

Correspondence

Fundamental errors in official epidemiological studies of environmental pollution in Wales

Sirs,

In 2003, Roberts *et al.* published a study on the incidence of cancer in Mold, Flintshire. This followed a report by us of statistically significant excess cancer risks there over the period 1974–89.¹ The data employed were that of the Wales Cancer Registry (WCR), a division of the former Welsh Office. This had been released to Green Audit in 1995 and had been analysed between 1997 and 2000 in order to examine the trend in cancer incidence by distance from the Irish Sea.² The WCR was closed down in 1996 and was replaced in 1998 by the Wales Cancer Intelligence and Surveillance Unit (WCISU).

To calculate cancer risks, it is necessary to know the population of the area for which cases are recorded. The WCR small areas were termed areas of residence (AOR). It was the contention of Roberts *et al.*³ that errors had been made by Green Audit in their calculations; specifically that the ward composition used for the AOR named 71EE MOLD UD was incorrect. The authors described what they believed to be the true composition of this (and nearby) AOR in terms of 1991 census wards. They dismissed any allegations of excess cancer risk which they argued was artefactual due to incorrect base populations.

Recently, we re-examined this issue in connection with a similar argument which has followed our discovery of excess

childhood cancer near the Menai Strait area of North Wales.⁴ WCISU has followed our study, reporting that there are errors in it due to incorrect ward aggregations, in this case those defining the towns of Bangor and Caernarfon in Gwynedd.⁵ Their conclusion has been widely reported in the media and has been endorsed by the Committee on Medical Aspects of Radiation in the Environment (COMARE).

Here, we demonstrate that in fact it is the ward compositions of the AOR employed by Roberts *et al.* and more recently by White *et al.* (WCISU) that are incorrect. This is easy to demonstrate. Table 1 gives the total number of AOR in North Wales into which WCR assigned cases, compared with the AOR employed by Roberts *et al.* to define the ward compositions. These were supplied to us in 2001 by WCISU. It is clear that in the case of Gwynedd, the county is divided by WCISU into five AOR, whereas WCR divided it into 35 AOR. For Clwyd, there were 27 AOR in the WCR database but only seven in the WCISU population aggregates. Our data obtained from Office for National Statistics (ONS) in 1998 show that 71EE MOLD contains just the Mold wards. Roberts *et al.* brought in wards from nearby 71EC HOLYWELL RD, which inflated the base population and reduced the excess risk we found. In the case of childhood cancer in Bangor, the calculation by White *et al.* 2005⁵ is even more bizarre since subsumed within the ward list for 74CA BANGOR MB are wards from 74CN OGWEN, 74CC

Table 1 List and number of areas of residence (AOR) assumed by the Wales Cancer Intelligence and Surveillance Unit (WCISU) on the basis of alleged Office for Population Census and Surveys (OPCS) reference manual in Gwynedd and Clwyd and list and number of AOR used by the Wales Cancer Registry (WCR) for coding purposes

Area	WCISU and alleged OPCS coding manual AOR	WCR AOR in which cancer cases are distributed	Overall number of AOR assumed in the region
Gwynedd	74AA, 74CA, 74EA, 74GA, 74JA	74AA, 74AC, 74AE, 74AG, 74AJ, 74AK, 74AL, 74AN, 74AP, 74CA, 74CC, 74CE, 74CL, 74CN, 74EA, 74EC, 74EE, 74EL, 74EN, 74GA, 74GC, 74GE, 74GG, 74GJ, 74GL, 74GN, 74GP, 74JA, 74JC, 74JE, 74JG, 74JJ, 74JL, 74JN, 74JP	WCISU = 5, WCR = 35
Clwyd	71LA, 71CA, 71EA, 71GA, 71GC, 71LA, 71AA, 71EE	71AA, 71AC, 71AL, 71CA, 71CC, 71CL, 71CN, 71EA, 71EC, 71EE, 71EL, 71EN, 71GA, 71GC, 71GE, 71GL, 71GN, 71GP, 71GR, 71GT, 71JA, 71JC, 71JL, 71LA, 71LL, 71LN, 71LP	WCISU = 8, WCR = 27

BETHESDA and 74CE CAERNARFON. We suggest that Roberts *et al.* retract their 2003 paper.

References

- 1 Howard CV. *Proof of evidence on the health effects associated with cement kilns on behalf of the Campaign against a New Kiln (CANK)*. Liverpool: University of Liverpool, 2000.
- 2 Busby CC. High risks at low doses. Proceedings of 4th International Conference on the Health Effects of Low-level Radiation: Oxford, September 24 2002. London: British Nuclear Energy Society, 2002.
- 3 Roberts R, Steward J, John G. Cement, cancers and clusters: an investigation of a claim of a local excess cancer risk related to a cement works. *J Public Health Med* 2003; **25(4)**: 351–7.
- 4 Busby C, Bramhall R, Parry L. Childhood leukemia near the Menai Strait North Wales. Proceedings of 'Children with Leukemia' International Conference 6th–10th September 2004, London, 2004.
- 5 White C, Steward J, Wade R. Childhood leukemia, brain tumours and retinoblastoma near the Menai Strait, North Wales 2000–2003; a response to a recent Green Audit Report—nuclear pollution, childhood leukemia, retinoblastoma and brain tumours in Gwynedd and Anglesey wards near the Menai Straits North Wales 2000–2003 by C. Busby PhD. Cardiff: WCISU, 2005.

Chris Busby
Green Audit, Aberystwyth, Wales, UK
E-mail: christo@greenaudit.org

Vyvyan Howard
University of Ulster, Coleraine, UK
E-mail: v.howard@ulster.ac.uk

doi:10.1093/pubmed/fdl001