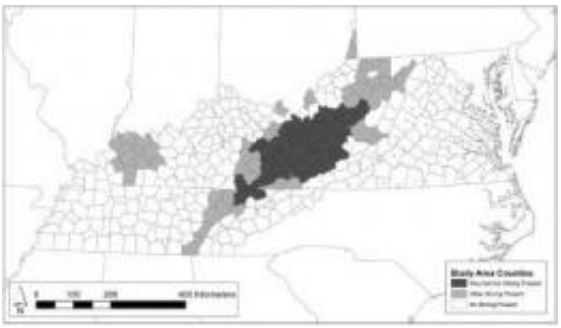
Large numbers of birth defects seen near mountaintop mining operations

23 June 2011



Mountaintop mining is concentrated in four central Appalachian states. Credit: Melissa Ahern

Birth defects are significantly more common in areas of mountaintop coal mining and are on the rise as the practice becomes more common, according to a study by researchers at Washington State University and West Virginia University.

The researchers, led by Melissa Ahern, health economist and associate professor in WSU's College of Pharmacy, found 235 birth defects per 10,000 births where mountaintop mining is most common in four central Appalachian states. That's nearly twice the rate of 144 defects per 10,000 in non-mining areas.

Previous studies have found low birth weights and increased levels of adult disease and death in coal mining areas. This study offers one of the first indications that health problems are disproportionately concentrated specifically in mountaintop mining areas.

The findings "contribute to the growing evidence that mountaintop mining is done at substantial expense to the environment, to local economies and to human health," the authors conclude in the current issue of the peer-reviewed journal, *Environmental Research*.

The study is based on an analysis of more than 1.8 million birth records between 1996 and 2003. It compared the incidence of birth defects in mountaintop mining areas, other mining areas and areas without mining.

Mountaintop mining involves using explosives to remove ridges and deposit the rock and soil in nearby valleys. More than 2,700 mountain ridges, as well as thousands of rivers, have been destroyed or altered by the technique in portions of eastern Kentucky, eastern Tennessee, southern West Virginia, and southwestern Virginia. Peer-reviewed research has documented elevated levels of pollutants in these areas, including mercury, lead, and arsenic.

Driven by an increased demand for the fuel, including cleaner low-sulfur coal, this type of mining increased 250 percent between 1985 and 2005.

The study found counties in and near mountaintop mining areas had higher rates of birth defects for five out of six types of birth defects, including circulatory/respiratory , central nervous system, musculoskeletal, gastrointestinal, and urogenital defects. These defect rates became more pronounced in the more recent period studied, 2000-2003, suggesting the health effects of mountaintop mining-related air and water contamination may be cumulative.

Residents of the region tend to have less education, less prenatal care, more smoking and more alcohol use during pregnancy. But after controlling for socioeconomic and behavioral risks, the researchers still found residents in mountaintop mining areas had significantly higher rates of birth defects.

Provided by Washington State University