into Seascale and attended the primary school left before the usual leaving age of 11 years.\textsuperscript{3}

It is unreasonable to imply that population mixing should have caused an increase of leukaemia and lymphomas in Seascale in the second world war when ordnance factories were built and operated nearby at Sellafield and Drigg. In the years 1940–1949 the average number of children (up to age 12) in the village school was less than 50, far too few to reveal even a 10-fold excess risk of these malignancies. In fact, the school roll reflects no expansion of Seascale until 1950, and the building of just 24 wartime bungalows in the village, to which the authors referred, is consistent with this. Their mention of the construction of 196 houses at Sellafield (though contradicted by longstanding local residents) can hardly be relevant: this area lies across a river in another parish (although erroneously the authors thought otherwise) and was not served by the Seascale school.

Cartwright \textit{et al.} offer evidence of an excess of other childhood cancers in Seascale, although, if real, its magnitude is clearly much less than that of leukaemia and lymphomas. Whether these four cases represent a significant increase will require comparison with expected numbers based on Census data for children in Seascale parish. Oddly, these direct counts (available since 1951) were rejected in the recent study in preference to indirect estimates based on numbers of adults, taken sometimes from electoral rolls. Other childhood cancers may well include some that are infective in origin and therefore likely to be influenced by population mixing. It was, however, the widespread concern over leukaemia that made it important to give it priority in testing the population mixing hypothesis.\textsuperscript{2} Certainly, evidence of a modest excess of other cancers cannot represent evidence against the population mixing hypothesis in relation to leukaemia and lymphoma. It is, however, preposterous to suggest that the case of a child with an osteosarcoma moving to Seascale in 1954 from osteosarcoma in a child aged 12 years made it important to give it priority in testing the population mixing hypothesis.\textsuperscript{2}

We consider that population mixing remains the most likely explanation for the cluster of leukaemia and lymphomas in Seascale.

References


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Childhood cancer in Seascale

Sirs,

Cartwright \textit{et al.}\textsuperscript{1} investigated the onset of the excess of cancer among young people in the village of Seascale, Cumbria, and studied mortality in the area using information from certificates for deaths registered in the Whitehaven Registration District. Correction is required, however, of several errors or omissions in their reporting of cancer in those who had lived for some time in Seascale.

Seascale Case No. 2 (using the identification scheme of their table \textit{5}) was born in 1947 not 1948, and the place of birth is not unknown but was Edmonton, Middlesex. Case No. 3 was not born in Seascale but in Barrow-in-Furness. Case No. 10 was diagnosed at the age of 19 years, not 20 years. A further relevant case of ‘subacute lymphatic leukaemia’ was missed from their table \textit{5}: the child, first identified by Gardner \textit{et al.},\textsuperscript{2} was born in Seascale in 1950 and died in 1954 a few months after leaving the village, and has been included in other tabulations of Seascale cases.\textsuperscript{3}

Cartwright \textit{et al.}\textsuperscript{1} identified a previously unreported death in Seascale during 1954 from osteosarcoma in a child aged 12 years (Case No. 1). They correctly state that this child was ‘diagnosed outside Seascale and was ill when becoming a village resident’, but surprisingly claim that ‘its significance is unclear’. This child was born in February 1942 near Runcorn, Cheshire, and resided here and near Preston, Lancashire, until the end of 1953. In the autumn of 1953 osteosarcoma was diagnosed while the child was living near Preston. At the beginning of 1954 the family moved to Seascale because the father had taken up employment at Sellafield. The child died in May 1954. It is difficult to envisage how the role of Seascale residence in the aetiology of this cancer could be considered ‘unclear’; Seascale could have played no part in the occurrence of this case.
It is disturbing to find Seascale Case Nos 4 and 5 included in the mortality study given that the source of data is declared to be certificates for deaths registered in the Whitehaven Registration District. The death certificate for Case No. 4 (non-Hodgkin’s lymphoma) makes no reference to residence in Seascale because, although the child was diagnosed while living in Seascale, she had moved to north Cumbria before her death. Moreover, the death was registered in the Wigton, not Whitehaven, Registration District. For Case No. 5 (acute myeloid leukaemia) residence in Seascale is recorded on the death certificate, but the death was registered in the district of Cockermouth rather than Whitehaven. As a consequence, neither of these cases could have been identified from deaths registered in the Whitehaven Registration District.

It would appear that, for Seascale cases, Cartwright et al.1 made use of (unspecified) sources of information other than the certificates for deaths registered in the Whitehaven Registration District. These additional sources may not have been available for the other parts of the Whitehaven Registration District that they studied, leading to information bias in the mortality rates reported.

References

More than one reason to immunize health care workers

Sirs,

In the interesting paper by Dey et al.1 there is an assertion that health care workers are offered influenza immunization because of the need to maintain operational efficiency of the National Health Service during the winter months. There is evidence that in most years there will be an operational benefit from influenza immunization with reduced sickness absence.2,3 However, the rationale for immunizing health care workers includes protection from occupationally acquired infection in compliance with the Health and Safety at Work Act 1974, and protection of other staff, family members and, importantly, vulnerable patients. Nosocomial infection with influenza does occur and can be associated with a high morbidity and mortality.4

References

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