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Concerns Regarding Mapping Mortality Reports in Post –Gazette

A review of the analysis and data used in the Post-Gazette series “Mapping Mortality” raises very serious concerns about the accuracy of the conclusions drawn regarding the alleged need for drastic steps to address air quality.

The data used in the reports are available on the internet as are interactive maps showing deaths from three causes of death for the period 2000 to 2008 for all municipalities in 14 southwest Pennsylvania counties. The maps and data are found at http://multimedia.postgazette.com/mappingmortality/maps_mortality/default.asp

There are four major points to be made.

First, the so-called 14,635 “excess deaths” in the region resulting from three causes of death during the period 2000 through 2008 are highly suspect. Excess deaths are derived by applying national mortality rates to local populations to obtain “expected deaths”. Expected deaths are then subtracted from actual deaths to obtain excess deaths. The three causes of death examined are heart, respiratory and lung cancer. These are claimed by the reports to be “associated” with air quality.

Of the 14,635 excess deaths in the 14 counties over the period studied, 12,530 (86 percent of total excess deaths) are heart related deaths. This raises a question. Surely, there are a large number of factors affecting heart deaths besides air pollutants. Beyond the questionable assumption that all excess heart deaths are associated with poor air quality, the authors of the study failed to recognize or take into account the sharp decline in heart deaths after 2004-05. Indeed, if the last four years data (2005, 2006, 2007, and 2008) are used to re-calculate excess heart deaths, the number falls from 12,530 to 5,008. If the last three years of data on deaths from heart diseases (2006, 2007, and 2008) are used, excess heart deaths decline to 3,537. That would drop the 14,635 excess deaths to around 5,500. At that level, problems with data accuracy could explain the preponderance of the excess deaths.

Interestingly, the excess deaths from lung cancer fell from 589 to 379 while excess deaths from respiratory causes rose slightly from 1,516 to 1,696. Taken together there is virtually no change. In any case the count is very low compared to the heart deaths.

Second, if one examines the excess death rate map for municipalities for heart related deaths the pattern of municipalities with low or very low deaths (below expected deaths if national mortality rates prevailed) interspersed with municipalities with high excess deaths calls into question whether the claim of air quality effects on mortality is defensible. There are very low death count municipalities adjacent to very high death count municipalities. The geographic distribution of the high and low death rate in the municipalities raises significant doubts as to whether air quality could be the principal—or even a substantial—cause of heart related deaths in the municipalities.

The excess death map for respiratory diseases also raises questions. Clearfield County has the greatest concentration of extremely high death rates but has only three widely scattered factories and one power plant whose location cannot explain the pattern of municipal deaths from respiratory causes. Greene County has significant numbers of high death municipalities and no power plants. Could coal mining be a major factor rather than air pollutants?

Third, ironically, as far as lung related deaths are concerned, southwestern Pennsylvania counties are among the better areas in the country according to the web site www.worldlifeexpectancy.com. The site shows death rates for U.S. counties for the period 2003 to 2007. On this site, data indicate 10 of the 14 studied counties have lung related death rates per 100,000 people that are below the U.S. average.

Fourth, a concern that cannot be researched using the data available on the Post-Gazette site involves the methodology used to calculate “expected deaths.” It is not clear the P-G methodology allows for declining populations or shifting demographic distributions over the last decade. Nor does the analysis take into account socio-economic factors that could be far more important than air quality in explaining excess deaths or the absence of excess deaths in many municipalities, especially when the highs and lows are frequently and inexplicably adjacent to each other.

In sum, the Post Gazette’s representation of their work as demanding immediate action to reduce excess deaths that might be associated with air quality is excessively alarmist and needs to be subjected to further scrutiny by researchers who are not pushing any agenda. Certainly, County officials ought to ask state officials and organizations who are demanding immediate dramatic steps be taken to wait until a proper vetting of the “Mapping Mortality” report has been carried out.

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