

### Asthma deaths

Since the mid 1970s, the number of deaths certified as due to asthma has increased substantially in England and Wales (figure 1). In 1988, the number of asthma deaths peaked at just over 2000, the level previously recorded at the height of the so-called asthma "epidemic" in the 60s. This recent increase in numbers of deaths has given rise to the concern that asthma is either becoming more common, or more severe.

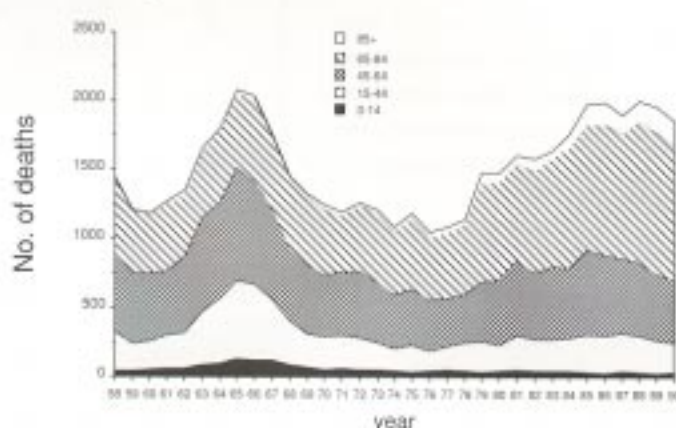
The increase in deaths is most marked in older age groups. In 1990, one half of all asthma deaths occurred in the 65-84 age group, and a further 10% occurred in the 85+ age group. Because the number of elderly people in the population is increasing, rates of mortality, ie the number of deaths per year per million population in each age group, need to be examined.

### Mortality rates

Mortality rates within specific age groups (figure 2) confirm that the recent rise in numbers of asthma deaths in older age groups is due partly to the increase in rates among the middle-aged and elderly age groups, and partly to the increase in the proportion of the population in these age groups.

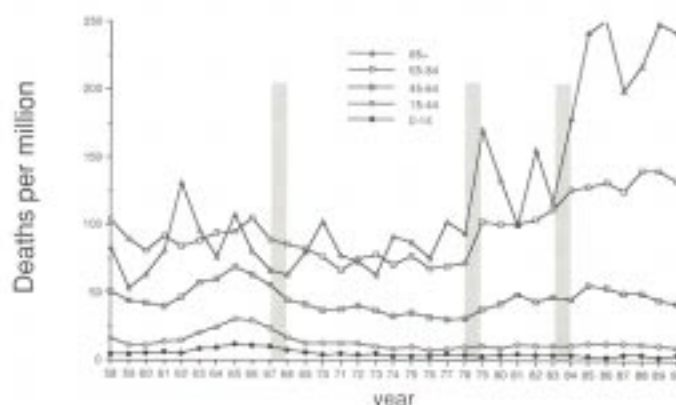
In the last 15 years, however, asthma mortality rates have been affected by two changes in the way that causes of death are classified. These took effect in 1979 and 1984. The sharp increase in rates between 1978 and 1979 coincided with the abolition of a coding rule linking asthma to bronchiolitis, bronchitis and emphysema. This resulted in an overall increase of 28% in the number of deaths assigned to asthma. The smaller increase in rates between 1983 and 1984 was associated with the implementation of coding "Rule 3" (see LAIA factsheet 92/2). This resulted in a 15% increase in the number of deaths coded to asthma in the 75+ age group, and a smaller increase in younger age groups.

Figure 1: Asthma deaths by age, males and females combined, England & Wales 1958-1990



Source: OPCS

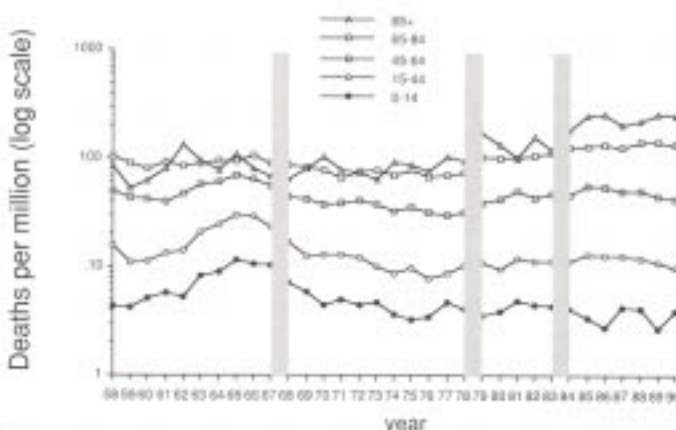
Figure 2: Age specific asthma mortality rates, males and females combined, England & Wales 1958-90



Change in classification of asthma as cause of death

Source: OPCS

Figure 3: Age specific asthma mortality rates, males and females combined, England & Wales 1958-90



Change in classification of asthma as cause of death

Source: OPCS

Much of the recent increase in asthma mortality in older age groups is attributable to these two coding changes. Nevertheless, a modest upward trend not explained by these changes is evident for most adult age groups from the late 70s, or earlier, through to the mid 80s (figure 3, see explanatory footnote). This upward trend now appears to have levelled-off.

Over a longer period, asthma mortality has fluctuated up and down. The "epidemic" of asthma deaths in the 60s affected all ages, although the proportional increase was larger among younger age groups. This is now generally attributed to the effects of certain inhalers (Isoprenaline forte) which are no longer recommended for treating asthma.

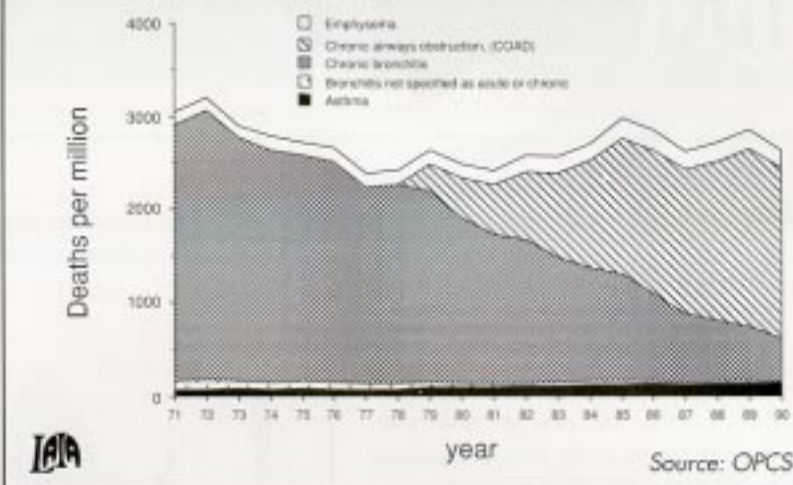
## Diagnostic transfer

In addition to the effects of explicit coding changes, asthma mortality rates may also be affected by the gradual transfer of deaths formerly attributed to other causes into the group now labelled as due to asthma ("diagnostic transfer").

The causes of death most likely to be confused with asthma are the other chronic obstructive pulmonary diseases (COPD), ie chronic bronchitis, emphysema and a new clinical label chronic airways obstruction or chronic obstructive airways disease. Asthma contributes a small, but increasing, proportion of all deaths classified as due to COPD (figure 4). A small shift in diagnosis from chronic bronchitis or emphysema to asthma could therefore have a disproportionate effect on asthma mortality in the elderly.

A new code for chronic airways obstruction was introduced in the 9th revision of the International Classification of Diseases (ICD), implemented in 1979. Since then, there is clear evidence that diagnostic transfer has occurred in COPD deaths, with chronic bronchitis increasingly replaced by chronic airways obstruction (figure 4). The extent of diagnostic transfer from bronchitis to asthma is difficult to determine.

Figure 4: Chronic obstructive pulmonary disease, mortality, age 65-84, males and females combined, England & Wales 1971-90



## Summary

- The recent increase in numbers of deaths attributed to asthma in England and Wales is concentrated in the over 45 age group.
- Rates in the elderly have increased since the late 70s, but coding changes between 1978 and 1979 and between 1983 and 1984 have contributed substantially to the increase.

## Explanatory footnote

### Use of log scales

When plotting mortality rates, an absolute scale tends to accentuate changes in rates in older age groups where mortality is usually highest. A log scale can be used to enable trends in mortality in different age groups to be compared. On a log scale the slope of the curve indicates the direction and magnitude of the change in rates. For example, in figure 2 (plotted on an absolute scale), the 45-64 age group appears to be the most affected by the 60s "asthma epidemic". In fact, the proportional increase in mortality was greatest in the younger age groups. When the same rates are plotted on a log scale (figure 3) it can be seen that the slope of the curves during the early 60s is greatest in the 0-14 and 15-44 age groups.