A JOB EXPOSURE MATRIX FOR IDENTIFICATION OF POTENTIAL EXPOSURES IN OCCUPATIONAL SETTINGS
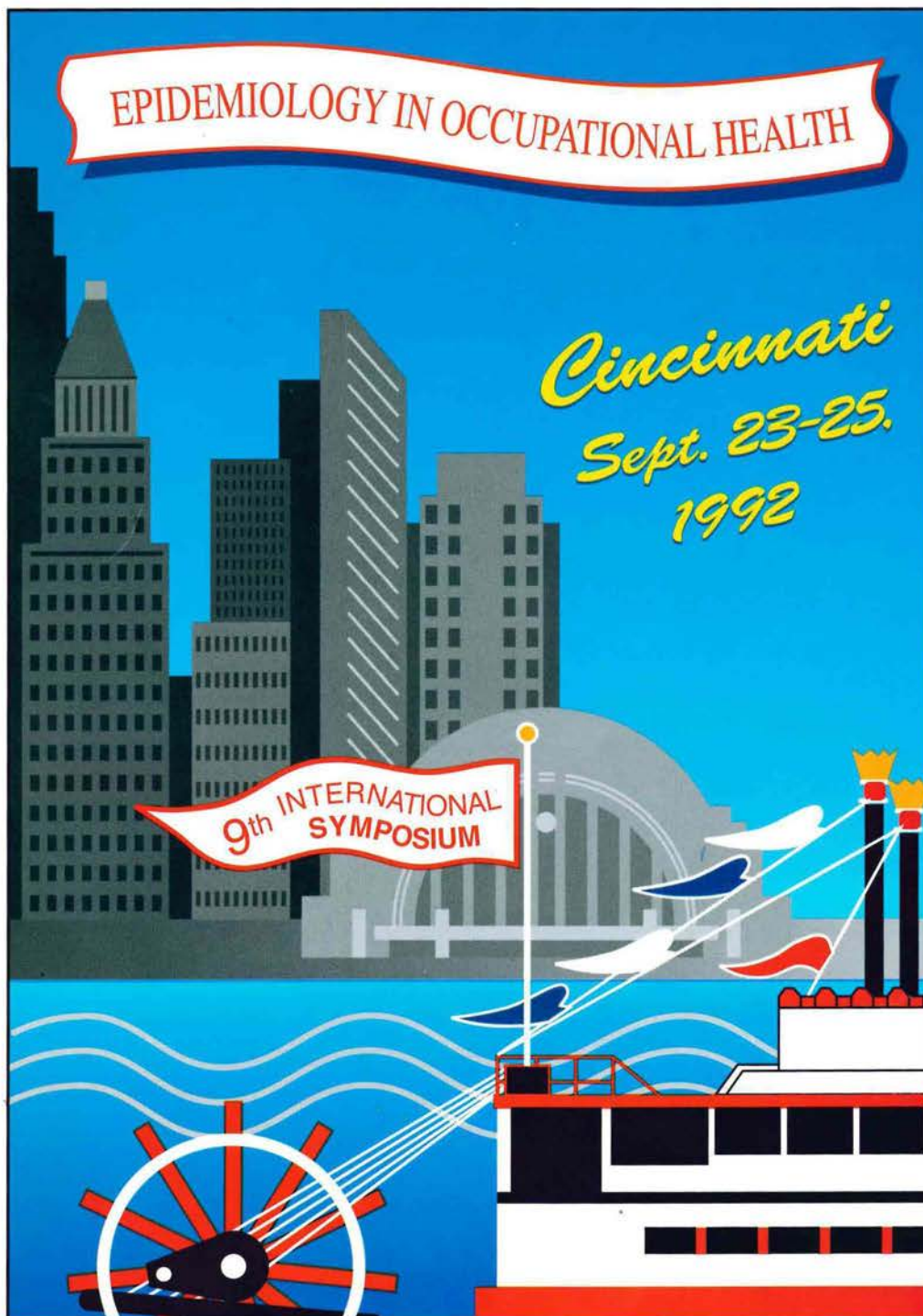
Karl SIEBER, Joe SETA, Randy YOUNG: NIOSH, 4676 Columbia Parkway, R-19, Cincinnati, OH 45226, USA

In studying occupational health, a knowledge of occupation-specific exposures is useful. Because exposures vary for occupations and industries, several approaches have been used to identify occupation-specific exposure information. Direct quantitative exposure measurements, if available, have been used. However, many studies of mortality or morbidity are conducted by using vital statistics or other record systems where the only exposure data recorded are the decedent's or respondent's occupation or industry. For analysis of such studies, a classification system or matrix linking industry, occupation, and exposure would be useful. A job exposure matrix has been developed based on data collected during the 1981-1983 National Occupational Exposure Survey (NOES). Potential exposures to 14,000 chemical, physical, or biological agents observed across 377 occupations and 521 industries were recorded in the NOES if certain minimum guidelines for exposure were met. The survey sample was representative of all U.S. non-agricultural businesses covered under the OSHAct and employing eight or more employees. Potential exposure data collected during the NOES is cross-classified by industry and occupation in the job exposure matrix. Data on the number of employees observed to be potentially exposed to the agent, the number of employees exposed full time, presence of engineering controls over exposure, and presence of the agent in a trade-named product are included in the job exposure matrix. Data is included for each agent observed in each industry and occupation classification in the NOES. All data is given by gender and by size of facility from which it was collected: small (8-99 employees), medium (100-499 employees), or large (500 or more employees). Data included in the job exposure matrix are based on field observations. Other sources of exposure information, such as the literature or panels of chemists or industrial hygienists, were not used.

The job exposure matrix may be used to profile potential exposures to specific agents in occupational settings. For example, occupational settings where potential exposure to inorganic lead or metal ore occurs may be determined. Using the matrix, more than 50 employees in each of 53 occupations across 73 industries had potential exposure to inorganic lead or metal ore. All assemblers engaged in manufacturing wire telephone and telegraph equipment (1903 observed) were found to be potentially exposed, while less than 1% of assemblers engaged in manufacturing motor vehicles and passenger car bodies (87 observed) were potentially exposed. Seventy-seven percent of the telephone equipment assemblers (1459 observed) were females, while none of the motor vehicle assemblers were. Potential exposure data from the job exposure matrix may be used to determine occupational groups for studies of exposure. Such data may also be used for an objective measure of exposure in occupational health research studies.

Scientific Committee on Epidemiology in Occupational Health (ICOH)

NIOSH

EPIDEMIOLOGY IN OCCUPATIONAL HEALTH

Cincinnati
Sept. 23-25.
1992

9th INTERNATIONAL SYMPOSIUM

9th International Symposium

Epidemiology In Occupational Health

BOOK OF ABSTRACTS