



What is the Impact on Indiana Residents?

Table 9. Burden of Invasive Lung Cancer — Indiana, 2008–2012

	Average number of cases per year (2008–2012)	Rate per 100,000 people* (2008–2012)	Number of cases (2012)	Rate per 100,000 people* (2012)
Indiana Incidence	5,167	73.9	4,674	65.4
Indiana Mortality	4,006	57.5	3,958	55.7

* Age-adjusted

Source: Indiana State Cancer Registry

LUNG CANCER

Bottom Line

Lung cancer is the leading cause of cancer deaths in the US and Indiana, killing over 158,000 Americans and approximately 4,000 Indiana residents each year. The American Cancer Society (ACS) estimated that 5,510 Indiana residents will be diagnosed with lung and bronchus cancer and 4,060 are expected to die because of the disease during 2015.¹ If all tobacco smoking were stopped, the occurrence of lung cancer would decrease by an estimated 90 percent²; however, in Indiana, 21.9 percent of adults continue to smoke tobacco, placing them at great risk for developing lung and other types of cancer.³

Who Most Often Gets Lung Cancer?

- **Smokers.** Smoking accounts for 87 percent of lung cancer deaths and at least 30 percent of all cancer deaths. Lung cancer mortality rates are about 23 times higher for current male smokers and 13 times higher for current female smokers when compared to people who have never smoked.⁴ Over one million (21.9 percent) adults in Indiana are current smokers, and Indiana's adult smoking rate remains among the highest in the nation (median adult smoking rate in the US was 19 percent in 2013).⁵
- **Individuals exposed to secondhand smoke.** Each year, an estimated 50,000 American and 1,240 Indiana resident non-smokers die from exposure to secondhand smoke (smoke breathed in involuntarily by someone who is not smoking).⁴
- **Individuals exposed to other cancer-causing agents.** Exposure to asbestos, radon, arsenic, talc, vinyl chloride, coal products, and radioactive ores, like uranium, can

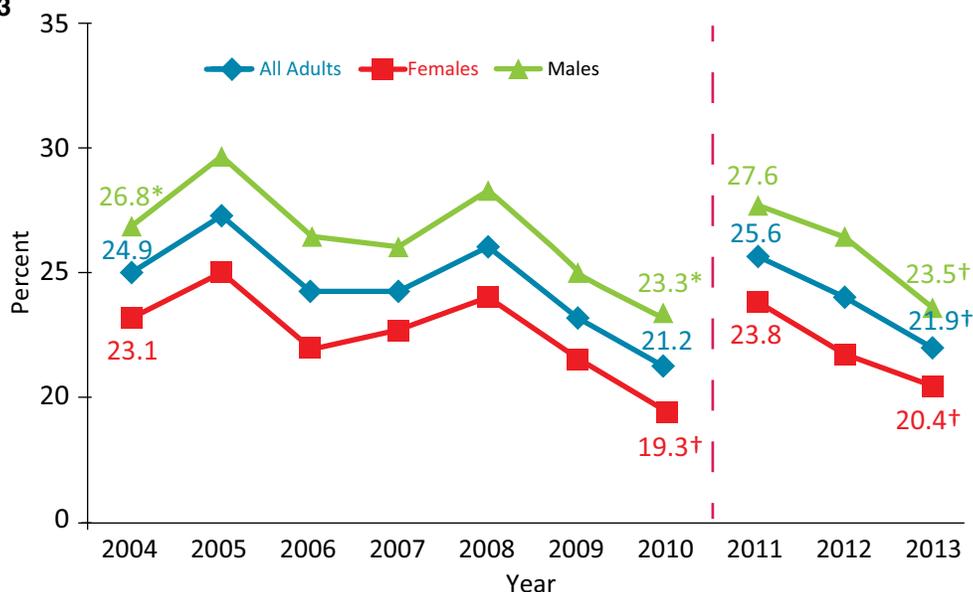
increase risk for developing lung cancer, especially if they also smoke tobacco. Radon is a naturally occurring gas that comes from rocks and dirt and can get trapped in houses and buildings. It cannot be detected by smell, taste, or sight. The Environmental Protection Agency reports radon as the cause of 20,000 cases of lung cancer each year, making it the second leading cause of lung cancer behind smoking.⁹

- **Males, especially African American males.** During 2008–2012, Indiana males, compared to females, had a 50 percent greater lung cancer incidence rate (91.3 versus 61.0 cases per 100,000 people, respectively) and a 69 percent greater mortality rate (75.1 versus 44.5 deaths per 100,000 people, respectively). This is mainly because a higher percentage of males have been smokers compared to females. In 2013, 23.5 percent of adult males and 20.4 percent of adult females reported being current smokers [Figure 21].³ African American males in Indiana have approximately 17 percent greater incidence and 20 percent greater lung cancer mortality rates than do white males [Figure 22].

Can Lung Cancer Be Detected Early? — see the “Be Aware” box for additional information

Findings from the National Cancer Institute's National Lung Screening Trial established screening with the use of low-dose computed tomography in specific high-risk groups has been shown to be effective in reducing mortality from lung cancer. Individuals at high-risk are defined as those ages 55 to 74 who have a minimum 30 pack per year tobacco smoking history, who currently smoke, or have quit within the past 15 years.

Figure 21. Percent of Indiana Residents, Ages 18 Years and Older, who Reported Being Current Smokers — Indiana, 2004–2013



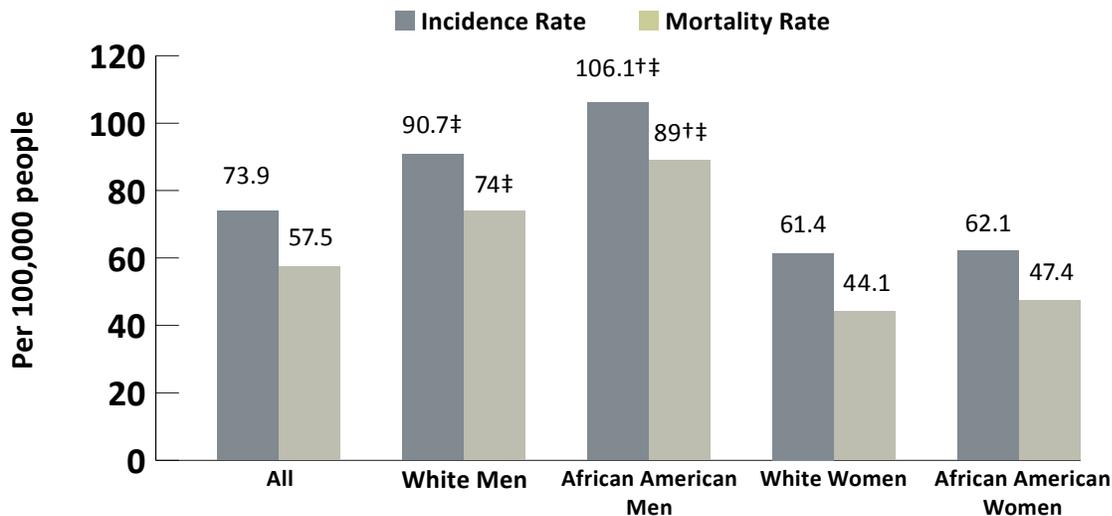
* Significantly higher ($P < .05$) compared to females for same year

† Significantly lower ($P < .05$) compared to first year of data in trend line

Due to a change in BRFSS weighting methodology and the inclusion of cell phone individuals, results from 2011 and forward are not directly comparable with previous years.

Source: Indiana Behavior Risk Factor Surveillance System

Figure 22. Lung Cancer Incidence and Mortality (Death) Rates by Race and Sex* — Indiana, 2008–2012



* Age-adjusted

† Significantly elevated ($P < .05$) compared to white males

‡ Rate among males is significantly higher ($P < .05$) than rate among females of the same race

Source: Indiana State Cancer Registry

What Factors Influence Lung Cancer Survival?

Lung cancer is often diagnosed at a later stage, which negatively impacts a person's odds of survival. The five-year survival rate is highest (54 percent) if the lung cancer is diagnosed when it is confined entirely within the lung (*i.e.*, localized)⁶; however, in Indiana, during 2008–2012, only 18.7 percent of lung cancers were diagnosed during this stage [Figure 23].

The one-year relative survival rate for lung cancer increased from 35 percent during 1975–1979 to 42 percent during 2002–2005, largely because of improvements in surgical techniques and combined therapies. However, the five-year survival rate for all stages combined is currently only 16 percent. The five-year survival for small cell lung cancer (6 percent) is lower than that for non-small cell lung cancer (18 percent).⁷

Treatment options are determined by the type (small cell or non-small cell) and stage of cancer, and include surgery, radiation therapy, chemotherapy, and targeted therapies such as bevacizumab (Avastin) and erlotinib (Tarceva). For localized

cancers, surgery is usually the treatment of choice. Because the disease has usually spread by the time it is discovered, radiation therapy and chemotherapy are often used, sometimes in combination with surgery.

REFERENCES

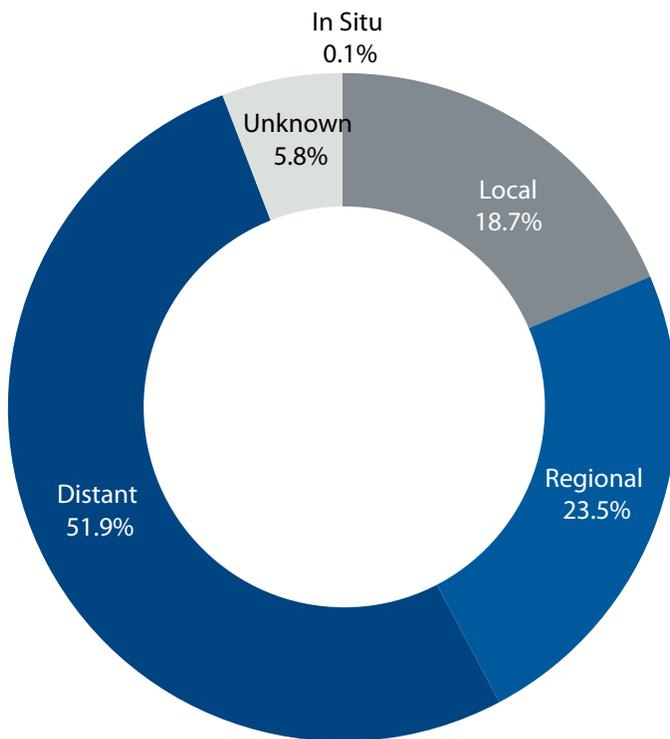
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BE AWARE!

Common Signs and Symptoms of Lung Cancer

- Persistent cough
- Sputum streaked with blood
- Chest pain
- Voice changes
- Recurrent pneumonia or bronchitis
- Smokers should have an open conversation with their healthcare providers about the risks and benefits of lung cancer screening.

Figure 23. Percent of Lung Cancer Cases Diagnosed During Each Stage* — Indiana, 2008–2012



During 2008–2012, of the 25,859 Indiana residents who received a diagnosis of in situ or invasive lung cancer, 4,861 (18.8 percent) were diagnosed in the in situ or local stage, 19,498 (75.4 percent) were diagnosed in the regional or distant stage, and 1,500 (5.8 percent) had unknown staging.

* Includes invasive and in situ cases

Source: Indiana State Cancer Registry

⁸ Centers for Disease Control and Prevention. *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*. Atlanta: US Department of Health and Human Services, CDC, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006. www.surgeongeneral.gov/library/secondhandsmoke/. Accessed Dec 21, 2011.

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¹⁰ Centers for Disease Control and Prevention. *2014 Surgeon General's Report: The Health Consequences of Smoking—50 Years of Progress*. <http://www.surgeongeneral.gov/library/reports/50-years-of-progress/full-report.pdf>. Accessed Mar 14, 2014.

¹¹ State Tobacco Activities Tracking and Evaluation (STATE) System. Centers for Disease Control and Prevention; [Accessed April 1, 2011]. <http://www2.cdc.gov/nccdphp/osh/state>, Smoking cessation: the economic benefits. Potential costs and benefits of smoking cessation for Indiana. American Lung Association; [Accessed July 7, 2011]. <http://www.lungusa.org/stop-smoking/tobacco-control-advocacy/reports-resources/cessation-economic-benefits/states/indiana.html>.

TAKE CHARGE!

What You Can Do to Help Prevent Lung Cancer

- Be tobacco-free. Quitting tobacco smoking substantially decreases your risk of developing lung cancer along with ten other types of cancer, exacerbation of asthma in adults, cardiovascular disease, and chronic obstructive pulmonary disease (COPD) among many other diseases.¹⁰ Smokers who quit, regardless of age, live longer than people who continue to smoke.⁴ Visit QuitNowIndiana.com for free, evidence-based smoking cessation assistance.
- Avoid all secondhand smoke exposure.

TAKE CHARGE!

What the Community Can Do to Help Prevent Lung Cancer

- Implement comprehensive smoke-free air policies and higher taxes on tobacco products.
- Sustain tobacco control program funding to help reduce smoking rates and lessen the burden of tobacco use in Indiana. Annually, tobacco use costs the state over \$2 billion in health care costs, including approximately \$487 million in Medicaid payments alone.¹¹
- Support the continued adoption of smoke-free workplaces. The United States Surgeon General has concluded that smoke-free workplace policies are the only effective way to eliminate exposure to secondhand smoke in the workplace and lead to less smoking among workers.⁸
- Support health care provider outreach efforts that help decrease tobacco use initiation, consumption and increase quit attempts.