Landfill sites and congenital abnormalities

Sir—Much media interest was generated by the report on congenital abnormalities and landfill sites by Helen Dolk and colleagues (Aug 8, p 423),[1] which raised concern among the public, particularly those who live near to an existing or proposed landfill sites. As Head of Waste Management activities in a UK Consultancy working in the Waste Management Industry, I find the publication of inconclusive findings in a professional journal to be alarmist to the public at large.

From reading the report, as opposed to the press reporting of it, it is clear that the first statement made in the findings section of the summary is not substantiated either by the study itself (which concentrated on hazardous-waste landfills only) or in the findings and conclusions drawn from it. The study looked at sites used exclusively for hazardous waste (types not defined) and yet concludes that residences within 3 km of any landfill carries the same alleged risk. Other questions that this study fails to answer include: what criteria were used to select the sites? What materials were accepted for disposal? Was there any known contamination external to the site? Do prevailing climate patterns have influence? What other teratogenic causes occur in the areas of study?

Landfill sites in the UK have been subject to a system of licensing since 1976 and a system of recording deposits of hazardous wastes since 1972. The control regimen has been tightened recently and responsibility for the licensing, monitoring, and enforcement of antipollution legislation on all landfills now rests with the Environment Agency in England and Wales, and the Scottish Environmental Protection Agency in Scotland.

To obtain authorisation to operate hazardous-waste landfills, a detailed risk assessment has to be undertaken and the site working plan, environmental monitoring, and containment systems designed and engineered.

The UK has and does place great reliance on landfill as a waste disposal option and is at the forefront of technological advances in landfill science. If landfill poses unacceptable risks, the industry should and would address the issue, and any research that assists in that regard is to be supported. It is unfortunate, therefore, that Dolk and colleagues' study falls short of a reasoned finding. If, as they suggest, further research is required, then let it be done to show sound evidence on the existence or otherwise of a causal link, before publication of an incomplete distorted picture.

M G Staff

Wardell Armstrong, Mining, Minerals, Engineering and Environmental Consultants, Lancaster Building, Newcastle-under-Lyme, Staffordshire ST5 1PQ, UK

1 Dolk M, Vrijherd M, Armstrong B, et al. risk of congenital anomalies near hazardous-waste landfill sites in Europe: the EUROHAZCON Study. *Lancet* 1998; **352:** 423–27.

Author's reply

Sir—M G Staff raises an important issue in the communication of the results of environmental epidemiological studies. Unfortunately, as we stated, no study on its own can expect to be conclusive. To generate follow-up study and to be scrutinised by the scientific community, a paper must be published in a scientific journal. It is difficult for the public to understand that an apparently positive result cannot immediately be interpreted as a certainty. However, we believe that the solution is not to conceal the results of inconclusive studies, which leads only to increased public suspicion and alarm that risks are being covered up.

In the background and interpretation sections of the summary, we state that our study concerns hazardous-waste landfills, not any landfill. Those who read the whole summary should therefore not be misled. Nevertheless, at the end of the report, we recommend study of municipal landfills, since they also have the potential to release toxic substances to the environment.[1–3]

We explained the criteria for the selection of sites in the paper. Some eligible sites were not included if there was no population nearby, or if the participating region had the resources to only concentrate data collection on one area. Most importantly, nothing was known about the risk of birth defects around any site before our study. There is evidence of problems with illegal dumping of hazardous waste in Europe, but such sites could not be selected.

As staff implies, the hazard potential of a site can be affected by the type of waste, the control mechanisms, and the climate, as well as other factors. Whether external contamination is known to be present or not is not a conclusive guide to whether contamination was present. We have information on external contamination near some sites, but even then it is difficult to know whether the degree of contamination and potential routes of exposure indicated a significant risk. We are ranking the hazard potential of the sites included in our study, but this process is hampered by the lack of appropriate, available, documented information about sites that would be needed to confidently assess hazard potential in UK and the rest of Europe. The results and detailed information about sites will be published but will not resolve the question about whether the association we found is causal nor whether risks differ between different types of sites.

In the report we discussed potential confounders that may reflect other teratogenic causes in the areas of study, but in our assessment there is not a strong case for believing that any of them explain the results.

The operation of hazardous waste landfill sites has been regulated more strictly since the study period and it is possible that the risk, if real, we reported would no longer pertain to a new site given current controls.

We agree that further research is needed to assess the effectiveness of current controls, and the presence of risk relating to past controls. Such research, however, will be lengthy and during its progress must be open to scrutiny by the whole scientific community and by the public.

Helen Dolk, on behalf of EUROHAZCON Collaborative Group

Environmental Epidemiology Unit, Department of Public Health and Policy, London School of Hygiene and Tropical Medicine, London WC1E 7HT, UK

1 Murray HE, Beck JN. Concentrations of synthetic organic chemicals in leachates from a municipal landfill. *Environmental Pollution* 1990; **67:** 195–203.
2 Mather JD. Groundwater pollution and the disposal of hazardous and radioactive wastes. *J IWEM* 1989; **3:** 31–35.
3 Reinhart DR. A review of recent studies on the sources of hazardous compounds emitted from solid waste landfills: a US experience. *Waste Manage Res* 1993; **11:** 257–68.

Diagnosis of orthostatic hypotension

Sir—S E Caine and colleagues (Aug 8, p 458)[1] diagnose othostatic hypotension in 75% of 80 consecutive patients referred for unexplained falls, with the Finapres method. This method diagnoses an increased proportion of orthostatic hypotension compared with routine methods (sphygmomanometer and Dinamap measurement). In our view, the validity of these results needs to be discussed. The researchers use a new device but define orthostatic hypotension according to criteria of routine methods. Thus, a single drop in systolic blood pressure of 20 mm Hg or