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Epidemiologic Notes and Reports

Morbidity Study at a Chemical Dump — New York

In June and August 1979, the National Institute for Occupational Safety and Health (NIOSH) conducted industrial hygiene and engineering surveys and performed a cross-sectional medical study of 428 persons who lived or worked near the Hyde Park Landfill, a chemical disposal site just north of Niagara Falls, New York. Adjacent to the landfill are a metal-sand manufacturing plant employing 260 persons, a structural-steel fabricating shop employing 50 persons, and 2 small businesses. Bloody Run Creek flows north from the landfill, through a conduit under a shipping-drum manufacturing plant that employs 90 persons, through a residential neighborhood of about 50 persons, and, as an underground storm drain, along the edge of a private college that employs 90 maintenance workers.

The landfill was used from 1953 to 1975 by a chemical manufacturer as a disposal site for an estimated 80,200 tons of chemical waste, including many chlorinated hydrocarbons (1). Following numerous complaints of odors, skin irritation, and metal corrosion attributed to vapors, mist, and dust from the landfill, a compacted clay cover was installed over the landfill in 1978, and a drainage system, around the perimeter in 1979.

NIOSH investigators found lindane, mirex, and dioxins in parts per billion (ppb) levels in settled dust samples from rafters at all 3 companies, and all 3 substances were found in sediment from Bloody Run Creek.

The medical study included an interviewer-administered questionnaire composed of sections excerpted, without modification, from the Health and Nutrition Examination Survey (HANES), a nationwide health survey conducted from 1971 to 1973 by the National Center for Health Statistics (2); a limited physical examination focusing on skin, mucous membranes, thyroid, and blood pressure; a urine analysis; and blood tests for liver enzymes, hematologic parameters, creatinine, and, in a 20% sample of participants, lindane and mirex.

Of the 490 current employees of the 3 companies and the college (maintenance jobs), 290 (59%) participated. The 246 who were at least 25 years old were each matched by age, sex, race, income, and marital status with 2 employed persons from the HANES sample. Of 180 evaluated variables (reported health conditions, health risk factors, or laboratory results), 9 (5%) were statistically significant indicators of ill health ($p < 0.025$, odds ratio > 2.0) in the Hyde Park group: surgery for hiatus hernia (odds ratio 7.6), other abdominal surgery (4.6), loss of blood from stomach or bowels (5.6), hiatus hernia (4.5), benign tumor (3.4), frequent cough (3.7), use of skin medicine (2.6), skin moles (2.5), and leg pain (2.5).

Of 91 pregnancies in the Hyde Park group, 7 (8%) ended in miscarriage, compared

Chemical Dump — Continued

with a rate of 14% in HANES. No participant had evidence of chloracne. Thyroid examinations detected 1 nodule, previously diagnosed as a "cold" nodule. Systolic and diastolic blood pressures were lower in the Hyde Park group than in the HANES matches. Compared with the HANES data, none of the 4 Hyde Park groups, individually or combined, had higher serum creatinine or liver enzyme levels, nor did they have lower hemoglobin, hematocrit, or red blood cell counts. None of the 55 participants who had blood lindane and mirex determinations had detectable levels of mirex; 2 employees of the shipping-drum plant and 1 from the college had 0.05 ppb of lindane.

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Editorial Note: This study was designed to provide a rapid assessment of the health status of people who lived or worked in the vicinity of the Hyde Park Landfill. While the cross-sectional prevalence approach is helpful in identifying existing disease, it is most useful when targeted at a specific health effect or the effects of a specific exposure rather than the more diffuse issue of intermittent, relatively low exposures to multiple toxic chemicals. Interpretation of this study is also limited by the low participation rate and the fact that a substantial portion of the sample population had not had a sufficient interval from first exposure for some health effects (e.g., cancer) to be manifest.

The reason for the relatively large odds ratio for hiatus hernia and related surgery is not apparent. Hiatus hernia is a common radiological finding (3), and unexplained gastrointestinal symptoms might be attributed to it. Thus, this apparent excess might be indicative of an increased prevalence of general gastrointestinal symptoms. These symptoms and the increased prevalence of other conditions such as benign tumors and cough might be indicative of exposure to occupational agents or to environmental agents such as landfill material. However, no definite associations were determined.

Although the study showed no consistent patterns of health effects, the environmental findings should not be overlooked. There is no reasonable source, other than the landfill, for the mirex found in the buildings and in the sediment of Bloody Run Creek. This illustrates the major danger posed by chemical landfills: the release of chemicals into the surrounding environment, particularly into water sources and the food chain.

References

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2. National Center for Health Statistics. Plan and operation of the health and nutrition examination survey: United States—1971-1973. Rockville, Md: U.S. Dept of Health, Education, and Welfare, 1973. (Vital and health statistics-series 1-no. 10a) (DHEW publication no. [HMS] 73-1310).
3. Schuster MM. Diaphragmatic hernia (hiatal hernia). In: Beeson PB, McDermott W, Wyngaarden JB, eds. Textbook of medicine. Philadelphia: WB Saunders, 1979:1485.

Campylobacter Sepsis Associated with "Nutritional Therapy" — California

Between January 1979 and March 1981, 10 patients were reported to the San Diego County Department of Health Services to have sepsis caused by *Campylobacter fetus* subsp. *fetus* (formerly known as *Campylobacter fetus* subsp. *intestinalis*). In the previous