



**ALLEGHENY INSTITUTE**  
FOR PUBLIC POLICY

*Air Quality in Southwestern Pennsylvania:  
A Debate between the Allegheny Institute  
and the Heinz Endowments*

*Allegheny Institute for Public Policy*

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## Introduction

Is the air quality in southwestern Pennsylvania below the standards set by the EPA?

According to the Heinz Endowments, it is. The organization commissioned a report “Fine Particulate Matter (PM<sub>2.5</sub>) and Ozone (O<sub>3</sub>) Air Quality in Western Pennsylvania in the 2000s”. They feel that where there has been improvement in air quality, it has been slower than the pace of improvement nationwide. The report was released March 9, 2011.<sup>1</sup> The report link is shown below.

We responded to this report in a *Policy Brief* on March 25<sup>th</sup> (*Volume 11, Number 19*). That *Brief* made two important points. One, the labeling of the Pittsburgh region as having very poor air quality is based on four monitors that are located at just two sites in the large southwest corner of Pennsylvania. Two, we noted that, “a very big problem for the ozone readings is the fairly narrow range of the data over much of the country. Thus, designating large geographic areas as being unhealthy based on a small fraction of monitors who surpass the EPA’s limit (and only one significantly) is a disservice to the communities affected and does little to actually focus attention on the one monitor area where remediation actions might be undertaken.”

Nearly a month later the Heinz Endowments responded to our *Brief* with a news release titled “Let the Breather Beware!” which accused the Institute of implying that “only residents in several communities need be concerned about the air they are breathing”.

In response to that release we offered a rebuttal. Each of the documents is included in the following report.

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<sup>1</sup> Heinz Endowments, Fine Particulate Matter (PM<sub>2.5</sub>) and Ozone (O<sub>3</sub>) Air Quality in Western Pennsylvania in the 2000s”. ([http://www.heinz.org/UserFiles/Library/2011-air\\_quality-research.pdf](http://www.heinz.org/UserFiles/Library/2011-air_quality-research.pdf))

# ***POLICY BRIEF***

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## **Another View of Heinz Endowments' Air Quality Findings**

In a report<sup>2</sup> released March 9, the Heinz Endowments presented a very negative picture of air quality in the Pittsburgh region. Two of their key assertions need close examination.

First this statement, in referring to particulate matter as measured by PM<sub>2.5</sub> (particles less than 2.5 micrometers measured in micrograms per cubic meter) and ozone, “Despite significant improvement, air quality has remained poor throughout the last decade in Pittsburgh and the surrounding region.” Second, “People in the region may be dying prematurely from harmful levels of air pollution.”

Note that the surrounding region beyond Allegheny County includes Lawrence, Butler, Armstrong and Greene counties—where there are no particulate matter monitors—as well as Washington and Westmoreland counties, where all the monitors show readings below the EPA standard for annual average concentration of 15 micrograms per cubic meter.

In Allegheny County, the monitors in North Braddock and Liberty Borough had annual average PM<sub>2.5</sub> readings above 15 micrograms (19.6 and 15.47 respectively in 2008). The Liberty monitor is very near the Clairton Coke plant and is set up specifically to keep tabs on the air quality near the facility, which on occasion can see spikes in particulates if there is an accident or thermal inversion.

In Beaver County, one of the monitors at Eight Street and River Alley registered an annual average reading of 15.18 micrograms per cubic meter while the second monitor at the same location registered 14.42 micrograms. Both measurements are taken as indicators of pollution levels rather than being averaged, even though they are physically quite close together. The two monitors point out a problem. The accuracy of monitors is not what one would expect after all the years of development. A 6 percent difference in annual averages could actually be hiding a much wider range of reading differences day to day, with some errors offsetting each other.

So here's the bottom line. Washington and Westmoreland are labeled as non-attainment areas even though monitor readings in those counties are within Federal limits. Lawrence, Butler, Armstrong and Greene are labeled non-attainment with no readings in the counties. Allegheny

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<sup>2</sup> “Fine Particulate Matter (PM<sub>2.5</sub>) and Ozone (O<sub>3</sub>) Air Quality in Western Pennsylvania in the 2000s”

County is a non-attainment area because of over-the-limit particle concentrations at monitors in North Braddock and Liberty Borough, especially Liberty Borough. Fair enough for that immediate area.

But what of South Fayette in Allegheny County where the monitor readings fall well below (11.46) the 15 microgram per cubic meter standard? If South Fayette air is unsafe to breathe, then so is the air in large areas of virtually every state east of the Mississippi that have *not* been declared non-attainment areas. Only New England, excluding Connecticut, and Florida have substantially lower particulate matter concentrations than South Fayette. This would also hold true for several states west of the Mississippi including Texas and Missouri. In short, an entire region has been declared to have unsafe air because of a couple of monitors in fairly small area of Allegheny County and one in Beaver County.

Moreover, as for the ozone problem, bear in mind that, of 1198 ozone monitors in the continental U.S. in 2008, (the latest posted EPA data), 378 failed to meet the current 0.075 ppm 8hr average standard. Four of the 13 monitors in the Pittsburgh region registered levels above 0.075. However, only one (Harrison City) recorded a reading above the previous long standing limit of 0.080 ppm. Yet, the entire Pittsburgh seven county metro area has been declared a non-attainment area.

Amazingly, 508 monitors across the country in 2008 had 8hr average readings of 0.07 to 0.08 ppm. That is to say over 60 percent of all monitors were either above the EPA limit or within 0.005 ppm (6.6 percent) of the limit. Likewise, over 80 percent of the monitors posted measurements were above the limit or within 0.01 ppm (13 percent) of the limit. So, unless one lives near a monitor that has well above the old limit of 0.08 ppm, say in San Bernardino, CA, at 0.110 ppm, chances are, whether the local reading is 0.078 ppm or 0.073 ppm, it is unlikely one would notice much, if any, difference in air quality.

A very big problem for the ozone readings is the fairly narrow range of the data over much of the country. Thus, designating large geographic areas as being unhealthy based on a small fraction of monitors who surpass the EPA's limit (and only one significantly) is a disservice to the communities affected and does little to actually focus attention on the one monitor area where remediation actions might be undertaken. But the larger point is that setting arbitrary standards such as 0.075 ppm when such a large fraction of all readings lie within 0.01 ppm of the standard makes the cutoff highly suspect and inefficient in conveying any meaning or policy guidance.

Finally, the Heinz Endowments report's finding that Pittsburgh air quality "may" be leading to premature deaths is unworthy of serious researchers. Unless the authors include evidence that points with reasonable certainty towards the assertion that premature deaths are the result of the region's air quality they should never put the statement in the report.

A recent *Policy Brief (Volume 11, Number 3)* debunked and refuted claims made in the Post-Gazette that premature heart and lung related deaths in the region could be tied statistically to the region's air quality. The *Brief* raised three major questions the Heinz report would have done well to consider. First, why was the sharp drop in heart related deaths over the period 2000 to 2008 ignored? Taking that phenomenon into account substantially reduces the "premature"

death calculation to levels that could easily be explained by a myriad of factors unrelated to air quality.

Second, the *Brief* asked how death rates in municipalities showed so little correlation to their proximity to pollution sources. And third, for the period 2003 to 2007, actual lung related deaths per 100,000 people were lower in 10 of the 14 western Pennsylvania counties studied by the Post-Gazette than the U.S. average death rate.

In summary, the Heinz Endowments report sheds no new light on the region's air quality situation and by using hyperbolic rhetoric to describe the region's air quality they have garnered a couple days news coverage while demeaning a lot of communities whose air is as good as most of the eastern seaboard. And by needlessly and carelessly raising the specter of premature deaths the report goes too far.

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**Jake Haulk, Ph.D., President**

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[www.alleghenyinstitute.org](http://www.alleghenyinstitute.org)*

Let the Breather Beware!<sup>3</sup>

***Sound science and human health are casualties in a local public policy group's attack on the latest study of the region's air quality***

Last month, we at The Heinz Endowments released "[Clearing the Haze](#)," an independent study of the region's air quality commissioned to the Clean Air Task Force, an internationally respected, science-based nonprofit. The report, "[Fine Particulate Matter and Ozone Air Quality in Western Pennsylvania in the 2000s](#)," was based on a six-month examination of years of federal, state and Allegheny County data. It showed that, despite some marked improvement, the Pittsburgh region has not kept up with the pace of improvement in most other regions and still has some of the most polluted air in the country.

The report confirms findings from previous air quality studies in the Pittsburgh region that particulate matter pollution levels put residents at much higher risk for life-threatening illnesses than nearly all other regions across the country.

One organization that regularly can be counted on to challenge regional air quality studies is the [Allegheny Institute for Public Policy](#). The local research center has taken aim at the Endowments' study, arguing that the region as a whole does not have a bad air problem. According to the [institute's review](#), only residents in several communities need be concerned about the air they are breathing.

Our report's conclusion that the region's poor air quality is responsible for premature deaths is challenged by institute reviewers as "unworthy of serious researchers. Unless the authors include evidence that points with reasonable certainty toward the assertion that premature deaths are the result of the region's air quality they should never put the statement in the report." The implication of the institute reviewers' charge is that particulate matter pollution doesn't kill people.

This is a complete denial of a mountain of evidence from numerous medical studies conducted by some of the country's leading health research institutions establishing the negative health effects associated with particulate matter pollution. Some examples: A [1993 mortality study](#) (with subsequent follow-ups going through 2006) by Harvard University identified long-term health effects from particulate matter pollution in six American cities; and a [1995 American Cancer Society mortality-morbidity study](#) (with subsequent follow-ups through 2009) documented long-term health effects by following more than 1 million subjects in 100 U.S. metropolitan areas. Also, a [2006 Journal of the Air & Waste Management Association review of key studies](#) reaffirmed that exposure to fine particulate air pollution has adverse effects on cardiopulmonary health.

In the area of health issues stemming from ozone pollution, a [2004 epidemiologic investigation of 12 southern California communities](#) with differing levels and types of pollution established effects on children's lung function, asthma exacerbations and school absences. The study was published in the American Journal of Respiratory and Critical Care Medicine. Another investigation from 2005 examined [the effects of ozone exposure on mortality, and was reported in the journal Epidemiology](#).

These are just a few among the hundreds of peer reviewed studies stretching back four decades citing these pollutants as contributors to serious health issues. Links have been established across many cities and in varying concentrations. The relationship between particulate levels and chronic, life-threatening illness was questioned by industry in the 1990s, reviewed by independent experts and confirmed.

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<sup>3</sup> Heinz Endowments News Release, April 27, 2011  
([http://heinz.org/about\\_news\\_detail.aspx?NewsID=168&Page=1&YearDate=2011](http://heinz.org/about_news_detail.aspx?NewsID=168&Page=1&YearDate=2011))

In Pennsylvania, several thousand premature deaths occur each year, according to Environmental Protection Agency estimates developed through a methodology reviewed by the National Academy of Science.

The Allegheny Institute's review inexplicably ignores this science and the record. It also glosses over another key scientific finding established through these studies: There is no identifiable threshold at which particulate matter pollutants are deemed harmless to human health. That means that even at pollution levels below the current federal standards, there are negative health effects.

No wonder then that the institute goes on the defensive and commits errors in challenging the accuracy of monitors that measure pollution in the region. The Endowments' study establishes that six of 11 monitors register in the worst 10 percent of all monitors in the country for particulates. The measurements show that the region has some of the highest particulate pollution levels in the country – and that this is a chronic problem.

Most alarming is the prospect that the region will fall even farther behind when tighter limits recommended by the EPA's Clean Air Scientific Advisory Committee eventually are promulgated. In this respect, the institute review agrees with a recommendation in the Endowments' report: More data on the state of the region's air is needed. There must be a more extensive network of monitors in the region to supply that critically important information.

Much in the institute's review falls far short of the scientific and analytic rigor that its donors and the public have a right to expect. In its fierce devotion to an [anti-regulatory ideology](#), the institute effectively adopts a “let the breather beware” position on air pollution.

This orientation continues even as fresh evidence continues to be added to the record. A year-long investigation by the Pittsburgh Post-Gazette into air pollution's contribution to mortality rates throughout southwestern Pennsylvania, led to an [eight-part series](#) of stories published in December.

A [new study](#) released earlier this month by PennEnvironment, a statewide environmental group, found that Pennsylvania's coal-fired power plants emit more unhealthy smog producing pollution than any state except Texas. The report found that in 2009, Pennsylvania's 47 power plants emitted almost 110,000 tons of nitrogen oxides, which mix with other pollutants in the air on warm sunny days to form ground-level ozone, the primary component of unhealthy smog.

The PennEnvironment study underscores a key finding in the Endowments' study – that local pollution sources account for one-half to two-thirds, on average, of particulate matter monitored in the Pittsburgh region, and that the region has the power to dramatically improve its air quality by cleaning up local sources.

Other findings and recommendations from the air quality study that the Endowments and CATF stand behind:

- Air quality relative to the rest of the country has been consistently poor throughout the past decade
- The current amount of pollution in the Pittsburgh region is at the limit of, or greater than, the federal threshold for harm to human health
- Wind-carried pollution from neighboring states is a significant contributor to western Pennsylvania's air problem, but failure to clean up in-state sources prevents the region from improving as fast as other parts of the country
- To better protect human and environmental health, there needs to be a more comprehensive air monitoring system for the region.

To turn these findings into genuine air quality improvement, we at the Endowments already are working with committed individuals on the ground and leaders from many sectors who recognize that cleaning the region's air must be a top priority. These partners come from government, academic-medical research institutions, and most important, industry. We invite the Allegheny Institute to set aside rigid ideology in

favor of an honest examination of how the region's air quality compares to the rest of the country and what that means in terms of danger to human health. We also invite the institute to join us in the region-wide effort to solve this problem, ensuring better future health for residents, a healthier business climate and a brighter economic future.  
Pittsburgh, April 27, 2011

## **Response to Heinz Endowments' Rebuttal of Institute Critique**

There is a useful political adage the writers of the Heinz rebuttal might want to keep in mind. When you are in a hole, stop digging. Their ineffectual attempt to discredit our *Policy Brief* of March 25, 2011 is a tour de force of failure to respond to the central points made in the *Brief* criticizing the Heinz Endowments air quality study released on March 9. Moreover, their rebuttal mischaracterizes one of our criticisms to claim we said something we did not argue and in the process calls attention to a deep flaw in their air quality report.

First, the rebuttal does not address the key argument we made. To wit: There are no particulate matter monitors in Lawrence, Butler, Armstrong or Greene counties and the monitors in Washington and Westmoreland report readings below the 15 micrograms per cubic meter standard for PM<sub>2.5</sub> set by the EPA as being in air quality attainment. Yet these counties are labeled as having very poor air by the Heinz study. Evidence? None is presented.

The rebuttal also claims that 6 of 11 monitors in the region show high levels of PM<sub>2.5</sub>. What the Heinz rebuttal does not tell us is that four of these monitors (the only monitors reporting pollution levels above the EPA attainment standard) are situated in just two locations. Two of the four monitors are at one site in Beaver County near a power plant and two are in close proximity to the Clairton Coke Plant in Allegheny County.

That leaves a lot of territory in Southwest PA where there are no monitors or where the monitors report particulate matter concentrations below the EPA non-attainment standard. The Heinz rebuttal studiously avoids addressing the question we raised in the *Policy Brief* critiquing their report. What about South Fayette in Allegheny County with its particulate concentration reading that falls within the range of most of the area east of the Mississippi? How much of the region is comparable to or superior to South Fayette in air quality as opposed to being in the range of air quality in the immediate vicinity of the Clairton Plant? The Heinz study does not know and cannot know because there are no data to answer this question. Yet they proceed to label the entire region as one of very poor air quality because of non-attainment monitor readings at just two locations that account for a small fraction of the total geographic area. This is comparable to saying the region has a terrible crime problem because there is an elevated level of criminal activity in two small municipalities in Allegheny County. And they claim we are unscientific.

The Heinz rebuttal avoids answering these questions, choosing instead to focus most of its breathless assault on our comment that, “ the Heinz Endowments report’s finding that air quality ‘may’ be leading to premature deaths is unworthy of serious researchers. Unless the authors include evidence that points with reasonable certainty towards the assertion that premature are the result of the region’s air quality they should never put the statement in the report.”

Their attempt to make the Institute appear as though it pays no attention to analytical rigor uses up well over half of its relevant comments excoriating the Institute for claiming particulate matter does not kill people. That is clearly a distortion of the statement in our critique they are so exercised about. The rebuttal says we ignore mountains of evidence from medical studies. This is an entirely predictable response from a party who cannot answer the objection we posed in the March 25 *Policy Brief*. Our objection still stands. The Endowments' rebuttal regales us with a list of studies showing a connection between negative health effects and pollution. The problem for the rebuttal authors is that none of that is in their March 9 report. Not one such study is cited or referenced in the end notes. We, nor any other reader, were ignoring piles of research. It was the authors of the report who did not see fit to present any of the evidence they now want us to consider.

However, the rebuttal does allude to the Post-Gazette study that purports to show large numbers of premature deaths in the region that might be linked to pollution. Why did Heinz not include the P-G evidence in their March 9 report? It was available. Unfortunately, for the Endowment's effort now to use the P-G findings to hammer the Institute, they did not bother to read our Policy Brief in question carefully, or if they did, they did not pay attention to our warning about the shoddy analysis in the Post-Gazette study.

For the Heinz Endowments benefit, we will repeat here the three major flaws in that work. First, most of the premature deaths found by the P-G were heart related. But the P-G neglected to take into account the sharp drop in heart related deaths between 2000 and 2008. If it had done so, most of their calculated premature deaths would have disappeared. Second, the P-G analysts missed or ignored the fact that death rates by municipality showed little correlation with proximity to pollution sources. And finally, the web site [www.worldlifeexpectancy.com](http://www.worldlifeexpectancy.com) shows that for the period 2003 to 2007, actual lung related deaths per 100,000 people were lower in 10 of the 14 counties studied by the Post-Gazette than the U.S. average lung related death rate. So much for Southwest PA being a pollution-caused death trap as depicted in the Post-Gazette reporting. And too bad the Heinz rebuttal did not do more investigation of the Post-Gazette's work before referring to its study.

Beyond that, our comment did not take any position on the issue of whether pollution kills as the rebuttal authors presume to accuse us of doing. We merely and appropriately question their report's gratuitous finding that the region "may" be suffering premature deaths without citing a single study of pollution linked mortality in the region. Apparently, they expected the Heinz Endowments' report readers to have known, read and accepted the long list of national studies the rebuttal cites even though no such studies were mentioned in the report. How presumptuous. Indeed, nothing in the report provides grounds for their claim that premature deaths might be occurring. As they say in courtroom dramas; no foundation has been laid.

Moreover, the Heinz rebuttal does not even attempt to reply to the *Policy Brief* findings regarding the national data on ozone that call into question the merits of the current ozone non-attainment standards.

One has to wonder at the hubris of an organization that is willing to smear an entire region as having dreadful air quality because of two non-attaining particulate matter monitoring locations and is then surprised when questioned about it. What's even worse, rather than go public with a rebuttal, sends a snippy diatribe portraying their questioners as semi-literates to the directors and advisors of the Institute.

Here's a clue for the Heinz Endowments folks. Paying some hotshot consulting firm a lot of money to spend 6 months collecting piles of data is not worth a hill of beans if the data are tortured into giving the client what he wants to hear.

In sum, the rebuttal offered by Heinz is amateurish in that it does not answer the important questions raised in the Institute critique and then resorts to a straw man argument that puts words in our mouths while revealing its own lack of thoroughness in writing the original report. In its effort to characterize the Allegheny Institute as being fierce anti-regulatory ideologues, the Heinz Endowments' rebuttal writer holds up a mirror to fierce ideologues.