EXPLORING HEALTH IMPACTS
OF SHALE GAS DEVELOPMENT ON CHILDREN

FREE PROGRAM FOR HEALTH PROFESSIONALS
Registration in advance preferred, walk-ins welcome. Dinner is included.

JUNE 6, 2018  6:00-9:00 PM
Allegheny County Medical Society
713 Ridge Ave, Pittsburgh, PA 15212

Ned Ketyer, MD, FAAP
Pediatric Alliance, PC
Editor, The PediaBlog
AAP Council on Environmental Health
SWPA Environmental Health Project (Consultant)
Physicians for Social Responsibility PA (Board)
Climate Reality Leadership Corps

Larysa Dyrszka, MD
Former Director of Pediatrics, Holy Name Hospital, NJ
Physicians for Social Responsibility NY (Executive Board)
Concerned Health Professionals of New York

Peggy Slota, DNP, RN, FAAN
Director, DNP Graduate Studies; Associate Professor
Georgetown University
MACCHE Council of Advisors
Climate Reality Leadership Corps
Franklin Park Environmental Advisory Council
Women for a Healthy Environment Board Member

Irena Gorski, MPH
PhD Student, Department of Environmental Health & Engineering
Johns Hopkins Bloomberg School of Public Health
APHA Environment Section Councillor
FRACKING AND HEALTH

POLICY AND PRACTICE IN NEW YORK

Larysa Dyrszka MD
June 6, 2018
People and animals around gas exploration and production sites were getting sick, lighting their water on fire and watching their water turn brown.

https://pennsylvaniaallianceforcleanwaterandair.wordpress.com/the-list/

http://lesstonepublishorperish.blogspot.com/

Impacts of Gas Drilling on Human and Animal Health
THE SCIENCE ON SHALE GAS DEVELOPMENT
A Survey of the Environmental Public Health Literature

The scientific community is only beginning to understand the impacts of shale and tight gas development on human health and the environment. Many data gaps remain, but numerous hazards and risks have been identified.

Current total of peer-reviewed publications on the impacts of shale or tight gas development

More than 80% of all the peer-reviewed literature has been published since January 2013.

Number of peer-reviewed articles published per year

http://journals.plos.org/plosone/article?id=info:doi/10.1371/journal.pone.0154164

http://www.psehealthyenergy.org/our-work/shale-gas-research-library/

SOURCE:

ATTRIBUTIONS:
American Academy of Pediatrics, District II, New York State
Dedicated to the Health of All Children

Contact:  
Elie Ward,  
Director of Policy & Advocacy  
eward@aap.net  
518-441-4544

June 7, 2010

Memo of Support
A. 10490/S. 7592

An act to establish a moratorium on conducting hydraulic fracturing for extraction of natural gas or oil in New York State until 120 days after the Environmental Protection Agency issues a report on the effects of hydraulic fracturing on water quality, air quality and other public health impacts.

The American Academy of Pediatrics, District II, NYS, representing more than 5,000 pediatricians and the millions of children we care for across the state, strongly supports A10940/S7592.

This legislation provides an opportunity for the EPA to study the potential public health impacts of hydraulic fracturing, and for New York State’s leaders to have that information before it makes any decision about permitting hydraulic fracturing in our state.

AAP, District II, NYS membership is concerned about the potential negative impacts on water, air, soil contamination, increased traffic and possible spills of contaminated materials in areas where many children and families live. Allowing time for the EPA study will allow our state leaders to move forward on this issue fully informed about whether hydraulic fracturing is a good public policy for our state.

We urge the legislature to pass this legislation now, imposing the moratorium to provide the time to for our state leaders to have the latest EPA data to inform our decisions going forward.
The NY State medical community was among those raising concerns in this first letter to the NY State Health Commissioner.

February 28, 2011

Nirav R. Shah, M.D., M.P.H.
Commissioner, New York State Department of Health
Corning Tower
Empire State Plaza,
Albany, NY 12237

Dear Dr. Shah:

Congratulations on your appointment as Commissioner of New York State’s Department of Health. We wish you much success in this important position.

Physicians, researchers and other representatives of the undersigned organizations would appreciate the opportunity to meet with you on an issue we believe is the most pressing health issue confronting our State. This is the near-term prospect of massive unconventional gas drilling in upstate New York and its potential for significant adverse impacts on the health of citizens throughout the State. We would like to discuss this issue and the pivotal role that the DOH may play in the consideration and study of the health impacts of unconventional gas drilling.

The NYS Department of Environmental Conservation is in the process of revising its draft “Supplemental Generic Environmental Impact Statement” (the “dSGEIS”) regarding the new technology of “high water volume horizontal fracturing” ("hydraulic fracturing"). The potential health impacts associated with the life-cycle of hydraulic fracturing were almost completely overlooked in the dSGEIS despite numerous reports of health-related concerns in other parts of the country where hydraulic fracturing is ongoing (1). Over 13,000 comments were submitted to the DEC regarding the dSGEIS. Concerns about the health impacts of hydraulic fracturing were a recurrent theme as was the fact that no cumulative impact study has been undertaken. Our regional office of the EPA, for example, concluded that “potential impacts to human health and the environment...further scientific and regulatory analysis, expressing particular concern about local and regional air quality, water quality and radioactive materials disturbed during drilling.”

Nirav R. Shah, M.D., M.P.H.
Commissioner, New York State Department of Health

Concerned Health Professionals of NY

PSR
Health professionals formed Concerned Health Professionals of New York and continued to write letters to NY's Health Commissioner and Governor, joined by health and environmental orgs, and maintained a presence in Albany to educate policymakers.

The first COMPREHENSIVE REPORT OF SCIENTIFIC, MEDICAL, AND MEDIA FINDINGS DEMONSTRATING RISKS AND HARMS OF FRACKING (UNCONVENTIONAL GAS AND OIL)...
Medical Society of the State of New York

High Volume Hydraulic Fracturing

New York State physicians have expressed concern about potential short term and long term health consequences of hydraulic fracturing. MSSNY's Preventive Medicine and Family Health Committee (PMFHC) was charged with studying the subject and forming MSSNY policy on hydraulic fracturing.

The MSSNY Council adopted a policy on December 9, 2010 (Position Statement #90.992) to "support a moratorium on natural gas extraction using high volume hydraulic fracturing in New York State until valid scientific information is available to evaluate the process for its potential effects on human health and the environment.

Following the publication of the Draft Supplemental Generic Environmental Impact Statement (draft SGEIS) by the Department of Environmental Conservation (DEC) in September 2011, MSSNY responded to the request for comments on November 22, 2011. This letter reiterated MSSNY's concerns about human health consequences and the impact on the environment. In addition, MSSNY recommended ongoing monitoring and analysis, including a Health Impact Assessment which should be conducted by the New York State Department of Health or a different, non-governmental, health organization.
Hydraulic fracturing Health Impacts Assessment

The New York State Nurses Association (NYSNA), representing the interests of registered nurses and the patients they serve, strongly supports the requirement of a Health Impacts Assessment on gas exploration and production using high-volume, horizontal hydraulic fracturing, prior to the issuing of any drilling permits in New York State. The Assembly budget proposal has set aside $100,000 for a study by a school of public health within the state university system to accomplish the assessment.

The study would include research into other states’ experiences with hydraulic fracturing; estimated costs of any health impacts to the state, local governments, insurers, employers and the healthcare system; and a long-term plan for monitoring and mitigating health impacts. The purpose of this study is to inform New Yorker’s of any and all potential public health impacts posed by hydraulic fracturing and to provide an analysis of those impacts. Analysis and information from this study will then be used to help facilitate informed decisions regarding actions to be taken with respect to such activities in the state.

The expansion of hydraulic fracturing is irresponsible until more research is done to ensure the safety of the water supply and the quality of the air in New York. Other states, including Pennsylvania and Wyoming, have found that hydraulic fracturing has contaminated groundwater with synthetic chemicals, some of which are known to cause genetic abnormalities and stillbirths. In a study conducted by the Environmental Protection Agency, chemicals associated with gas production and hydraulic fracturing fluids were found inside deep water wells in Wyoming (Dilouhy, 2011). Regulators in Pennsylvania also determined that gas drilling led to contaminated water and found an increased incidence of heavy metals toxicity among farm animals. (Griswold, 2011).
Citing Health Risks, Cuomo Bans Fracking in New York State

Members of New Yorkers Against Fracking celebrated the governor’s decision outside his Manhattan office on Wednesday. Chang W. Lee/The New York Times

By Thomas Kaplan
Dr Zucker’s review boiled down to a simple question: Would he want his family to live in a community where fracking was taking place?

His answer was no.

It “would be reckless to proceed [with HVHF] in New York until more authoritative research is done.”

“We cannot afford to make a mistake,” he said. “The potential risks are too great.”
June 9, 2015 -- The American Medical Association (AMA) adopted a resolution, “Protecting Public Health from Natural Gas Infrastructure,” that states, “Our AMA recognizes the potential impact on human health associated with natural gas infrastructure and supports legislation that would require a comprehensive Health Impact Assessment regarding the health risks that may be associated with natural gas pipelines.”

May 2, 2015 - The Medical Society of the State of New York adopted a resolution, “Protecting Public Health from Natural Gas Infrastructure,” that recognizes the potential impact to human health and the environment of natural gas pipelines and calls for a governmental assessment of these risks.
> 1,300 peer-reviewed studies & investigative reports.

• 90% published since 2013

• 25% published in 2017

“There is no evidence that fracking can operate without threatening public health directly or without imperiling climate stability upon which public health depends.”

http://www.psr.org/assets/pdfs/fracking-compendium-5.pdf
THE EVIDENCE IS IN:
DRILLING AND FRACKING OPERATIONS ARE HARMING OUR HEALTH
THE EVIDENCE IS IN:  FRACKING WASTE CONTAMINATES RIVERS AND AQUIFERS

(See footnotes 141, 144-47, 163, 177, 206, 210, 214)
THE EVIDENCE IS IN: ABANDONED WELLS LEAK METHANE AND ALLOW FRACKING FLUID TO MIGRATE, PLACING CLIMATE AND GROUNDWATER AT RISK.

(See footnotes 612-665)
THE EVIDENCE IS IN:

FRACK SAND MINING POSES POTENTIAL EXPOSURE RISKS TO SILICA DUST, A KNOWN CAUSE OF SILICOSIS AND LUNG CANCER

(See footnotes 797-813)
THE EVIDENCE IS IN:

FRACKING THREATENS SOIL AND FOOD PRODUCTION

(See footnotes 667-698)
THE EVIDENCE IS IN:

FLOODING EXACERBATES THE RISKS OF FRACKING, AND FRACKING EXACERBATES THE RISKS OF FLOODING

(See footnotes 647-665)
THE EVIDENCE IS IN:
EARTHQUAKES ARE A PROVEN CONSEQUENCE OF FRACKING-RELATED ACTIVITIES WHICH REGULATIONS CANNOT FIX

(See footnotes 499-606)
THE EVIDENCE IS IN:
LIVING NEAR FRACKING SITES RAISES the RISKS FOR PREGNANT WOMEN

(See footnotes 434, 436, 450, 472, 1075, 1080, 1081)
THE EVIDENCE IS IN:
LIVING NEAR FRACKING SITES HAS BEEN LINKED TO ASTHMA, RASHES, HEADACHES, AND CANCER

(See footnotes 438-498, 1063-1064)
THE EVIDENCE IS IN:
FRACKING JOBS ARE KILLING JOBS

(See footnotes 27, 28, 372-433)
THE EVIDENCE IS IN:
FRACKING BRINGS NOISE POLLUTION, LIGHT POLLUTION, AND STRESS

(See footnotes 480-498)
THE EVIDENCE IS IN:

OIL AND GAS WELLS LEAK, and
REGULATIONS CAN’T FIX IT
THE EVIDENCE IS IN:

FRACKING ACCELERATES CLIMATE CHANGE

(See footnotes 29, 699-796, 848-850)
THE EVIDENCE IS IN: FRACKING ATTRACTIONS VIOLENT CRIME AND SEX TRAFFICKING

(See footnotes 439, 464, 465, 936, 956, 957, 960, 961, 964, 967, 970)
THE EVIDENCE IS IN:
FRACKING IN CALIFORNIA COMPETES WITH AGRICULTURE FOR WATER

(See footnotes 32, 144, 145, 150, 670, 675-77)
THE EVIDENCE IS IN:
FRACKING IN FLORIDA PUTS WATER AT RISK

(See footnotes 33-38)
THE EVIDENCE IS IN:
FRACKING IS A PROVEN THREAT TO DRINKING WATER

(See footnotes 141, 206, 210, and 214)
THE EVIDENCE IS IN:
AIR POLLUTION FOLLOWS FRACKING
THE EVIDENCE IS IN:
LNG IS A SECURITY THREAT AND SOURCE OF TOXIC POLLUTION

(See footnotes 909-26)
THE EVIDENCE IS IN:

PIPELINES LEAK, CORRODE, SPILL, EXPLODE, INJURE, KILL, AND PROMPT EVACUATIONS
THE EVIDENCE IS IN:
EMISSIONS FROM COMPRESSOR STATIONS ARE HIGHLY TOXIC

(See footnotes 816-17, 823, 826-28, 830-31, 838, 857)
Health Effects Associated with Stack Chemical Emissions from NYS Natural Gas Compressor Stations: 2008-2014

A Technical Report Prepared for the Southwest Pennsylvania Environmental Health Project

D.O. Carpenter, MD and P.N. Russo

Funded by the Park Foundation

October 12, 2017

SWPA-EHP Presentation:
David Brown, ScD
Sujit Joginpally, MD, MBA, MPA, MAS
Celia Lewis, PhD
Title V Compressor Stations

56 operational natural gas compressor stations in NY State
Five major chemical emissions from New York Compressor stations

- Nitrogen oxides (45%)
- Carbon monoxide (31%)
- Formaldehyde (3%)
- PM 2.5 particulate matter (3%)
- Volatile Organic Hydrocarbons (12%) (28 compounds)

18 of these compressor stations emitted more than 40 million pounds of toxic pollutants between 2008-2014.
Major Chemicals released from Title V Compressor Stations

• **NO₂**
  - Sources: cars, trucks, power plants, off road equipment and compressor stations.
  - Health effects:
    - Short term: irritate airways, can aggravate respiratory diseases, particularly asthma and may lead to coughing, wheezing or difficulty breathing.
    - Longer exposures: Development of asthma and increase susceptibility to respiratory infections.

• **CO**
  - Sources: Cars, trucks, gas stoves, compressor stations, etc.,
  - Health effects:
    - Replaces O₂ on Hemoglobin -> decrease O₂ to brain and heart
    - High levels, possibly indoors, -> dizziness, confusion, unconsciousness and death
    - Very high levels: Less likely outdoors, however elevated outdoor CO levels concerning for people with heart disease.

• **VOC’s:**
  - Health effects -> Eyes, nose and throat irritation, headaches and nausea, damage to liver, kidney and CNS.
    Some are known to cause to cause cancer in humans.
  - Key signs or symptoms associated with exposure to VOCs include: Conjunctival irritation, nose and throat discomfort, headache, allergic skin reaction, dyspnea, decline in serum cholinesterase levels, nausea, epistaxis, fatigue and dizziness.

• **Formaldehyde:**
  - Short term health effects: levels exceeding 0.1 ppm. Watery eyes, burning sensation in eyes, nose and throat, cough, wheezing, nausea and skin irritation. EPA classified formaldehyde as a probable carcinogen at high or prolonged exposure.

70 chemicals were identified in compressor station emissions that are linked to 19 of 20 major categories of human disease.
Major Health Effects

- Respiratory problems
- Skin irritation
- Cardiovascular
- Neurological
- Anxiety, stress and sleep deprivation
- Long term health issues: Maybe Cancer

“Adding 40.2 million pounds of 70 contaminants to air already contaminated makes the air we breathe more contaminated and, by extension, increases the potential for human disease.”
FACT: One in five underground gas storage wells in the U.S. is similar in design to the well that failed at Aliso Canyon which prompted the evacuation of 8,000 families.

(See footnotes 31, 869-908)
THE EVIDENCE IS IN: FRACKING AND ITS INFRASTRUCTURE DISPROPORTIONATELY IMPACTS NON-WHITE AND/OR LOW-INCOME COMMUNITIES.

Photo Credit: Sarah Craig/Faces of Fracking

(See footnotes 42-49)
THE EVIDENCE IS IN: FRACKING RELEASES RADON, A LEADING CAUSE OF LUNG CANCER.
Exemption of Oil and Gas Exploration and Production Wastes from Federal Hazardous Waste Regulations


Concerned Health Professionals of NY
- The radioactive elements found in Marcellus shales include uranium, thorium, radium, polonium and radon.
- Federal exemption for radioactive waste exists.
- Radon travels with methane through the pipelines.
- Radium and radon levels from the Marcellus shale are significantly elevated.
- Radionuclides, the decay products of radon, such as Lead-210 and Polonium-210 can be found in pipeline scrapings as well as sludge accumulating in tank bottoms, gas/oil separators, dehydration vessels, compressor facilities, liquid natural gas (LNG) storage tanks and in waste pits.
Study: “Environmental and Human Health Impacts of Spreading Oil and Gas Wastewater on Roads” shows that radium has been widely spread on Pennsylvania roadways without regulation.

DOI: 10.1021/acs.est.8b00716
Environ. Sci. Technol. May 14, 2018
In the United States, Vermont and New York have banned fracking, while Maryland has a moratorium in place through 2017.

Fracking was banned in France in 2011, and the ban was upheld in 2012. Bulgaria followed similarly in 2012. Germany first enacted a ban on fracking in 2012, re-affirming it in 2014. Scotland passed a ban in January of 2015.

The following countries have issued moratoriums until more is known about the environmental and health effects:
• UK
• Romania
• Denmark
• Ireland
• South Africa
RESOLVED, That the Pennsylvania Medical Society urge and support a moratorium on new natural gas extraction using high-volume hydraulic fracturing in Pennsylvania; and be it further RESOLVED, That the Pennsylvania Medical Society urge the Commonwealth of Pennsylvania to fund an independent health registry and commission research studies on the health effects of fracking.
Pennsylvania Constitution
Article I  Section 27

“The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment.

Pennsylvania's public natural resources are the common property of all the people, including generations yet to come.

As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.”
COMPREHENSIVE SOURCES OF HEALTH INFORMATION

- PSE for Healthy Energy PSE STUDY CITATION DATABASE on Shale Gas & Tight Oil Development [http://www.psehealthyenergy.org/site/view/1180#sthash.CHp8vErJ.dpuf](http://www.psehealthyenergy.org/site/view/1180#sthash.CHp8vErJ.dpuf)

- Concerned Health Professionals of NY Compendium [http://concernedhealthny.org/compendium/](http://concernedhealthny.org/compendium/)

- Southwest Pennsylvania Environmental Health Project [www.environmentalhealthproject.org](http://www.environmentalhealthproject.org)  
  724.260.5504 info@environmentalhealthproject.org

- Physicians for Social Responsibility [www.psr.org](http://www.psr.org)

- Fracktracker Alliance [www.fracktracker.org](http://www.fracktracker.org)