

**The Effect of the Type of Respondent on Risk Estimates of Pesticide Exposure
in a Non-Hodgkin's Lymphoma
Case-Control Study**

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ABSTRACT. There has been considerable controversy among epidemiologists whether proxy interviews provide agricultural pesticide use data comparable to that obtained from direct informants, who are assumed to be generally more knowledgeable about their use of pesticides. The purpose of this analysis was to determine whether odds ratios for pesticide use, in particular 2,4-dichlorophenoxyacetic acid (2,4-D), varied by the type of respondent in a resurvey of 310 subjects in the National Cancer Institute's Iowa/Minnesota Non-Hodgkin's lymphoma case-control study. Pesticides were grouped according to crop insecticides, animal insecticides, and herbicides (with and without 2,4-D), as well as 2,4-D itself. Using logistic regression, only animal insecticides had consistent risk estimates between the proxy and direct informants for the three categories of frequency of use employed in the analysis (1-4 days/yr., 5-9 days/yr. and 10+ days/yr.). Significant ($p < 0.05$) interaction terms (respondent type by each frequency of use category) were observed for crop insecticides at 1-4 days/yr., for herbicides including 2,4-D at 10+ days/yr. and for herbicides excluding 2,4-D at 10+ days/yr. use. For 2,4-D use, the proxy-derived odds ratio was 2.5 (95% CI 0.8-8.0) for the highest frequency of use (10+ days/yr.) compared to a direct informant-derived odds ratio of 0.7 (95% CI 0.3-1.9) (interaction term $p = 0.08$). The results from this analysis, as well as other published data, suggest that the type of respondent may act as an effect modifier in the association between cancer and pesticide exposure. We agree with others who have recommended that agricultural pesticide use risk estimates derived from case-control study data should be analyzed and presented separately by the type of respondent. (*Article copies available from The Haworth Document Delivery Service: 1-800-342-9678.*)

KEYWORDS. Cancer, epidemiological methods, herbicide, insecticide, non-Hodgkin's lymphoma, pesticide, 2,4-dichlorophenoxy-acetic acid, 2,4-D

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