



## WORKPLACE & CANCER

### WHO WE ARE

We are among the approximately 20,000 individuals who die from cancer due to exposure from cancer-causing substances in the workplace in the United States. Many more of us develop cancer from preventable workplace exposures. Of those who develop or die from workplace-related cancer, a disproportionate number of us are poor, have little formal education, and are part of a minority or underserved group. We are workers who have few employment options and thus we often work in industries, such as construction, printing, and agriculture, where exposure to carcinogens is more likely unless rigorous efforts are made to protect us as workers.

Unfortunately, since many of us are low-income minority and migrant workers, we are limited to employment in substandard work environments. Often we do not receive or do not understand information on how to protect our health and that of our families who may be secondarily exposed to carcinogens that we bring home on our clothes.

Additionally, as workers we often live in areas that further expose us and our families to carcinogens and other environmental health hazards. Toxic waste sites, freeways, nuclear facilities, and chemical plants are more frequently located in our poor, minority neighborhoods than in more affluent areas. We often cannot afford regular health care and therefore, our cancers are often diagnosed at a late stage at which time there are few effective treatment options.



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- ◆ Hispanics are more likely than non-Hispanic whites to work in service occupations (19% vs. 12%) and almost twice as likely to be employed as operators and laborers (22% vs. 12%). [1]
  - ◆ African American men are more than twice as likely as non-Hispanic white men to work in service occupations (19% and 8%, respectively), and nearly twice as likely (28% vs. 16%) to be operators, fabricators, and laborers. [2]
  - ◆ African American women are more likely to be employed in service occupations (27% vs. 15%) or as operators, fabricators, and laborers (9% vs. 5%) than non-Hispanic white women. [2]
  - ◆ Hispanics, 11% of the U.S. population, account for 41% of the private household cleaners and servants, 27% of non-private household cleaning and building services, 33% of construction laborers, 30% of laundering and dry-cleaning machine operators, 41% of drywall installers, 42% of tile setters, and 38% of concrete and terrazzo finishers. [3]
  - ◆ African Americans, who comprise 12.7% of the U.S. population, account for 20% of non-private household cleaning and building service occupations, 29% of textile pressing machine operators, 20% of laundering and dry-cleaning machine operators, 30% of bus drivers, 30% of barbers, and 20% of mail services. [3]
  - ◆ Four percent of all cancer deaths in the U.S. are thought to be related to exposures in the workplace. [4]
  - ◆ The National Institute of Occupational Safety and Health (NIOSH) estimates that 10% of lung cancer, 21% to 27% of bladder cancers, and nearly 100% of mesotheliomas in the U.S. population are caused by occupational exposures to carcinogens. [4]
  - ◆ Nearly 100% of workers with documented exposure to vinyl chloride will develop angiosarcoma of the liver, and nearly 50% with exposure to asbestos will develop lung cancer. [4]
  - ◆ Of the 27 million U.S. workers exposed to asbestos before the 1970s, 8,000 will die from asbestos-related cancer each year. These workers are exposed in the mining and milling of asbestos, during the manufacture of all asbestos products, and in the construction and ship building industries. Worker exposure also occurs in asbestos end-product use occupations, such as asbestos insulation workers, brake repair and maintenance workers, building demolition workers, and asbestos abatement workers. [4]
  - ◆ African American men are twice as likely to have increased cancer incidence from occupational exposures than White men. [4]
  - ◆ In a two-year period, The National Occupational Exposure Survey (NOES) estimated that 153,937 total workers, including 7,603 women were potentially exposed to asbestos. [5]
  - ◆ Several epidemiological studies have shown an excess of lung cancer among workers exposed to coal tar fumes in coal gasification and coke production. Similarly, epidemiological studies have also shown excesses of lung and urinary bladder cancer among workers exposed to pitch fumes in aluminum production plants. [5]
  - ◆ Studies have reported strong associations of cancers of the nasal cavities and paranasal sinuses in people whose occupations are associated with wood dust exposure. [5]
  - ◆ Compared with the general Hispanic population, California Hispanic farmworkers are 59% more likely to develop certain types of leukemia, 70% more likely to develop stomach cancer, 63% more likely to develop cervical cancer, and 68% more likely to develop uterine cancer. [6]
  - ◆ In 1997-98, 81% of all farmworkers were foreign-born, and 95% of these were born in Mexico. Three out of five farmworker families had incomes below the poverty level. [7]
  - ◆ A 1998 study demonstrated that cancer in Hispanic and African American males, the groups traditionally employed as farmworkers in California, correlates strongly with the use of the pesticides atrazine and captan. [8]
  - ◆ Higher than average rates of stomach cancer in farmworkers may be related to malnutrition, lack of refrigeration, and exposure to pesticides. [9]
  - ◆ Elevated mortality rates from cervical cancer in female farmworkers may be related to poor access to medical care. [10]
  - ◆ Farmers have a higher incidence of several cancers including leukemia, non-Hodgkin's lymphoma, and brain, prostate, and skin cancer; studies suggest that pesticide exposure may be an etiologic factor in some of these cancers. [11, 12]
  - ◆ Compared with the general U.S. population, dry-cleaning workers are at increased risk for cancers of the esophagus, larynx, lung, and cervix as well as for cancer mortality in general. Korean Americans operate approximately 50% of Oregon's dry cleaners. [13 - 15]
  - ◆ In a study that examined data from 21 states during 1985-1992, Latino men who worked as cleaners and materials handlers experienced a four-fold increase in mortality from leukemia when compared with all U.S. workers. This same study found that African American women who worked in construction or as motor vehicle operators were two times more likely to die from lung cancer than other African Americans. [16]
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- ◆ Among African American men, a two-fold increase in deaths from leukemia has been associated with employment in the rubber and plastic manufacturing industry. [16]
- ◆ Among Latino men, excess deaths from leukemia have been associated with employment in the textile and clothing industry, and in lumber and wood product manufacturing. [16]
- ◆ A 2003 study demonstrated an increased risk among male hairdressers for cancers of the upper aerodigestive tract, lung, and colon; among female hairdressers an increased risk for cancers of the pancreas, lung, cervix, and skin (especially the scalp and neck) was noted. [17]
- ◆ Male machinery repairers, metal processing workers, industrial spray painters, and tanners/fur dressers have an increased risk of breast cancer. [18]
- ◆ Researchers have found an increased risk of lung and liver cancer among iron foundry workers, especially those who were short-term or temporary workers. [19]
- ◆ Exposure to vinyl chloride, primarily from polyvinylchloride (PVC) production plants, has been associated with a five-fold increase in liver cancer among workers, primarily due to a 45-fold increase in angiosarcomas, a liver tumor that normally only accounts for 2% of liver tumors in the U.S. [20-22]
- ◆ Studies examining machine cutting and lubricating oils note that exposure to these oils, especially straight oils, are associated with laryngeal and rectal cancer. [23, 24]
- ◆ Studies indicate that painters have an increased risk for lung cancer and cancers of the esophagus, stomach and bladder, possibly due to various carcinogens used in paint products such as pigments, extenders, binders, solvents, and additives. [23, 25]
- ◆ Numerous studies have demonstrated that diesel truck drivers are approximately 50% more likely to get lung cancer than are other workers. [26, 27]
- ◆ Air concentrations of elemental carbon (a measurement of diesel exhaust) in the work area of mechanics is 26 times greater than in residential areas. Similarly, it is 5 times greater in cabs of long-haul trucks. [23, 28, 29]
- ◆ Women employed in the paper and pulp industry have shown increased rates of ovarian, lung and bladder cancer. [30]
- ◆ Blue-collar women exposed to solvents in the chemical and pharmaceutical industries experience increased risk of breast cancer. [31]
- ◆ Cancer accounts for 34% of estimated global work-related mortality, higher than any other single factor, including physical injury. [32]
- ◆ Hispanic migrant agricultural workers report socioeconomic barriers to secondary prevention that include the cost of obtaining health services, time constraints associated with the need to work, long working days, and a lack of transportation. [33]
- ◆ Workers at high risk of airborne exposure to aflatoxin are those involved in agriculture as they are occupationally exposed through the inhalation of grain dust. A 10% excess in hepatocellular cancer incidence has been observed in an area in the southeast United States compared with areas with low aflatoxin intake. [34]
- ◆ Leukemia has been associated with exposure to benzene, either alone or in combination with other chemicals. An estimated 3 million workers may be exposed to benzene due to their work as car mechanics and road tanker drivers. [35]

Establishing a clear relationship between cancer and workplace exposure is often difficult. The latency period of cancer, sometimes taking 20 years or more to develop, can make it difficult to establish an unequivocal cause-effect relationship. This is further complicated by job changes, concomitant exposure to other carcinogens such as tobacco smoke, and other factors such as genetic susceptibility and poor nutrition. In addition, medical and epidemiologic data on minorities and underserved groups are often lacking, and therefore, cancer in these groups is likely to be underrepresented. Lastly, the lack of accurate and detailed record keeping that often aggregates workers or cancer by fairly large geographical areas, such as by county or state, may potentially mask informative differences among sub-groups of workers.

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