Acquavella, J et al., Cancer among Farmers: a Meta-Analysis, Annals of Epidemiology, 8:64-74, 1998

Abstract:

Purpose: We conducted a meta-analysis of 37 studies to assess whether farmers had elevated rates for several cancers, as was concluded in a previous meta-analysis of 21 studies.

Methods: We identified studies from the reference list of the previous meta-analysis and from a MEDLINE search through December 31, 1994. The primary purpose of our analysis was to identify and, if possible, understand the sources of heterogeneity in the literature. Stratified analyses of studies and linear modeling with inverse variance weights were used to assess the impact of study characteristics on results. We calculated summary relative risks as a weighted average of the log relative risks across studies using inverse variance weights. Fixed and random effects models were used as appropriate.

Results: The results for most cancers were markedly heterogeneous by study design and, for fewer cancers, by geographic location, and whether the studies focused on crop and livestock farmers. There was some indication of publication bias due to underreporting of near null or sub null findings. Lip cancer was the only cancer that was clearly elevated among farmers.

Conclusions: The results do no suggest that farmers have elevated rates of several cancers. However, the known heterogeneity of exposures by type of farming, geographic area, time period, and other factors limits the informativeness of meta-analyses of these studies for assessing potential carcinogenic exposures in agriculture.