15 Pneumothorax (standard output graphs can be found in Appendix A15)

Summary

Type of variation	Consistent across data sources?	Consistent within data sources?	Comments
Age	Partially: GPRD & HES	N/A	Bimodal peak seen in GPRD and HES, while deaths showed a single peak in the elderly
Sex	Yes	N/A	Male rates ≈ 5 x Female rates
Year on year	No	N/A	Overall decline seen
Week of year	Yes	N/A	No seasonal pattern
Regional	Could not be determined	N/A	No consistent pattern seen, but confidence intervals very wide
Urban-rural	Could not be determined	N/A	Weak urban>rural in hospital admissions. Other data sources uncertain due to small numbers.
Geographical correlation	N/A	N/A	Numbers of events too small to allow meaningful geographical correlations

The following areas are considered:

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

Variations by age and sex

Consultations and hospital admissions (Figure 15.1) showed very similar patterns and rates were of similar orders of magnitude. A bimodal peak was seen, with a peak in ages 20-25, lowest levels in ages 40-50 and a second peak in the elderly (ages 75+). Males had rates four to five fold higher than females. Deaths showed a unimodal peak in old age, with very low levels until over the age of 70. Deaths in females were much lower than in males (Figure 15.2).

Figure 15.1 Emergency hospital admissions by age for pneumothorax, 1991-1994

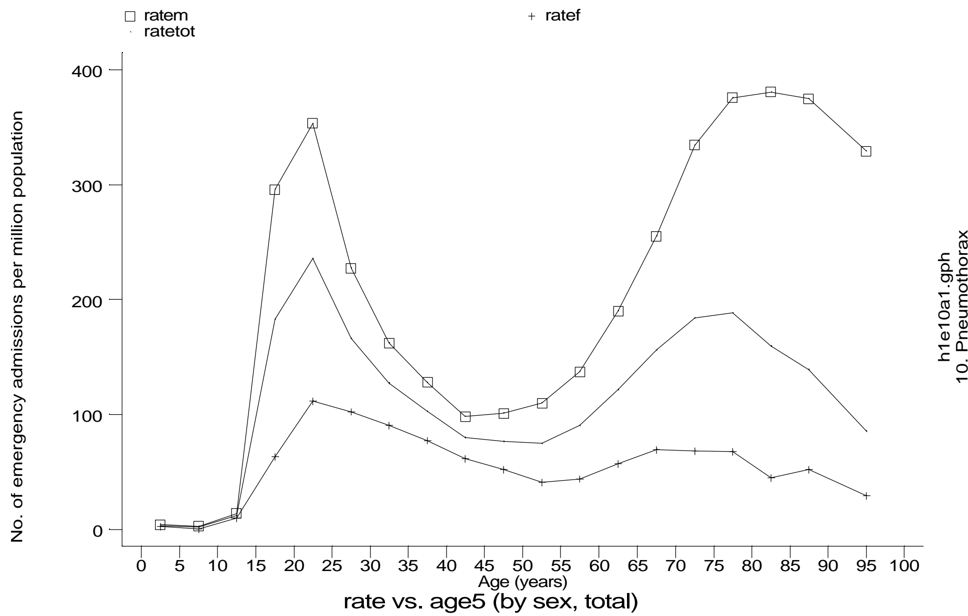
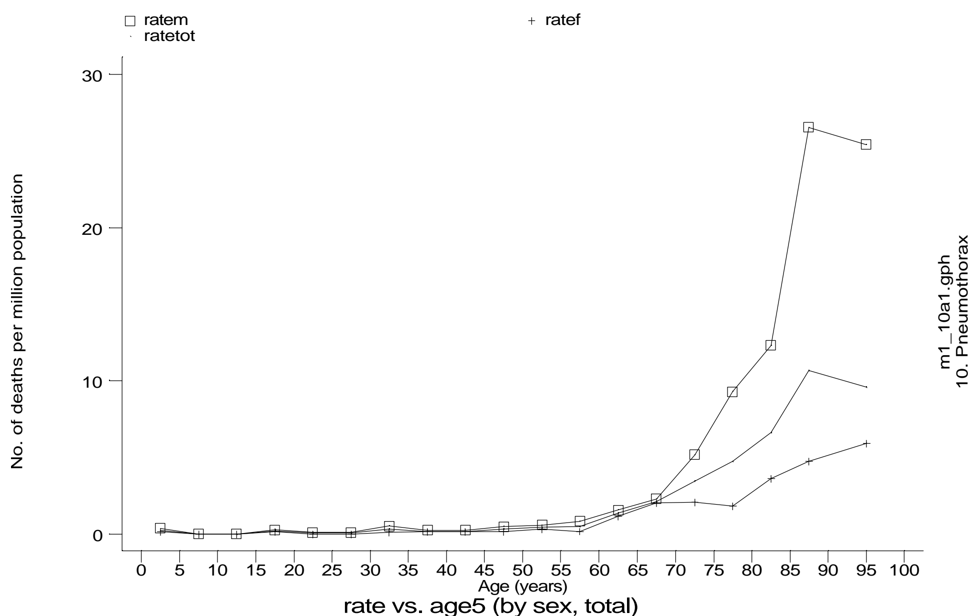


Figure 15.2 Mortality from pneumothorax by age, 1991-5



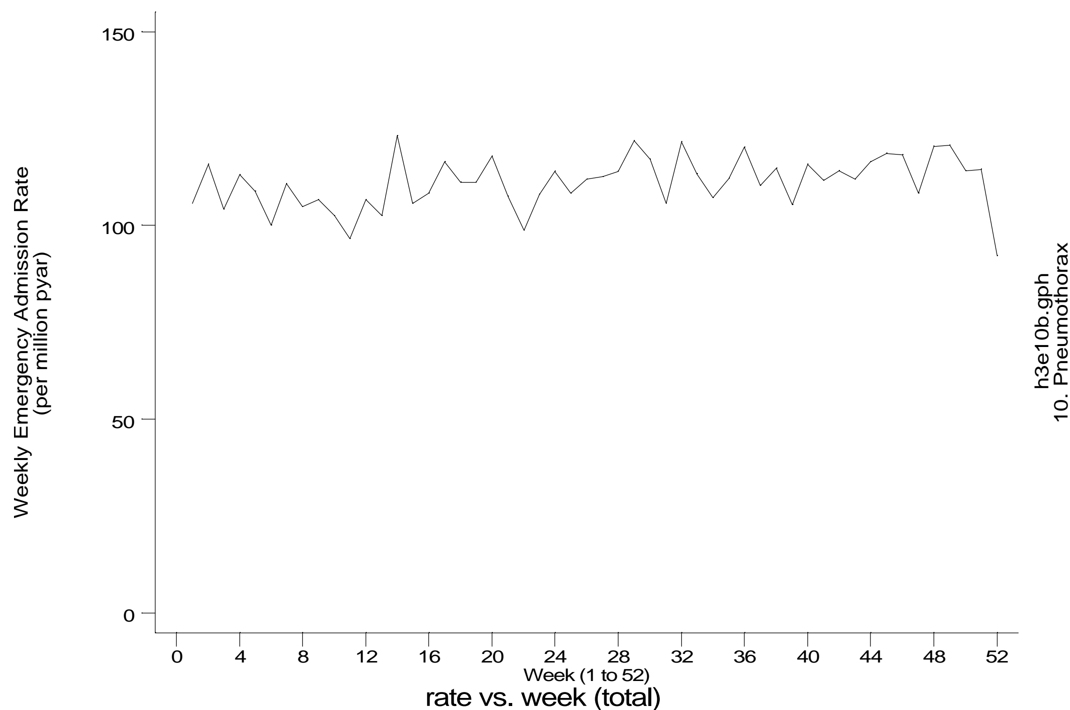
Time trends: Time trends were not consistent. GP patient consultations declined overall, with a slight dip in 1993, but increases in consultations were seen in older men (aged 65+) between 1993-1995. Hospital admissions increased from 1991 to 1992 then decreased. Mortality fell slightly overall, but showed a marked drop in 1993, particularly in males.

Cohort effect: A possible cohort effect was seen in those born in 1900-1904 in the GPRD, and in those born in 1970-1974 in HES. These may reflect both the natural history of the disease and the same patients attending in subsequent years. No cohort effect was seen in mortality.

Seasonality

No seasonal pattern was seen in any of the three data sources (Figure 15.3).

Figure 15.3 Emergency hospital admissions by week for pneumothorax, 1991-1994



Regional and urban rural distribution

The number of deaths from pneumothorax was small with only 41 in total in 1994 with some regions experiencing no deaths during this year (Table 15.1). Because of the small number of deaths and GP consultations confidence intervals were wide even for all years combined and no region was significantly different from average.

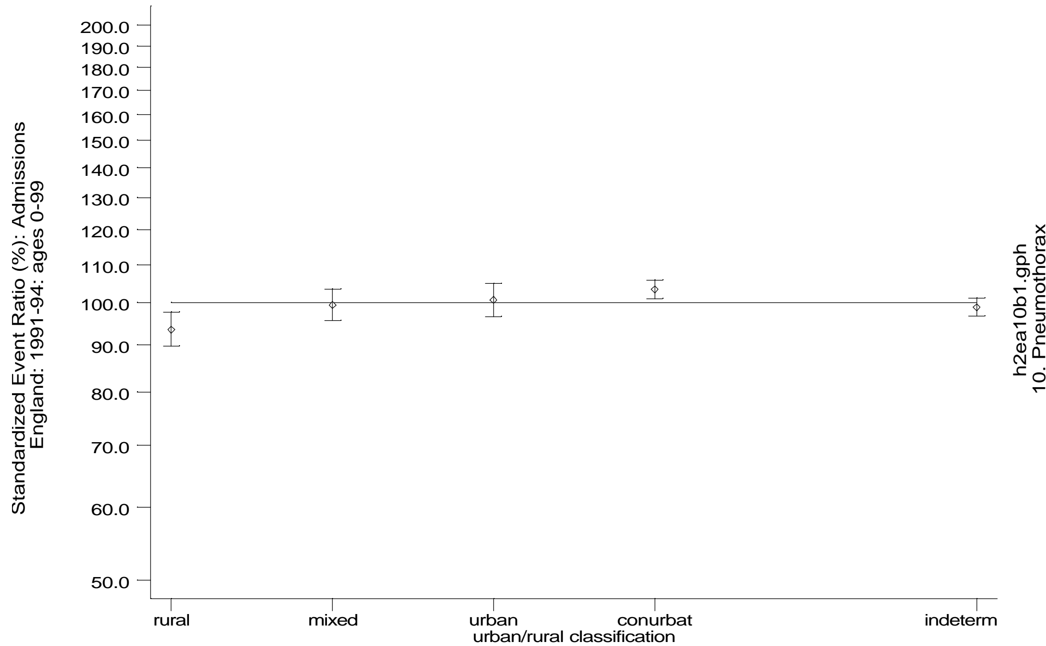
Table 15.1 Number of events and SERs in 1994 for Pneumothorax ranked (high-low) following order of emergency hospital admission SERs

Region	Mortality		HES: emergency admissions		GPRD: patient consultations	
	Number	SMR	Number	SER	Number	SER
Mersey	1	49.8	350	145.4*	12	86.2
Northern	3	122.6	370	125.3*	13	77.1
N Western	6	172.2	516	122.3*	14	87.0
SE Thames	5	154.0	456	120.9*	2	36.5
Yorkshire	5	160.6	443	117.7*	13	158.0
NW Thames	4	170.7	340	111.1	17	90.7
S Western	0	0.0	365	106.1	23	146.1
NE Thames	0	0.0	375	96.9	6	115.0
Trent	8	196.8	474	96.8	21	108.6
W Midlands	2	45.5	518	96.7	47	124.3
Wessex	3	105.3	271	83.2*	9	76.9
SW Thames	2	76.6	245	80.3*	17	90.6
E Anglia	2	87.8	156	57.5*	15	83.5
Oxford	0	0.0	58	22.2*	4	56.1

* SER significantly different from 100 ($p<0.05$)

Urban rural: A weak urban rural gradient was suggested in hospital admissions, with higher admissions in conurbations (figure 15.4). This gradient was partially seen in GP consultations, but the SER for urban areas was higher than for conurbations and confidence intervals were wide. No gradient could be seen in mortality, which had very wide confidence intervals reflecting the small number of events.

Figure 15.4 Urban rural pattern for age and sex standardised event rations for hospital admissions for pneumothorax, 1991-1994



Comparisons across data sources

Correlations

There were too few events in the GPRD or mortality to allow meaningful regional rank correlation across datasets.