Although many researchers in the field of occupational asthma believe that peak exposures may be important in the development of asthma, the evidence is limited (Karol, 1981, 1983; Weill et al., 1981; Brooks et al., 1985; Anto et al., 1993; Gadon et al., 1994; Chan-Yeung et al., 1994; Wegman et al., 1992) and mainly concerns irritant induced asthma, a type of occupational asthma without a latency period, which is different from asthma that has a latency during which 'sensitization' takes place (Malo and Cartier, 1996). At present little is known about the duration, concentration and frequency of exposure required for the development of occupational asthma or the biological half life of the putative agent(s). This makes the construction of a plausible biological hypothesis linking exposure and the development of ill health, and the subsequent estimation of the optimal measurement duration (Cherrie's fixed duration concept) difficult, if not impossible.

Malo and Cartier (1996) speculated that "time-weighted average exposure may be more important once symptoms appear, whereas peak levels are probably more important in causing 'sensitization' to the product". The level that provokes symptoms in workers already sensitized is lower than that which would cause sensitization (Malo and Cartier, 1996). In our study of flour exposed workers we hypothesized that peak exposures (or short term task exposures) over a certain exposure intensity for a certain duration were important in the development of symptoms. Full shift average exposure would in this case 'dilute' the exposure intensity estimates of peak exposures when peaks occur during part of a shift only. Therefore intensity estimates needed to be obtained for peak exposures.

Major issues in Cherrie's letter, which we also acknowledged in our study, were the definition of a peak and whether a task is the same as a peak or could there be several peaks within a task like there could be several peaks or tasks within a day? Checkoway and Rice (1992) reported on peaks that last for years while Wegman et al. (1992) reported on peaks lasting 15 min. Wegman et al. (1992) gave various examples of peak exposures and discussed issues such as duration, magnitude, frequency of peaks and how to link them with health effects. In our study we identified tasks that we "expected to be associated with levels of exposure greater than the shift averages" although not all the tasks lived up to this expectation (Nieuwenhuijsen et al., 1995a). The term 'peak' and 'task' were interchangeable as we used them, since in general there was continuous exposure during the task (see later). A possible definition of a peak is "a relatively short term period of which its exposure level is considerably higher than the exposure level of a long term period within which it occurs". This is a relative rather than an absolute definition of a peak and says nothing about its relevance to the disease. Nor does it tie a peak to a


The current version of this Letter to the Editor has been edited and a complete version can be obtained from the authors.