

Public Health & Safety Impacts of Drilling and Fracking

DID YOU KNOW?

What is Fracking?

Hydraulic fracturing or “fracking” is an industrial process that extracts natural gas and/or oil from rock formations below the ground at high pressure using cancer-causing chemicals and more than 5 million gallons of water per well to break apart hydrocarbons in the rock.



Increased asthma attacks: A Johns Hopkins University study found **people who live near large active wells were 1.5 to 4 times more likely to suffer from asthma attacks.**¹ Researchers identified increased risk during all phases of well pad development: pad preparation, drilling, fracking, and production.²

Premature birth and high risk pregnancies: Johns Hopkins School of Public Health researchers identified a **40% increased risk of giving birth prematurely, and a 30% increased risk for having high-risk pregnancies** connected to O&G development. The study analyzed data from 9,384 pregnant women and their 10,496 newborns between January 2009 and January 2013 in Pennsylvania.^{3, 4}

Cancer linked to wastewater: New York University School of Medicine scientists, along with U.S. and Chinese researchers, demonstrated **cancerous changes linked to exposure to fracking wastewater** from Marcellus operations: “...even aged flow back water could pose substantial health threats to exposed humans.”⁵

Increased hospitalization: A study by University of Pennsylvania and Columbia University found a **27% increase in cardiology hospitalization** in Pennsylvania communities with the most wells. Hospitalizations for neurology, cancer, skin conditions, and urology problems also rose significantly.⁶

Infant deaths: “What’s killing the babies of Vernal Utah?” a *Rolling Stone* story about a midwife’s three-year analysis of ongoing spikes in **infant deaths, miscarriages, and placental abnormalities** in Utah’s Uintah Basin following the advent of drilling and fracking in the region.⁷

Low birth weight: Researchers from Princeton, University of Chicago and UCLA studied 25,000 births in three heavily drilled Pennsylvania counties. **Mothers whose homes were nearest to a high density of wells were 25% more likely to have babies who were “small for gestational age.”** Researchers found airborne particulate pollution from shale gas emissions correlated with low birth weight - a leading cause of infant mortality.^{8, 9}

Public health impacts: The New York State Department of Health (NYSDOH) identified environmental problems associated with drilling and fracking that can contribute to adverse public health impacts. Residents living near O&G operations experience: **skin rash, nausea or vomiting, abdominal pain, breathing difficulties, cough, nosebleed, anxiety, stress, headache, dizziness, eye irritation, and throat irritation.** As evidence for New York’s ban on high volume hydraulic fracturing, New York State Department of Environmental Conservation, Health Commissioner Howard Zucker, MD, wrote:

*“Until the science provides sufficient information to determine the level of risk to public health from [fracking] to all New Yorkers and whether the risks can be adequately managed, the Department of Health recommends that high volume hydraulic fracturing should not proceed in New York State.”*¹¹

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Respiratory and skin conditions: A Yale-led team studied household proximity to drilling and fracking and health symptoms in Washington County, PA near 624 active gas wells. **People living less than one kilometer (.62 miles) from drilling and fracking operations experienced skin rashes and upper respiratory problems.** ¹⁰

Traffic fatalities: The *Houston Chronicle* and Houston Public Media News reported **commercial vehicle accidents increased more than 50%** since 2009 when the state's ongoing drilling and fracking boom began. ¹²

Ambulance calls & emergency room visits: National Public Radio reported **ambulance runs increased by more than 200% and trauma patients increased by 1,125%** at two medical centers in the Baaken Shale region. ¹³

Infant death from air pollution: *Newsweek* reported the link from worsening air pollution in the Uintah Basin with 11,200 oil and gas wells in Vernal, Utah where **infant deaths rose six times the normal rate.** ¹⁴

Congenital heart defects in newborns: A rural Colorado study of 25,000 births from 1996-2000 found **congenital heart defects and neural tube defects in newborns** were associated with natural gas wells within a 10-mile radius of mothers' residences. The researchers noted: natural gas development emits several chemicals known to increase risk of birth defects (teratogens). ¹⁵

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¹ Rasmussen, S.G., Ogburn, E.L., McCormack, M., Casey, J.A., Bandeen-Roche, K. Mercer, D.G., & Schwartz, B.S. (2016). Association between unconventional natural gas development in the Marcellus Shale and asthma exacerbations. *JAMA Internal Medicine*.

² Song, L. & Kusnetz, N. (2016, July 18). Increased asthma attacks tied to exposure to natural gas production. *Inside Climate News*.

³ Casey, J.A., Savitz, D.A., Rasmussen, S.G., Ogburn, E.L., Pollak, J., Mercer, D.G., & Schwartz, B.S. (2016). Unconventional natural gas development and birth outcomes in Pennsylvania, USA. *Epidemiology* 27(2), 163-172.

⁴ Johns Hopkins Bloomberg School of Public Health. (2015, October 8). Study: fracking industry wells associated with premature birth.

⁵ Yao, Y., Chen, T., Shen, S.S., Niu, Y., DesMarais, T.L., Linn, R., ... Costa, M. (2015). Malignant human cell transformation of Marcellus Shale gas drilling flow back water. *Toxicology and Applied Pharmacology*, 288, 121-130.

⁶ Jemielita T., Gerton G.L., Neidell, M., Chillrud S., Yan B., Stute, M., ... Panettieri, Jr., R.A. (2015), Unconventional gas and oil drilling is associated with increased hospital utilization rates. *PLoS ONE* 10(7), e0131093.

⁷ Solotaroff, P. (2015, June 22). What's killing the babies of Vernal, Utah? *Rolling Stone*.

⁸ Shaina, L.S., Brink, L.L., Larkin, J.D., Sadovsky, Y., Goldstein, B.C., Pitt, B.R., & Talbot, E.O. (2015). Perinatal outcomes and unconventional natural gas operations in southwest Pennsylvania. *PLoS One*, 10, e0126425.

⁹ Preidt, R. (2015, June 3). 'Fracking' linked to low birth weight babies, *WebMD*.

¹⁰ Rabinowitz, P.M. Slizovskiy, I.B., Lamers, V., Trufan, S.J., Holford, T.R., Dziura, J.D., ... Stowe, M.H. (2015). Proximity to natural gas wells and reported health status: results of a household survey in Washington County, Pennsylvania. *Environmental Health Perspectives*, 123, 21-26.

¹¹ New York State Department of Health. (2014, December 17). A public health review of high volume hydraulic fracturing for shale gas development.

¹² Olsen, L. (2014, 11 September). Fatal truck accidents have spiked during Texas' ongoing fracking and drilling boom. *Houston Chronicle*.

¹³ Bryan, K.J. (2014, August 3). Drugs, oilfield work, traffic pushing more people through doors of Watford City ER. *Bakken Today*.

¹⁴ Schlanger, Z. (2014, May 21). In Utah boom town, a spike in infant deaths raises questions. *Newsweek*.

¹⁵ McKenzie, L.M., Guo, R., Witter, R.Z., Savitz, D.A., Newman, L.S., & Adgate, J.L. (2014). Birth outcomes and maternal residential proximity to natural gas development in rural Colorado. *Environmental Health Perspectives*, 122, 412-417.