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Re: The association between childhood leukemia and population mixing: An artifact of focusing on clusters?

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To the Editor:

The recent paper on childhood leukemia and population mixing by Berrie et al.[1] contains important omissions and inaccuracies with respect to population mixing, a term one of us coined in relation to extreme examples of rural–urban mixing. Its investigation by Kinlen and colleagues in 1990-2001 included rural new towns, rural districts receiving the greatest proportions of children evacuated from large urban centers during the Second World War, rural areas with a high concentration of national servicemen, rural areas with high proportions of North Sea oil industry workers, and rural districts with construction sites employing large numbers of mobile workers.[2] These studies were mainly national in scope, though one concerned the only rural part of Britain (the islands of Orkney and Shetland) where troops stationed to guard against a northern invasion outnumbered local people.[3] They were conducted in areas where information was available to distinguish high and low rates of rural population mixing, but in no case was an excess of childhood leukemia known in advance.[4] The simulation study of Berrie et al. is therefore irrelevant; it merely confirms the trivial fact that "statistical significance" (as indicated by p-values) is inflated when applied to high local cancer rates selected *post hoc*.

Berrie et al. refer to the marked childhood leukemia cluster in the isolated village of Seascale in northwest England. This was the observation, together with the striking local influxes, that suggested the population mixing hypothesis, and the subsequent studies were designed to test it. They speculate on the reasons for public concern about the Seascale excess but, surprisingly in view of extensive publicity since 1983, make no mention of its close proximity to the Sellafield nuclear complex: the reason for the intense local population mixing.[4] Nor did they mention the world's most sharply defined localized excess of childhood leukemia in the small Nevada desert town of Fallon, reported many years after the population mixing hypothesis was first proposed, and associated with perhaps the most extreme example of rural–urban population mixing so far recorded.[5]

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