

Poster: 0006

Pesticide Exposure Assessment in the AHS: Phase II Update

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Pesticide exposure assessment for epidemiology studies is challenging due to the wide variety of pesticides used and changes over time in the use of specific pesticides. The Agricultural Health Study (AHS) is a large prospective cohort study of over 52,000 private (primarily farmers) and commercial pesticide applicators from Iowa and North Carolina enrolled between 1993 and 1997 (Phase I). A unique characteristic of the AHS is the detailed information on the lifetime use of specific pesticides. Information on pesticide use was updated during Phase II of the AHS, conducted between 1999 and 2003, during which computer aided telephone interviews were conducted with 35,347 pesticide applicators (68%) to obtain information on their current use of pesticides, along with information on health and lifestyle factors. Phase II participants were asked to report all the pesticides they had personally mixed, handled or applied during the most recent year in which they had mixed or applied pesticides, along with information on the application methods they used, their use of personal protective equipment when mixing and when applying pesticides, and other factors thought to affect exposure intensity. Of the Phase II participants interviewed, 26,757 (80%) reported that they had actively farmed and mixed or applied pesticides since enrollment. Information on the frequency of use for specific pesticides was obtained for 96% of these participants. The median number of pesticides reported was 5 (range 1-43), and 85% of applicators reported using less than 10 different pesticides. The average annual days of use for any pesticide was 12.5 (14.6) and 16.5 (23.6) in IA and NC, respectively. Use of one or more herbicides was reported by 93% of applicators; the most frequently reported herbicides were glyphosate, 2,4-D and atrazine. Use of one or more insecticides was reported by 45% of applicators; the most frequently reported insecticides were malathion, chlorpyrifos and carbaryl. Use of fungicides was reported by 16% of applicators; the most frequently reported fungicides were mancozeb, metalaxyl and captan. Less than 1% of applicators reported use of fumigants.

Abstracts

The percentage of applicators who reported use of herbicides was higher in IA than in NC (98 vs. 81) , while the percentage of applicators who reported use of insecticides (49% vs. 44%), fungicides (24% vs. 13%) and fumigants (4% vs. 1%) was higher in NC than in IA. For five herbicides and three insecticides, over 500 applicators reported use during Phase II but not at enrollment. In addition, 2 of the top 10 most frequently reported herbicides and 3 of the top 10 most frequently reported insecticides during Phase II were not included on the enrollment questionnaire. The changes identified in the specific pesticides used during Phase II compared with the enrollment questionnaire will be valuable to update lifetime exposure information for the epidemiologic analysis of the AHS cohort.

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