

ATRAZINE AND CANCER INCIDENCE AMONG PESTICIDE APPLICATORS IN THE AGRICULTURAL HEALTH STUDY (1994–2007)

Laura Beane Freeman,¹ Jennifer Rusiecki,² Jane Hoppin,³ Jay Lubin,¹ Stella Koutros,¹ Gabriella Andreotti,¹ Shelia Hoar Zahm,¹ Cynthia Hines,⁴ Joseph Coble,¹ Francesco Barone-Adesi,¹ Jennifer Sloan,¹ Dale Sandler,³ Aaron Blair,¹ Michael Alavanja¹ ¹NCI, Rockville, USA; ²Uniformed Services University of the Health Sciences, Bethesda, USA; ³NIEHS, Research Triangle Park, USA; ⁴NIOSH, Cincinnati, USA

10.1136/oemed-2011-100382.45

Objectives Atrazine is a triazine herbicide with endocrine-disrupting properties and is used widely in the United States. Atrazine causes mammary tumours in rats, but the mechanism does not appear to operate in humans. Few epidemiologic studies have provided evidence for an association. Here, we extend a previous analysis of cancer risk associated with self-reported atrazine use in the Agricultural Health Study, a prospective cohort that includes 57 310 licensed pesticide applicators, with six additional years of follow-up and over twice as many cancer cases (n=3146).

Methods Using Poisson regression, we calculated RR estimates and 95% CI for lifetime days of use of atrazine and intensity-weighted lifetime days, which accounts for factors that impact exposure.

Results Overall, 68% of applicators reported using atrazine. There was no increased risk among atrazine users for cancer overall or at most sites. Based on 29 exposed cases of thyroid cancer, there was a significant risk in the highest category of intensity-weighted lifetime days (RR=4.86; 95% CI: 1.31 to 17.99, p-trend=0.01). There was a similar pattern for lifetime days (RR=2.31; 95% CI: 0.65 to 8.19, p-trend=0.27), but neither the risk estimates nor the trend were statistically significant, and for neither metric was the trend monotonic. For ovarian cancer, there was a suggestion of increased risk among female applicators who ever used atrazine, but numbers were small (n=4).

Conclusions There was a suggestion of increased risk of cancers of the thyroid and ovaries, sites of a priori interest due to their hormonal involvement, but with minimal supporting evidence.