

1.12 It is stressed that the effects on mortality have not been fully quantified. Many of the deaths associated with days of higher air pollution are in the elderly and the sick. Episodes of cold weather and epidemics of the common cold hasten the deaths of such people and it seems likely that air pollutants could act in a similar manner, hastening death by a few days or weeks. If this is the major effect, the impact of air pollution episodes on mortality will be relatively small, but we have been unable to establish the extent by which the time of death has been altered.

Table 1.1 **Numbers of deaths and hospital admissions for respiratory diseases affected per year by PM₁₀* and sulphur dioxide in urban areas of Great Britain**

Pollutant	Health Outcomes	GB Urban
PM ₁₀	Deaths brought forward (all cause)	8100
	Hospital admissions (respiratory) brought forward and additional	10500
SO ₂	Deaths brought forward (all cause)	3500
	Hospital admissions (respiratory) brought forward and additional	3500

* PM₁₀: particulate matter generally less than 10 µm in diameter

Estimated total deaths occurring in urban areas of GB per year = c430,000

Estimated total admissions to hospital for respiratory diseases occurring in urban areas of GB per year = c530,000

Table 1.2 **Numbers of deaths and hospital admissions for respiratory diseases affected per year by ozone in both urban and rural areas of Great Britain during summer only**

Pollutant	Health outcomes	GB, threshold = 50 ppb	GB, threshold = 0 ppb
Ozone	Deaths brought forward: all causes	700	12500
	Hospital admissions (respiratory) brought forward and additional	500	9900

1.13 Two important points should be emphasised in interpreting the results shown above:

- (a) co-variation of pollutants means that in some instances we do not know which individual pollutant or mixtures of pollutants has caused the recorded effects or whether some additive or synergistic effects have taken place;
- (b) it follows that a reduction in the concentration of a single pollutant may produce different benefits than predicted by exposure-response relationships based on observational studies.

Long-term effects

1.14 In the view of the sub-group and COMEAP, in addition to the effects recorded here, it is likely that long-term exposure to air pollutants also damages health. At present there are insufficient UK data to allow acceptably accurate quantification of these effects and the sub-group was not confident in applying to the UK estimates of exposure-response coefficients from long-term studies undertaken elsewhere. However, if estimates made elsewhere, especially in the USA, do apply in the UK, they suggest that the overall impacts may be substantially greater than those that we have as yet been able to quantify.