

Fact Checking Heinz-Funded Advocacy Paper

A new non-peer reviewed paper – funded by the [Heinz Endowments](#) and posted on a [pay-for-play](#) website – fails by virtually every measure to demonstrate basic and sound research principles. Below are several of the many factors that skew the advocacy paper’s so-called findings.

- ✓ Not peer-reviewed.
- ✓ Uses thoroughly debunked ‘research’ as its basis.
- ✓ Admits that “*a number of unknown factors*” limit the research and that “*associations do not imply causation.*”
- ✓ Launches [an aggressive media blitz](#) this week.
- ✓ Funded by a deep-pocketed group with a long and clear record of financially supporting anti-shale activism.

Disregards Universally-Accepted Medical Definitions, Fails to Provide Critical Context

- It’s odd if not alarming – especially from a credibility perspective – that these researchers do not acknowledge (perhaps intentionally) or at minimum include the widely accepted medical definition of “low(er) birth weight,” which appears 10 times throughout the paper.
- Why is that relevant? According to the [National Institutes of Health](#) (NIH), the standard criterion and definition of low birth weight (LBW) is less than 2,500 grams. Likewise, according to the [Pa. Dept. of Health](#), a baby is born with LBW when its weight is less than 5.5 lbs (2,500 grams) at birth.
- Now consider that in this paper’s highly selective and limited data, the average birth weight in the four quartiles varies from 3,323.1 grams to 3,370.4 grams – *well above the 2,500 gram LBW definition, consistent with NIH and the Pa. Dept. of Health.*
- Per the data presented in this non-peer reviewed paper, *all* segments of their narrow research set – including the segment with the most active shale sites in the closest proximity – have average birth weights that are hundreds of grams *higher* than what is universally accepted as “low birth weight” as defined by NIH and other independent health experts.
- What’s more, according to [KidsHealth.org](#), most babies born between 37 and 40 weeks weigh somewhere between 5 pounds, 8 ounces (2,500 grams) and 8 pounds, 13 ounces (4,000 grams).
- Given the fact that the research is framed around “*the association of proximity to unconventional gas drilling in the Marcellus Shale formation and perinatal outcomes,*” why not matter-of-factly establish such universal terms of measurement and widely accepted baseline averages?
- These baseline averages, of course, fly in the face of the researchers’ narrative that proximity to shale wells implies a correlation to low birth weights. It’s easier to simply move the goal posts and hope that it goes unnoticed, right?

No Baseline Established or Previous Research Trends Noted

- To determine effects and therefore potential causes in any sound research endeavor, it’s crucial to establish baseline and comparative data. Put aside the fact that birth weights in the United States have been on a steady decline, according to [Harvard researchers](#). Why not provide such widely available regional and statewide data, including comparative data analysis of non- and active shale development counties?
- A cursory search on [CountyHealthRankings.org](#), a project led by University of Wisconsin’s School of Medicine and Public Health, of various Pa. counties – including the three counties in this paper as well as others with high drilling levels and several others with little or absolutely no drilling activity – demonstrates no material trends upward or downward in birth weights from 2010 through 2014. This period is yet more relevant given the fact that most shale development activities occurred then – and absolutely far more than the paper’s 2007-2010 data set.
- And why, at minimum, not explore birth weights (*based purely on birth certificate addresses, which doesn’t prove where the mother lived during the pregnancy*) in this period across the entire counties? Do we know if birth weights were lower or higher or generally the same in other regions of those same counties? What were the birth weight statistics and other similar data of women in the region prior to shale development occurring? Isn’t this important – no, crucial – information to establish?
- More broadly, according to the [Pa. Dept. of Health](#), in 2008-2010, rural counties had *lower percentages* of babies born with LBW (<2,400 grams) than urban counties (7.7% and 8.5%, respectively). Drilling and production development-related activities, of course, take place overwhelmingly in rural counties.
- For additional context, [click here](#) to view county-by-county well data.

Key Pa. County Low Birth Weight Data

	ALLEGHENY	BRADFORD	BUTLER	DAUPHIN	LYCOMING	PHILADELPHIA	SUSQUEHANNA	PA AVG.
2010	8.5%	6.7%	6.7%	9.5%	6.9%	11.4%	7.2%	8.1%

2011	8.6%	6.6%	6.8%	9.3%	7.1%	11.5%	6.6%	8.2%
2012	8.7%	6.6%	7.0%	9.1%	7.1%	11.5%	6.8%	8.3%
2013	8.6%	7.0%	6.9%	9.1%	7.0%	11.3%	7.1%	8.4%
2014	8.4%	6.7%	6.9%	9.2%	7.1%	11.3%	7.2%	8.3%

Source: [University of Wisconsin's School of Medicine and Public Health](#)

Failed Logic, Creative Presentation of Data

- The researchers bucket their data set into four distinct sections, or quartiles, based on the number of wells per mile within the proximity of the birth certificate records' addresses (*which, as noted, does not mean that's in fact where the mothers actually lived during their pregnancy*).
- What's peculiar, by any objective measure, is that their overarching narrative – i.e., more wells in proximity to a pregnant mother (*or at least the address of a given birth certificate*) = LBW – and their logic is not supported by their own data. Specifically, they note that the Fourth Quartile had the lowest average birth weight in the data set.
- Following the researchers' logic, wouldn't the Third Quartile – which has the second most wells in proximity to the pregnant mothers (*or birth certificate addresses*) have the next lowest average birth weight? Wrong. As their own data shows, the First Quartile – *with the fewest amount of wells in proximity* – had the second lowest birth weight average among the group.

Heavily Relies on Widely Debunked Activist "Research"

- The researchers, by their own admission, rely heavily on two studies that have been [thoroughly debunked](#).
- The first, conducted by Lisa McKenzie in Colorado which focused on so-called energy development-related birth defects, was dismissed by officials at the [Colorado Dept. of Public Health and Environment](#) and other independent experts. The other was conducted by a Cornell University student Elaine Hill. Her research – like the one released today – [was not peer-reviewed](#).
- Ironically, [McKenzie said this about Hill's research](#): “Any results released prior to peer review should be approached with extreme caution.”

Admits Absence of Critical Data, Factors

In The Researchers' Own Words ...

- “The clinical significance of the differences in birth weight among the exposure groups is unclear.”
- “There may be a number of unknown factors that led to our conclusion.”
- “As in any epidemiological study, these associations do not imply causation and are hypothesis generating only.”
- “We assumed that the residence on the birth certificate was synonymous with exposure during the entire pregnancy, as we have no ability to evaluate transient occupancy of the pregnant mother.”
- “Incomplete information on many of these factors may have affected our conclusions.”
- “Socioeconomic status was inferred by use of assistance via Women's, Infants and Children Program (WIC); smoking was neither quantitatively assessed nor confirmed beyond self-reporting; the details of prenatal care, co-morbidities and nutritional status are not on birth certificates.”
 - “**Smoking for Two, and Lying About It**”: When pregnant women are asked if they smoke, almost a quarter of the smokers deny they have the habit. Using data from the National Health and Nutrition Examination Survey conducted from 1999 to 2006, researchers writing online in The American Journal of Epidemiology report that 13% of 994 pregnant women, and almost 30% of 3,203 non-pregnant women of reproductive age, were active smokers. Among pregnant smokers, 23% reported that they did not smoke, despite high blood levels of cotinine, a biological indicator of tobacco exposure, that showed they did. More than 9% of the non-pregnant smokers also lied about it. (New York Times, [1/7/11](#))

Other Factors Not Considered

- According to the [Center for Disease Control](#) and the [Pa. Dept. of Health](#), these risk factors – which were not accounted for in the researchers' paper – may increase a pregnant woman's chances of having a LBW baby in her lifetime (*not just exclusively during the pregnancy*): drinking alcohol and drug use, including over-the-counter medications; domestic violence or other abuse; unmarried; previous preterm birth; secondhand smoke exposure; stress; taking a daily multivitamin containing 400 micrograms of folic acid before and throughout pregnancy; as well as others.