

# Health Impacts of Mountaintop Removal Coal Mining



## Health Impacts Are Harmful & Costly

Volumes of scientific evidence and data illustrate the harm to human health from exposure to dust and numerous toxins released into the air and water by surface mining. In the last two years alone, peer-reviewed studies by Dr. Michael Hendryx and others have demonstrated that:

- **people living near mountaintop mining have cancer rates of 14.4% compared to 9.4% for people elsewhere in Appalachia;**
- **the rate of children born with birth defects is 42% higher in mountaintop removal mining areas;**
- **the public health costs of pollution from coal operations in Appalachia amount to a staggering \$75 billion a year.**

These findings are consistent with an earlier account of health impacts related to mountaintop mining, "Mountaintop Mining Consequences," published in the journal *Science* in January 2010. According to that study:

*[G]roundwater samples from domestic supply wells have higher levels of mine-derived chemical constituents than well water from unmined areas. Human health impacts may come from contact with streams or exposure to airborne toxins and dust. State advisories are in effect for excessive human consumption of [Selenium] in fish from MTM/VF affected waters. Elevated levels of airborne, hazardous dust have been documented around surface mining operations. Adult hospitalizations for chronic pulmonary disorders and hypertension are elevated as a function of county-level coal production, as are rates of mortality; lung cancer; and chronic heart, lung, and kidney disease. Health problems are for women and men, so effects are not simply a result of direct occupational exposure of predominantly male coal miners.*

## Selected List of Recent Health & Cost Studies

- "Self-Reported Cancer Rates in Two Rural Areas of West Virginia with and without Mountaintop Coal Mining." *Journal of Community Health*. July 2011. Michael Hendryx, et al.
- "Health-Related Quality of Life Among Central Appalachian Residents in Mountaintop Mining Counties." *American Journal of Public Health*. May 2011. Keith J. Zullig and Michael Hendryx.
- "The Association between Mountaintop Mining and Birth Defects among Live Births in Central Appalachia, 1996–2003." *Environmental Research*. May 2011. Melissa M. Ahern, et al.
- "Full Cost Accounting for the Life Cycle of Coal." *Annals of the New York Academy of Science*. February 2011. Paul R. Epstein, et al.
- "Chronic Cardiovascular Disease Mortality in Mountaintop Mining Areas of Central Appalachian States." *The Journal of Rural Health*. 2011. Laura Esch and Michael Hendryx.
- "Ecological Integrity of Streams Related to Human Cancer." *EcoHealth*. April 2010. Timothy P. Hitt and Michael Hendryx.
- "Mountaintop Mining Consequences." *Science*. January 2010. Margaret Palmer, et al.

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**BEVERLY MAY** – Floyd County. “Sometimes [my water] runs visibly colored from the tap and leaves a bright orange ring on the tub. This usually happens when the creeks nearby, which drain from valley fills, run orange with iron and aluminum hydroxides which line the creek with sludge and smother any living thing in it. But my water doesn’t come from a well; it is treated public water from a plant at the mouth of Beaver Creek, an area of Floyd County, Kentucky, that has seen extensive surface mining for over 50 years. And everyone else, the thousands of people who live on Beaver Creek, drink, cook, bathe and water their gardens in the same water.” Statement to the U.S. EPA. August 18, 2011.

Over the past two years, nearly 20 peer-reviewed scientific studies have been published documenting the impact of coal production, including large scale surface mining, in Central Appalachia on human health. The information below contains highlights from just three of these studies.

## Increased Birth Defects

A May 2011 study in the journal *Environmental Research* found a significant elevation in most types of birth defects among babies born to mothers who lived in a county with mountaintop mining during pregnancy, compared with other counties in Appalachia. The study looked at two periods of time, 1996-1999 and 2000-2003, and showed that the **overall rate of birth defects was 13% higher in the earlier period, and increased to 42% higher in the later period**. The report concludes that disparities in birth defects have become more pronounced as mountaintop mining has expanded.

“This study shows that places where the environment – the earth, air and water – has undergone the greatest disturbance from mining are also the places where birth defect rates are the highest,” said Dr. Ahern. “This is evidence that mountaintop mining practices may cause health impacts on people living in those areas, before they are even born.”

## Increased Cancer Rates

A July 2011 study went door to door in West Virginia and found cancer rates significantly higher in a community exposed to mountaintop removal mining compared to a non-mining community. The **cancer rate** in a central Appalachian county without mountaintop removal mining was 9.4%, compared to a rate of **14.4% in a county with mountaintop removal**. Among the 1.2 million American citizens living in mountaintop removal mining counties in central Appalachia, this 5% difference would translate to an **additional 60,000 cases of cancer** linked to strip-mining practice.

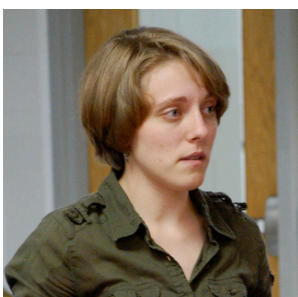
“This significantly higher risk was found after controlling for age, sex, smoking, occupational exposure and family cancer history. The study adds to the growing evidence that mountaintop mining environments are harmful to human health,” said the study’s author, Dr. Michael Hendryx.

## High Monetary Costs

A February 2011 study by Dr. Paul Epstein details the economic, health and environmental costs associated with each stage in the life cycle of coal. In terms of human health, the report estimates **\$74.6 billion a year in public health burdens in Appalachian communities**, with a majority of the impact resulting from increased healthcare costs, injury and death.

The yearly and cumulative costs from the mining, processing, transport, and combustion of coal affect individuals, families, communities, ecological integrity, and the global climate.

Dr. Epstein says: “The public is unfairly paying for the impacts of coal use. Accounting for these ‘hidden costs’ doubles to triples the price of electricity from coal per kWh, making wind, solar, and other renewable[s] very economically competitive. Policymakers need to evaluate current energy options with these types of impacts in mind.”



**IVY BRASHEAR** – Perry County. “All anyone living in Appalachian Kentucky has to do to confirm the results is look around their hollers at all the cases of rare cancers, heart troubles, kidney disorders, lung diseases and, yes, even birth defects. But this new study, based on 1.8 million actual birth records, does not concern the living. We have at least some small choice in where we live, the water we drink and the air we breathe. The unborn, however, have no choice. Though I know no one asks to be slowly poisoned with carcinogens and heavy metals from the land, air and water, it just seems completely and unbelievably criminal for coal companies to stunt Appalachian Kentuckians’ health before they are even born.” *Lexington Herald Leader* op-ed. July 3, 2011.