

fully evaluated prior to its findings being used as the basis of new regulation, including how the extent and method of imputing exposure data affect the association with daily mortality counts.

**METHODS:** We examined the association between PM<sub>2.5</sub> levels and daily mortality count, comparing the results from the HSCS methods with results based on an alternate imputation method, and with non-missing data.

**RESULTS:** Overall, ~30% of the data points used in the HSCS were imputed. The method of imputation affected the association between particulate matter and mortality to a substantial degree in most of the cities. When the model using the HSCS method was compared to the model using the alternate method, in two areas the coefficients decreased substantially and lost significance. In two areas they changed little; in one area it rose substantially and became significant; and in one area it declined substantially but remained significant. When compared to the model based on the non-missing data, somewhat different patterns were observed. In both comparisons there were some large changes in the magnitude of the effect, but these were not consistent with the model used.

**CONCLUSIONS:** We are concerned about the degree of data imputation and the effect that the method of imputation has on the association between particulate matter levels and mortality. In the case of the HSCS it appears that the imputed data are more strongly associated with the outcome than other methods of imputation and than the non-missing data. The reasons for these observations are not readily apparent, but the differences in effect should be explored and explained.

PII S1047-2797(00)00151-4

---

#### WORK-RELATED FATALITIES IN WEST VIRGINIA: A SUMMARY OF SURVEILLANCE, INVESTIGATION, AND PREVENTION ACTIVITIES, JULY 1996–DECEMBER 1999

J Helmkamp, W Lundstrom, J Williams. Center for Rural Emergency Medicine, West Virginia, Morgantown, WV

**PURPOSE:** From 1990–95, West Virginia (WV) had a work-related death (WRD) rate of 8.9 deaths per 100,000—the fifth highest rate among all states and twice the national rate. As a result, a Fatality Assessment and Control Evaluation (WV FACE) program was established to identify all WRDs, define workers at high risk for fatal injury, investigate selected causes, and formulate and disseminate prevention strategies.

**METHODS:** Surveillance and investigation data were used to describe trends and rates and identify hazardous conditions, unsafe work practices, and management-leadership problems through the use of the traditional epidemiologic model and the Haddon temporal matrix. Prevention strategies were developed and disseminated utilizing various written media.

**RESULTS:** From 7/1996–12/1999, 191 persons died from work-related injuries. The WRD rate was 7.6 per 100,000 compared to 4.7 for the U.S. (1996–98). 94% of the victims were male and all Caucasian. Mean age at death was 43 years. Leading external

causes of death: motor vehicle (48), struck by object (38), machinery-related (24), fall from elevation (15), and homicide (10). WRDs occurred most often in the trans/public utilities (37; truckers–22), manufacturing (32; loggers–24), mining (28), construction (26), and services (25) industry sectors. 19 on-site investigations were conducted (10 logging, 5 machine-related, and 4 fall from elevation); no company safety programs, inadequate training, lack of oversight were consistently noted. Summary reports were prepared for employers, Fatal Incident Alerts written for workers, and a scientific article was published.

**CONCLUSIONS:** FACE has contributed to a better understanding of fatal occupational injuries within WV and the importance of coordinated efforts by employees, employers, and safety and public health specialists to reduce the frequency and societal impact of these injuries.

PII S1047-2797(00)00116-2

---

#### RELIABILITY OF REPORTING ON LIFESTYLE AND AGRICULTURAL FACTORS BY A SAMPLE OF PARTICIPANTS IN THE AGRICULTURAL HEALTH STUDY FROM IOWA

A Blair<sup>1</sup>, R Tarone<sup>1</sup>, D Sandler<sup>2</sup>, CF Lynch<sup>3</sup>, A Rowland<sup>2</sup>, W Wintersteen<sup>4</sup>, WC Steen<sup>5</sup>, M Dosemeci<sup>1</sup>, MCR Alavanja<sup>1</sup>,  
<sup>1</sup>National Cancer Institute, Bethesda, MD; <sup>2</sup>National Institute of Environmental Health Sciences, Research Triangle Park, NC; <sup>3</sup>University of Iowa, Iowa City, IA; <sup>4</sup>Iowa State University Extension Service, Ames, IA; <sup>5</sup>US Environmental Protection Agency, Athens, GA

**PURPOSE:** Information on agricultural practices has been obtained by questionnaire in several epidemiologic investigations. This project evaluated the reliability of self-reported information on pesticide use and various demographic and lifestyle factors among a group of farmers from Iowa.

**METHODS:** 2,921 Iowa farmers participating in the Agricultural Health Study completed enrollment questionnaires approximately one year apart. Responses on the two questionnaires were compared for percent agreement and by Kappa statistics to evaluate reliability.

**RESULTS:** Percent agreement for ever/never use of specific pesticides and application practices was quite high and generally ranged from 70% to over 90% and did not vary by age or educational level. Kappas were typically in the 0.50 to 0.60 range. Agreement was lower (typically 50% to 60%) for duration or frequency of use of specific pesticides. Agreement on lifestyle and non-agricultural factors was comparable to that reported in other studies.

**CONCLUSIONS:** Level of agreement regarding pesticide use in this population is similar to that found for diet, physical activity, and medical conditions, which have been successfully evaluated in many epidemiologic studies. Information on agricultural practices from self-completed questionnaires has sufficient reliability for use in epidemiologic investigations.

PII S1047-2797(00)00113-7