴

Vaccination and immunisation

Vaccination and immunisation rates remain at the record high rates reported in 1995–96 (table 6).¹⁵ Regional variations exist, ranging from 94% (South East Thames Region) to 98% (Wessex Region) for completion of primary course of diphtheria, polio, and tetanus by the 2nd birthday, with only three districts reporting less than 90%. For measles immunisation, the uptake rate by the 2nd birthday is lower, ranging from 89% (South East and South West Thames regions) to 94% (northern and Wessex regions).

Table 6 Vaccination and immunisation rates, England, 1996–97

	Primary course completed by age 1 year (%)	Primary course completed by age 2 years (%)
Diphtheria	93	96
<i>Haemophilus influenzae</i>	93	95
Measles	—	92
Mumps/rubella	—	92
Pertussis	92	94
Polio	93	96
Tetanus	93	96

Source: Department of Health. *Vaccination and immunisation summary information for 1996–7 England*. London: Government Statistical Service, 1997.

Social habits

The SHEU survey of school children provides valuable information on health related behaviours among young people aged 9–16 years. Table 7 summarises the smoking and alcohol consumption among the 14–15 year olds surveyed. Boys are more likely to drink beer, drinking on average three pints a week, although 22% of those drinking beer reported drinking five pints or more in the week before the survey. Girls are more likely to drink “Alcopops”, wine, and spirits. On average, drinkers of these beverages consume 2.5 cans or bottles of Alcopops, 2.1 glasses of wine, or three measures of spirits a week. Overall, 1.2% of the boys and 0.6% of the girls reported drinking alcohol on each of the seven days before completion of the questionnaire. Table 7 also shows the proportion of the sample reporting illicit drugs use. Cannabis, either in resin, oil, or leaf form, was the most commonly used drug reported, with 11.0% of boys and 8.8% of girls reporting “regular” use. Approximately 8.5% of boys and 6.1% of girls surveyed had used an illicit drug in the previous week.¹³

Summary

There is a broad spectrum of data that can be used to describe the health of young people in the UK. These data are of varying quality, reflecting in part the methods used to collect them. However, it is often frustrating trying to locate information relevant to young people: so many of the apparently obvious sources of data, such as routine surveillance data, are either not collated centrally, or are not related to a defined population. Perhaps, with the recently introduced changes in commissioning health services within England and Wales, local pressure will bring about an improvement in this.

Table 7 Alcohol, tobacco, and illicit drug consumption among young people aged 14–15 years

	Girls	Boys
Smoked in last week	28.3%	23.4%
Alcoholic drink in last week	54.4%	56.8%
Spirits	17.4%	14.7%
Beer/lager	18.9%	35.0%
Wine	23.0%	17.5%
Alcopops	23.3%	18.4%
Illicit drugs ever	24.5%	26.0%
Cannabis	21.8%	24.0%

Source: Baldwin J. *Young people in 1997*. Exeter: Schools Health Education Unit, 1998.

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