

14 Cystic fibrosis (standard output graphs can be found in Appendix A14)

Summary

Type of variation	Consistent across data sources?	Consistent within data sources?	Comments
Age	Partially	N/A	Concentrated in children and young adults. Mortality peaked later than GP consultations or emergency hospital admissions.
Sex	No	N/A	M>F in GPRD, F>M in others
Year on year	No	N/A	→ mortality, ↑↓ HES, ↑ GPRD
Week of year	Could not be determined	N/A	Winter>Summer in HES. Small numbers in other data sources.
Cohort effect	Yes	N/A	Peak in those born in 1975-79
Regional	Yes	N/A	↑ Wessex, Yorkshire, Mersey ↓ NE & SW Thames, Northern
Urban-rural	No	N/A	Wide confidence intervals for mortality and GP consultations. Higher emergency hospital admissions in urban areas.
Geographical correlation	N/A	N/A	Numbers of events too small to allow meaningful geographical correlations

The following results are considered:

Variations by age and sex
 Seasonality
 Regional and urban rural distribution
 Comparisons across data sources

Variations by age and sex

Data sources were broadly consistent with the majority of patient GP consultations, emergency admissions and deaths occurring in children young adults, with zero rates over the age of 55. Highest rates were seen in ages 0-19 years for GP consultations (Figure 14.1), in ages under 1 and 10-19 years for hospital admissions and in ages 15-24 years for mortality (Figure 14.2). GP consultation rates were slightly higher than hospital admission rates, but death rates were approximately 25 times lower.

GP consultation rates were higher in males than females until age 30 when male rates fell to a low level (Figure 14.1). Emergency hospital admissions were higher in females than males except in ages 1-2 and 30-34. Female death rates were higher than males for ages 5-19, peaking in ages 15-19 while male rates peaked in ages 20-24 and remained slightly higher thereafter (Figure 14.2).

Figure 14.1 GP patient consultation rates for cystic fibrosis by age and sex for 1991-5

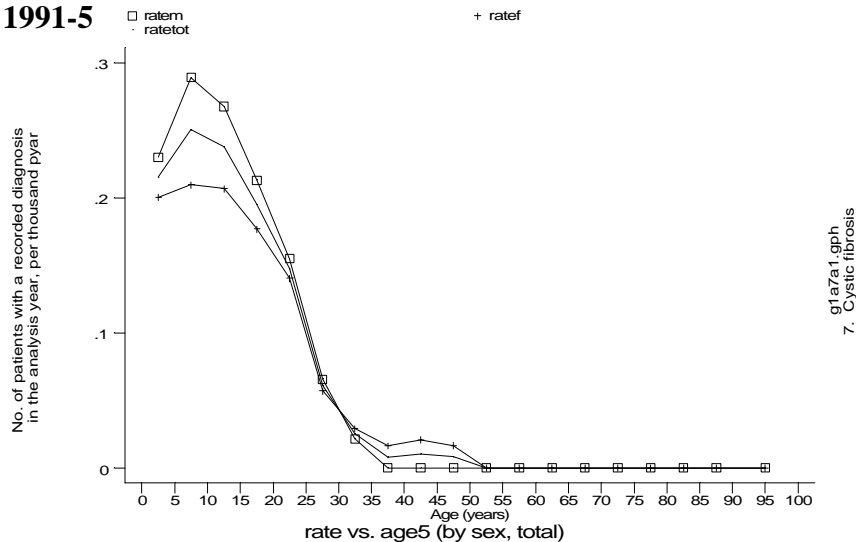
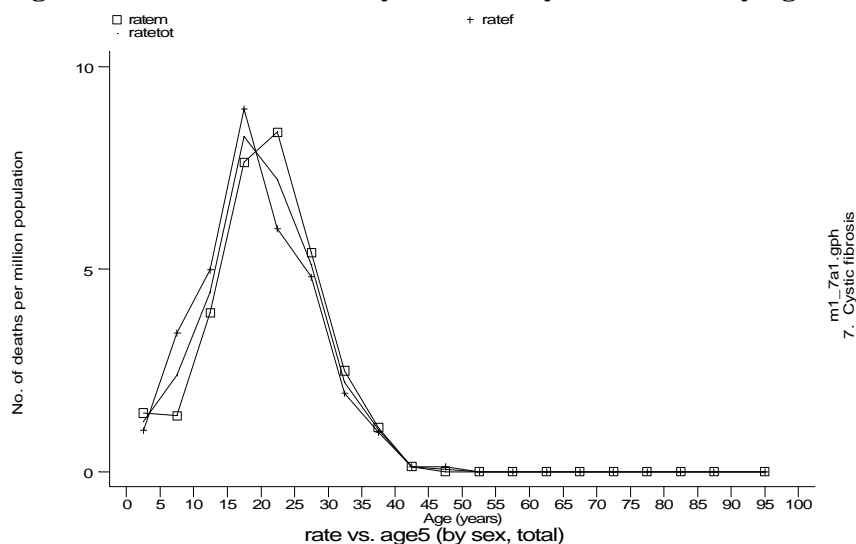


Figure 14.2 Crude mortality rates for cystic fibrosis by age and sex, 1991-1995



Time trends: Combined mortality rates showed little change overall, but age specific rates suggested a decline in children (aged 0-14) and a slight increase in adults (aged 15-44). Highest mortality rates were seen in 1993 in females aged 5-44 and in 1995 in males aged 15-44. Hospital admissions rose between 1991-1993 then fell slightly in 1994. GP patient consultations increased between 1991-1995.

Cohort effect: Hospital admissions suggested a cohort effect with a peak in those born in 1975-9, a trough in those born in 1985-9 and second peak in those born in 1990-4. This was most clearly seen in males (Figure 14.3); females showed the first peak only. GP consultations showed the 1975-9 effect, followed by a rise in rates (Appendix A14). A cohort effect was also suggested in mortality, but slightly earlier, peaking in those born in 1970-75 (Figure 14.4), again more clearly in males than females.

Figure 14.3 Emergency hospital admission rates for cystic fibrosis by year of birth for 1991-1994; males

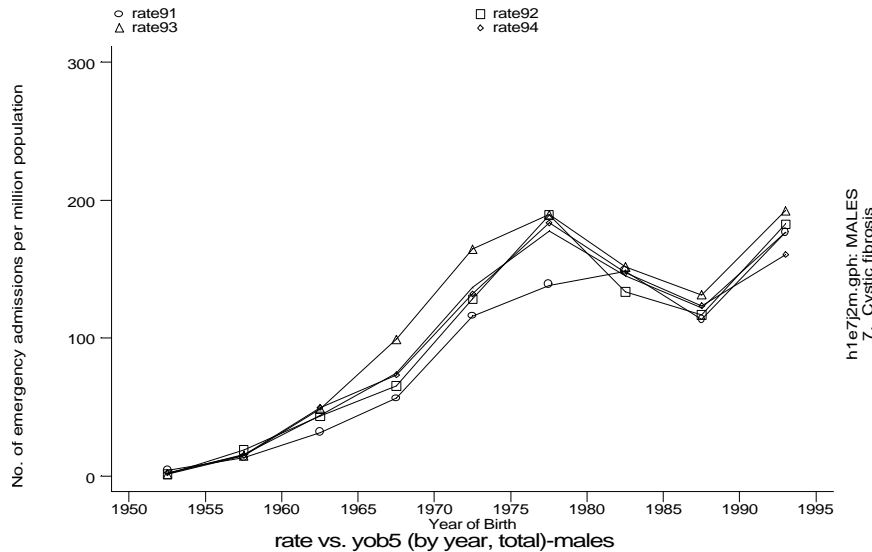
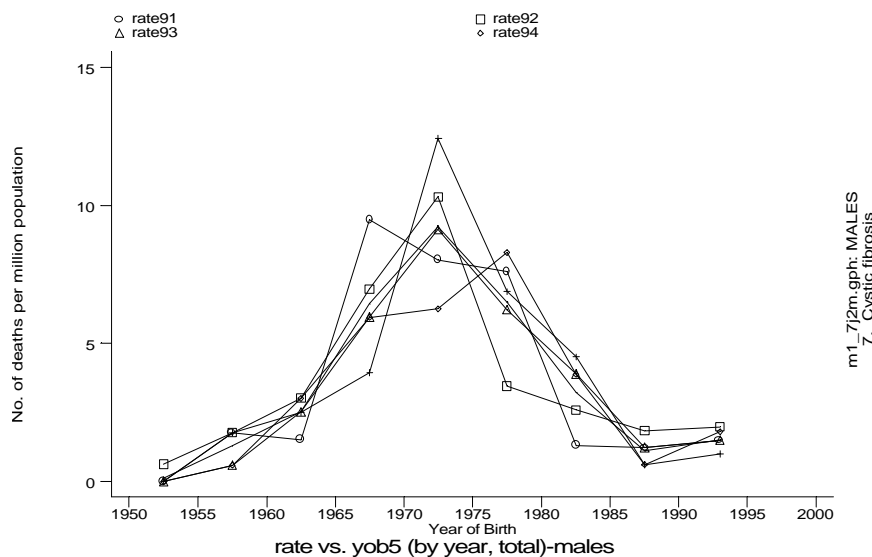


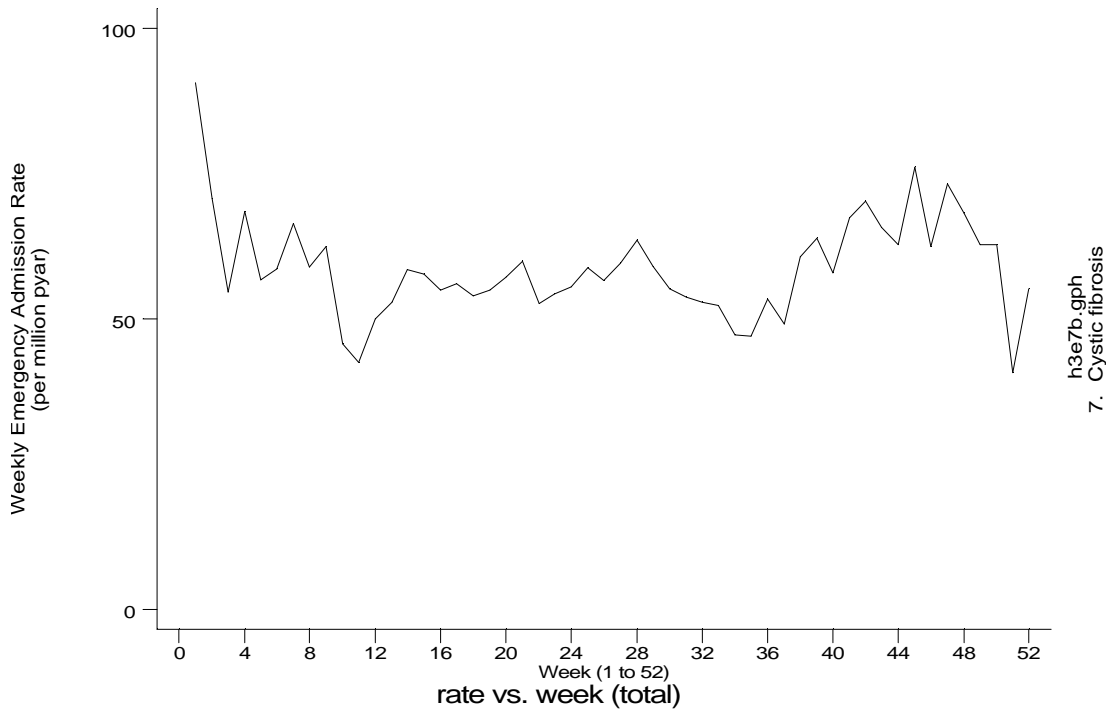
Figure 14.4 Mortality rates for cystic fibrosis by year of birth for 1991-1994; males



Seasonality

More emergency hospital admissions occurred in autumn and winter than in spring and summer months (Figure 14.5). The lowest admissions occurred in the Christmas holiday period, followed by a peak in the first week of January. There were too few events to confidently detect a seasonal pattern in GP patient consultations or mortality.

Figure 14.5 Weekly emergency hospital admissions for cystic fibrosis, 1991-1994



Regional and urban rural distribution

Mortality and GP consultations had wide confidence intervals (due to small numbers) even in data for all years combined. SERs consistently higher than average for all years combined and in 1994 (Table 14.1) were seen in Wessex, in Yorkshire (except for GP consultations, all years combined) and for Mersey (except for mortality, all years combined). SERs consistently lower than average for all years combined (Appendix A14) and in 1994 (Table 14.1) were seen in South West Thames, in North East Thames (except mortality, all years combined) and in Northern region (except mortality, all years combined).

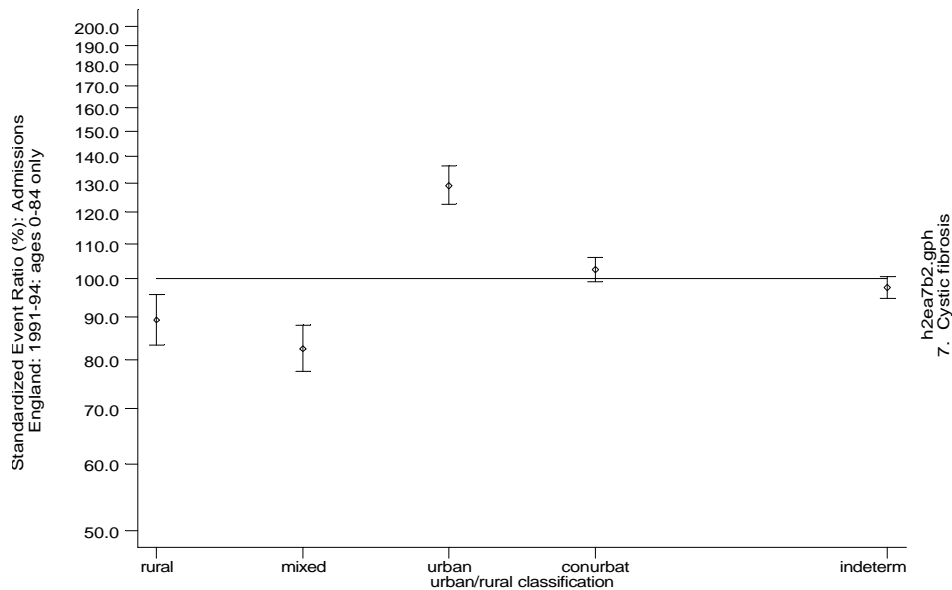
Table 14.1 Number of events and SERs in 1994 for cystic fibrosis ranked (high-low) following order of emergency hospital admission SERs

Region	Mortality		HES: emergency admissions		GPRD: patient consultations	
	Number	SMR	Number	SER	Number	SER
Yorkshire	12	154.4	479	209.5*	5	128.2
Mersey	7	140.8	266	180.5*	8	122.6
Wessex	11	170.7	246	131.9*	9	163.3
N Western	8	90.8	258	98.7	10	125.7
W Midlands	9	81.6	317	97.3	20	110.1
Northern	4	66.4	158	89.1	4	50.3
SW Thames	3	49.4	153	87.7	6	71.0
Trent	9	91.1	252	87.4*	7	77.9
S Western	7	105.5	160	83.3*	8	114.5
SE Thames	7	91.6	171	76.7*	3	121.1
NW Thames	4	62.0	131	70.8*	10	118.2
Oxford	6	106.8	116	70.3*	4	111.0
E Anglia	7	128.3	104	65.2*	6	68.9
NE Thames	7	85.4	143	59.6*	0	0.0

* SER significantly different from 100 (p<0.05)

Urban rural: Confidence intervals were wide for mortality and no significant differences were seen. Hospital admissions showed higher SERs in urban areas and lower SERs in rural and mixed areas (Figure 14.6). GP consultations had significantly lower SERs in mixed areas and significantly higher SERs in conurbations.

Figure 14.6 Urban rural pattern for emergency hospital admission SERs for cystic fibrosis, 1991-1994



Comparisons across data sources

Correlations

Numbers of events in the GPRD and mortality were too small to allow meaningful geographical rank correlations.