

Response to “Comment on ‘Association between Residential Proximity to Viticultural Areas and Childhood Acute Leukemia Risk in Mainland France: GEOCAP Case–Control Study, 2006–2013’”

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We thank Catherine Hill for her comments¹ on our recent study² on the association between residential proximity to viticultural areas and childhood acute leukemia risk in mainland France. However, we believe she has misunderstood certain aspects of our study.

First, Hill’s conclusion that the results of our study “[do] not justify the alarming information disseminated by the media in France” inverts the problem: Societal concerns about the environment require documented responses, to which our research contributes. Public concerns about exposures to pesticides and other pollutants in the environment have been expressed for decades, particularly in situations of reported clusters.³ Many articles have reported an increased risk of leukemia in children whose parents had used pesticides at home or at work,^{4–12} and a few studies have suggested an increased risk of leukemia^{13–16} and central nervous system tumor^{14,17} in children living in agricultural areas.

Based on the literature to date, we hypothesized that living near agricultural activities could increase the risk of cancer in children, and our results, although limited in magnitude, support this hypothesis. Indeed, our study has several strengths: *a*) We focused on vines, a permanent crop subject to intensive phytosanitary treatments¹⁸ and therefore a possible source of exposure to residents nearby; *b*) we minimized selection bias at inclusion; and *c*) our exposure assessment took place without participation or recall bias. The French media considered our results informative and worth relaying to the public.^{19–21}

Second, French wine-growing regions are known to be heterogeneous,²² if only in terms of plot size, other crops present, climate, housing type, and demographic characteristics. Our study was not designed to investigate the association between proximity to vines and childhood acute leukemia risk by region, and the results were not expected to be identical across regions. We do not consider regional heterogeneity an inconsistency (contrary to Hill’s assertion that “The authors accept this overall estimation despite the inconsistency of the results by region”) but, rather, as a fact that must be further documented and taken into account in the future.

Finally, our Table S4 and Figure S4 were intended only to illustrate the model fits for the Occitanie region, the only region where the linear hypothesis had been rejected (only with the indicator based on both Graphic Parcel Register and Corine Land

Cover). The β represents the probability of leukemia on the logit scale according to the deciles of vine density within 1,000 m, and the $\exp(\beta)$ does not estimate the odds ratios.

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