Pollution may shorten lung cancer patients' lives, research shows

**[Denis Campbell](https://www.theguardian.com/profile/deniscampbell) Health policy editor**

Friday 5 August 2016 00.01 BSTLast modified on Friday 5 August 2016 02.54 BST

US study of people with early-stage disease adds to evicence about the health impact of airborne toxins

Air pollution may shorten the life of people who are suffering from lung cancer, researchers have found.

The findings, which add to growing evidence about the health impact of airborne toxins, show that those diagnosed with early-stage lung cancer are most at risk of an early death. That applies in particular to people with adenocarcinoma, the commonest form on non-small cell lung cancer, which accounts for 80% of cases of the disease.

The findings come from US medical research that examined the health outcomes until late 2011 of 352,000 people in California who were diagnosed with lung cancer between 1988 and 2009.

Those with early stage [lung cancer](https://www.theguardian.com/healthcare-network/2014/oct/22/lung-cancer-improving-treatment-screening) survived for an average of 3.6 years, but that fell to 2.4 years for those who had been exposed to high levels of particulate matter.

Overall, for patients with early-stage disease, the risk of death from any cause was 30% greater for exposure to nitrogen dioxide, 26% for larger particulate matter and 38% higher for exposure to smaller particulate matter.

The chances of those diagnosed early being alive five years later was 30% for those exposed to the highest levels of air pollution compared with 50% among those who had suffered the least exposure, according to the findings, which are reported on Friday in the medical journal Thorax.

The team could not state conclusively that air pollution led to early death in such patients, but said the findings were clinically significant and suggested that reducing exposure to air pollution could improve someone’s chances of surviving the disease.

About 40,000 people a year in the UK die early as a result of air pollution, according to a report this year from the medical royal colleges, which represent hospital doctors and specialists in children’s health. Professor Jonathan Grigg, one of the co-authors, said the evidence was now clear that emissions from traffic and factories increased the risk of heart disease and lung conditions.

The government says that young people in good health are unlikely to suffer health harm from moderate air pollution, but that exposure to high levels or prolonged exposure can have more serious consequences, especially those with lung or heart problems.

Professor Michael Peake, an expert in respiratory medicine at Leicester University, said the life-shortening impact of air pollution the research revealed could undermine the benefits of campaigns to increase public awareness of lung cancer and promote earlier diagnosis.

“This work suggests that high levels of air pollution are likely to significantly reduce the impact of such efforts on the numbers of people who eventually die of lung cancer, even if detected early, Peake said. “It adds significant weight to the urgent need for more strenuous efforts to reduce air pollution.”

Paul Pharoah, however, a professor of cancer epidemiology at Cambridge University, said the study had found only a modest association between the amount of exposure to nitrogen dioxide, small particulate matter and very small particulate matter and the risk of lung cancer patients dying. “The observed association is quite clear, but association does not necessarily mean causation,” he said.