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Job-related cancer: Still an open question

When a worker at Union Carbide Corp.'s Texas City (Tex.) petrochemical complex became convinced that an unusual number of his fellow workers had a rare form of brain cancer, he reported it to the Occupational Safety & Health Administration. That November, 1978, telephone call sparked what has been the largest and most thorough examination of job-related cancer to date, with some 10 separate government and industry studies still under way. But firm conclusions continue to elude the researchers. Scientists on both sides of the question are as far from agreeing on the cause of the

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problem—or even that one exists—as they were two years ago.

Initial studies by OSHA indicated that the incidence of invariably fatal brain cancers at the Union Carbide plant was twice that of the general population. And many of those cancers were an exceedingly rare form called glioblastoma multiforme. Soon after, "clusters" of the brain cancers were identified at Texas plants operated by Dow Chemical, Gulf, Texaco, and Mobil. Industry officials accuse OSHA of being premature in reaching conclusions and overzealous in interpreting its findings. "Look, I'm a realist. It's important to recognize that OSHA's political authority is to be sleuths," says one company researcher. But, he adds, "I would have presented it as more of an open question."

The question, in fact, remains open as the results of more thorough follow-up studies are reported. More than 200 scientists attended a conference organized by the New York Academy of Sciences late in October to evaluate the conflicting claims. But government data indicating an abnormally high incidence of cancer in chemical workers seemed no more conclusive than industry studies contending that there is no more of the cancer among chemical workers than in the overall population.

Rival claims. For each government survey indicating a problem, industry scientists offered company reports showing just the opposite. "So far," says Dr. Anthony Robbins, director of the National Institute for Occupational Safety & Health, (NIOSH), "brain cancer seems to be occurring more in these plants than the general population." But, he admits, "the numbers are too small to tell us anything for sure." And Dow Chemical Co.'s

chief epidemiologist, Ralph R. Cook, told the New York meeting that a comparison of brain-cancer death records to health reports of workers not exposed to chemicals showed no excessive risk for those exposed. No job link could be pinpointed for one "cluster" of cancer that showed up among workers hired in the 1940s, he added. Gulf, Exxon, and Du Pont presented similar surveys.

In fact, the only thing the investigation has proved beyond any doubt is that determining the causes of worker health complaints is not a simple task. The data

not looking around for things to raise hell about, but these questions have to be answered," insists Raphael Moure, an industrial hygienist for the Oil, Chemical & Atomic Workers International Union (OCAW). Some scientists, too, are rankled by the implication that they are playing a game of statistical one-upmanship. "We're investigating a real phenomenon here, not simply a statistical quirk," says Victor Alexander, an OSHA physician now on temporary assignment with the U.S. Public Health Service.

Mortality rates. Indeed, the cancer fatalities are very real. When

OSHA and NIOSH investigators followed up on the Union Carbide worker's complaint, a survey of employee death certificates identified 18 brain-cancer deaths among workers at the Texas City plant since 1940. And in a joint study with the company, the researchers found that 15 cases had been diagnosed as glioblastoma multiforme. Further study of death certificates in surrounding Brazoria County—an area with a high concentration of petrochemical plants—turned up an additional 33 brain tumors, and 11 were among former em-

ployees of Dow Chemical's Freeport (Tex.) facility. A closer study at Dow revealed that 25 of its employees had died of brain cancer.

At the same time, the National Cancer Institute was reviewing records and death certificates of former members of the OCAW's Local 4449—its largest local. Additional cases of the rare cancer were identified among workers at Gulf and Texaco plants in Port Arthur, Tex., and at Mobil's Beaumont (Tex.) facility.

More recent studies at the plant do little to clear up the controversy, however. Carbide agreed that further study was warranted and launched a joint study with NIOSH and OSHA. But preliminary results do not appear to connect specific exposures in the plant with brain cancer. Curiously, this was not included among government statistics presented at the recent meeting on industrial health problems.

The most difficult part of the investigation remains to be completed. "What



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are spotty, and the same results can be interpreted in markedly different ways. Occupational health specialists do agree, however, that they will be dealing with situations like the brain-cancer controversy more often in the future. "The last few epidemiological studies that we have done have been brought to our attention by workers," observes Eula Bingham, Assistant Labor Secretary.

It was a worker complaint that prompted the agency to investigate claims of an excessive cancer rate among pattern makers at a General Motors Corp. plant. And locker room conversation that led to a complaint to OSHA eventually caused the agency to link worker sterility to a pesticide called dibromochloropropane. Indeed, complaints to OSHA have more than doubled during the last three years.

One way or another, union officials want to see some definitive conclusions to the brain-cancer dispute, and they are pushing for additional studies. "We're

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we must do now is to localize the problem," says OCAW's Moure, who says that involves "concentrating on exposures to decide which jobs are of particular risk, and if there is an occupational cause to these cancers." But that is an immense task. In the Dow plant alone, some 44,000 worker-death records dating back to the 1940s must be reviewed and correlated with hundreds of possible chemical exposures over a 40-year period. In addition, job assignments, length of employment, lifestyle, and other factors must be studied to see if some pattern emerges. And exposure data must be correlated with the limited information from animal tests that linked about 25 chemicals to brain cancer.

More studies. Company medical records are often woefully inadequate, and failure to organize them has hampered investigators. Union Carbide and Dow, for instance, are only now following Du Pont Co.'s lead in setting up central mortality surveillance systems. And companies are still fighting labor and government access to employee medical records. "Let's say cooperation [from companies] has varied," says J. William Lloyd, OSHA epidemiologist.

Even after all the studies are completed, scientists on both sides recognize that the cause of those cancers may remain an unsolved mystery. "We're not consistent in our findings, and we may never find a causative agent," acknowl-

OSHA's try at linking brain cancer and chemical workers is inconclusive

edges Richard A. Lemen, a NIOSH scientist. And although improved recordkeeping and better cooperation from industry may aid future investigators, it will be of little aid in finding answers to other cancer clusters where exposure may have occurred 20 to 30 years ago.

Yet lessons are being learned. "Epidemiology should get better," says H. Michael D. Utidjian, Union Carbide's associate corporate medical director for toxicology and epidemiology. "We're starting to crank out studies from the records which should suggest where we should set our priorities," he adds.

Still, the ultimate solution, company health and government officials agree, may simply be a tightening of current work practice controls and increased vigilance over chemical workers' exposure to all substances. In addition, suggests R. Hays Bell, OSHA director of technical support, stricter adherence to OSHA standards could help. "But we must be careful to control other agents as well," says Bell. "There are 45,000 chemicals in the workplace, and OSHA doesn't have standards, nor will it ever have standards, for all of them."