



Cancer Facts

Workplace and Cancer

WHO WE ARE

We are among the 34,000 individuals who will die from cancer due to exposure from cancer-causing substances in the workplace in the United States.⁽¹⁾ Millions more of us are exposed to substances that have been shown to be carcinogenic in animal studies. However, fewer than 2% of chemicals found in the workplace have been tested for their carcinogenicity.⁽²⁾ Thus, 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 sometimes 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.

Causes/Etiology

- Of the 27 million US 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.⁽³⁾
- 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.⁽⁴⁾
- The National Institute for Occupational Safety and Health (NIOSH) estimates 20,000 cancer deaths and 40,000 new cancer diagnoses annually in the United States secondary to occupational exposure to carcinogens.⁽²⁾
- The development of malignant mesothelioma is directly linked to asbestos. Most people who develop this type of cancer are exposed to asbestos in their workplace. Occupations with the highest risk include shipbuilding, mining, insulation manufacturing and installation and Navy workers.⁽⁵⁾
- The World Health Organization established the Comparative Risk Assessment project in 2000. The goal of this project was to assess the morbidity and mortality secondary to occupational hazards. The results of the study showed occupational hazards were responsible for 9% of newly diagnosed lung cancer, 2% of new cases of leukemia and 100% of new cases of mesothelioma in 2000.⁽⁶⁾
- The following occupations are associated with non-melanoma skin cancer: railway engines, firemen, miners, quarrymen. The development of cancer is associated with exposure to hazardous air pollutants, arsenic, ionizing radiations and burns.⁽⁷⁾

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- Radioactive emissions account for approximately 1/9 of childhood cancers. The children are often 10 years or younger and live within a 31 mile radius of a nuclear plant. After the plants are closed, there is a reduction in the number of new childhood cancer diagnoses.⁽⁸⁾
- 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.⁽⁹⁾
- Four percent of all cancer deaths in the U.S. are thought to be related to exposures in the workplace.⁽³⁾
- 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.⁽³⁾
- 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.⁽³⁾
- 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.⁽⁴⁾
- Studies have reported strong associations of cancers of the nasal cavities and paranasal sinuses in people whose occupations are associated with wood dust exposure.⁽⁴⁾
- 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.⁽¹⁰⁾
- 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.⁽¹¹⁾
- Researchers have found an increased risk of lung and liver cancer among iron foundry workers, especially those who were short-term or temporary workers.⁽¹²⁾
- McElroy et al. reported a slightly increased risk for the development of breast cancer in women exposed to electromagnetic fields in their workplace.⁽¹³⁾
- A recent cohort study confirmed an increased risk of cancer in carpenters and cabinet makers secondary to exposure to chemicals used in their jobs, such as varnishes, lacquers, epoxy resins and polyvinyl acetate.⁽¹⁴⁾
- 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.⁽¹⁵⁾



- Numerous studies have demonstrated that diesel truck drivers are approximately 50% more likely to have lung cancer than are other workers.^(16,17)
- Male machinery repairers, metal processing workers, industrial spray painters, and tanners/fur dressers have an increased risk of breast cancer.⁽¹⁸⁾
- A recent study showed a significantly elevated risk of leukemia and non-Hodgkin lymphoma in children of parents that are exposed to ionizing radiation prior to their conception.⁽⁸⁾
- Approximately 20% of bladder cancers can be attributed to environmental exposures. A chemical that is proven to cause bladder cancer is benzedine, which is used in dye and rubber industries.⁽¹⁹⁾
- The Agricultural Health Study demonstrated that the development in colorectal cancer is possibly linked to chemicals used for agricultural pesticides.⁽²⁰⁾

Disparities

- Hispanics/Latinos are more likely than non-Hispanic/Latino whites to work in service occupations (20% vs. 13%) and also are more likely to be employed in construction and maintenance (27% vs. 18%).⁽²¹⁾
- In 2001-02, 78% of all farm workers were foreign-born, and 75% of these were born in Mexico. Three out of five farm worker families had incomes below the poverty level.⁽²²⁾
- About 68% of urban African American/black children from low income families were reported to have lead levels exceeding safe limits, compared to only 15% of their non-Hispanic/Latino white counterparts, who are largely from affluent families.⁽²³⁾
- Approximately 50% of Hispanics/Latinos younger than 65 years of age and 66% of working aged Hispanics/Latinos with low incomes are uninsured. Most of the working uninsured are not offered health benefits and are employed in jobs with the highest risk for any occupational injury.⁽²⁴⁾



Outcomes

- Elevated mortality rates from cervical cancer in female farm workers may be related to poor access to medical care.⁽³³⁾
- A study of workers in the state of Iowa related a significantly higher incidence of pancreatic cancer in men employed by companies producing chemical and allied products and in women who worked as textile sewing machine operators.⁽³⁴⁾
- There is well-documented evidence supporting the development of bladder cancer in long term workers of the rubber industry due to long term exposure to carcinogenic aromatic compounds. Such long term exposure may also be associated with the development of leukemia, stomach or lung cancer.⁽³⁵⁾
- In a study that examined data from 21 states during 1985-1992, Hispanic/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/black women who worked in construction or as motor vehicle operators were two times more likely to die from lung cancer than other African American/blacks.⁽³⁶⁾
- Among African American/black men, a two-fold increase in deaths from leukemia has been associated with employment in the rubber and plastic manufacturing industry.⁽³⁶⁾
- Among Hispanic/Latino men, excess deaths from leukemia have been associated with employment in the textile and clothing industry, and in lumber and wood product manufacturing.⁽³⁶⁾
- 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% increase in hepatocellular cancer incidence was observed in an area in the southeast United States compared with areas with low aflatoxin intake.⁽¹⁸⁾
- Cancer accounts for 34% of estimated global work-related mortality, higher than any other single factor, including physical injury.⁽³⁷⁾

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- Hispanics/Latinos, 15.8% of the U.S. population, account for 44% of the private household cleaners and servants, 29% of janitors and building cleaners, 42% of maids and housekeeping cleaners, 33% of construction laborers, 31% of laundering and dry-cleaning machine operators, 57% of drywall installers, 42% of tile setters, and 52% of concrete and terrazzo finishers.⁽²⁵⁾
- African Americans/blacks, who comprise 12.9% of the U.S. population, account for 17% of janitors and building cleaners, 16% of maids and housekeeping cleaners, 21% of textile pressing machine operators, 18% of laundering and dry-cleaning machine operators, 25% of bus drivers, 35% of barbers, and 28% postal clerks.⁽²⁵⁾
- African American/black men are more than twice as likely as non-Hispanic/Latino white men to work in service occupations (19% vs. 8%), and nearly twice as likely (28% vs. 16%) to be operators, fabricators, and laborers.⁽²⁶⁾
- African American/black 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/ Latino white women.⁽²⁶⁾
- African American/black men are twice as likely to have increased cancer incidence from occupational exposures than non-Hispanic/Latino white men.⁽³⁾
- Compared with the general Hispanic/Latino population, California Hispanic/Latino farm workers 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.⁽²⁷⁾
- 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.⁽²⁸⁻³⁰⁾
- Women employed in the paper and pulp industry have shown increased rates of ovarian, lung and bladder cancer.⁽³¹⁾
- Blue-collar women exposed to solvents in the chemical and pharmaceutical industries experience increased risk of breast cancer.⁽³²⁾

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