

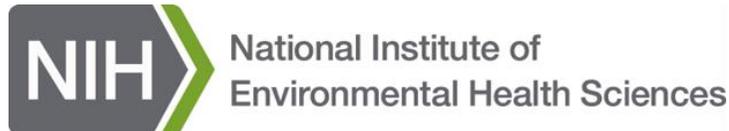
Environmental Health Sciences Core Center-EHS CC (NIEHS) Inter-Center Working Group Initiative

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Inter-EHS CC Working Group

- ❑ **Environmental Health Science (EHS) Core Center Program-funded by NIEHS**
- ❑ **Strength of EHS CC -COEC program**
 - **communities**
 - **health care professionals**
 - **decision makers**
- ❑ **History of working Group**
- ❑ **Accomplishments to Date**
- ❑ **Individual Presentations**



History of Working Group

- ❑ **NIEHS Annual EHSCC Meeting-March 2012**
“Hydrofracking and Public Health Issues and Impacts”-Dr. Penning
- ❑ **Ten of twenty EHSCC indicated a desire to interact: bi-monthly teleconferences**
- ❑ **Sixteen Centers and COEC representatives are now in the group**
 - Columbia University
 - Johns Hopkins School of Public Health
 - MD-Anderson
 - Oregon State University
 - University of Iowa
 - University of Pennsylvania
 - University of Rochester
 - University of Wisconsin –Milwaukee
 - Harvard School of Public Health
 - New York University
 - MIT
 - University of Cincinnati
 - UNC-Chapel Hill
 - USC and UCLA
 - University of Texas Medical Branch
 - Rutgers University
- ❑ **Mobilization of Center resources to tackle emerging environmental health challenges**

Accomplishments to Date- 1

Penn Pilot Project: *“Field Survey of Health Perception and Complaints of Pennsylvania Residents in Marcellus Shale Regions”* Pouné Saberi MD and Judith McKenzie, MD – Penn [Presented at the AOH Conference in April, 2013]

Inter-Center Pilot Project:

“Groundwater quality and health outcomes in adjacent areas with and without hydro-fracturing”

Columbia Investigators: Beizhan Yan, PhD; Martin Stute, PhD; Brian Mailloux, PhD; Matt Neidell, PhD; Steven Chillrud, PhD

PENN Investigators: Reynold A. Panettieri, Jr. MD; Pouné Saberi, MD, MPH; Marilyn Howarth, MD

Accomplishments to Date- 2

Inter-Center Pilot Project:

“Harvard WorldMap: Fracking Research Repository for All Concerned (HWM:FRRAC)”

Harvard Investigators: Ann Backus, A.B. MS; Aaron Bernstein, MPH, MD;

PENN Investigators: George Gerton, PhD; Alexander S. Whitehead,

D.Phil. <http://worldmap.harvard.edu/maps/FrackMap>

NIEHS- P30 Opportunity Fund Supplements:

2012- *“Fracking - information needs”* Rochester /U Cincinnati / UNC-CH

2013- *“Risk Perception of Hydrofracturing in Eastern States”*

COECs: Penn; U. Cincinnati; U. Rochester; UNC- Chapel Hill-Gray

2013- *“Effects of Oil and Gas Drilling in Appalachia”* U. Cincinnati/Oregon

2013- *“Impact of Sand Mining & Transport in Communities”* U. Iowa

2013- *“Produced Water Toxicology and Community Engagement”* NYU,
Rutgers



Research Recommendations—Water Contamination



1. *base-line ground water quality data should be taken before drilling begins and monitored over the life-time of the gas-producing well.*
2. *full disclosure of the HF chemicals must take place so that they can be correlated with measurements of ground and surface water pollution: **composition of the HF and produced water must be determined for hazard identification.***
3. *a validated specific and sensitive indicator of early ground water contamination should be identified for site management and mitigation.*
4. *fate and transport of ground and surface water pollutants should be elucidated under HF conditions.*
5. *the effluent from waste-water treatment plants should be monitored to determine their effectiveness*
6. *fundamental research on the toxicology of the HF and produced water must be performed for **risk characterization***

Research Recommendations—Air Pollution



- 1. ambient and occupational air-quality should be measured at active drilling sites and be compared with base-line measurements in adjacent regions without UNGDO.*
- 2. the impact of diesel emissions on local air quality should be determined.*
- 3. residential indoor air quality data for homes potentially impacted by UNGDOs should be compared with those homes not impacted.*
- 4. determine spatial and temporal relationship between emissions from multiple point sources with their impact on air quality.*
- 5. the impact on air pollution by a field of gas producing wells should be compared to emissions produced by coal-fired power plants.*

Recommendations- Community Outreach



Towanda Twp Bradford Co, PA

Total Pop: 1,097

Median Family Income: \$40K

Median Housing Value: \$77K

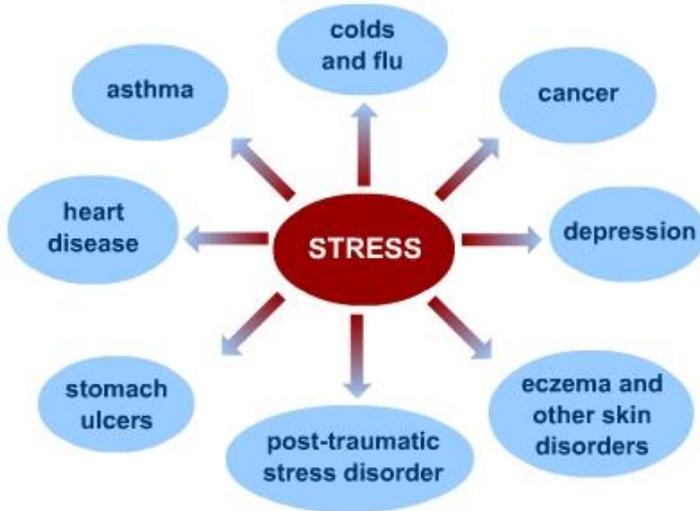
Pop Density: 75 per sq. mile

- 1. Embrace CBPR principles in designing studies on environmental and public health impacts of UNGDO so that the right studies are performed. All stakeholders should be engaged to foster multi-directional communication and accountability.***
- 2. Communities should help determine how best to disseminate research findings and there should be timely and transparent dissemination of data.***
- 3. The sources of funding for research should be openly disclosed to communities.***
- 4. Determine whether rapid “industrialization” overwhelms health and public services and the social fabric of communities.***
- 5. Determine how existing regulations impact the reporting of environmental health effects of UNGDO.***
- 6. Conduct research on risk perception, including the impacts on community polarization.***



National Institute of
Environmental Health Sciences

Research Recommendations-Epidemiology



- 1. Health utilization in communities with and without hydrofracturing should be performed to identify health outcomes that may have changed.***
- 2. An environmental epidemiology study should be performed to determine whether an association exists between health outcomes data and water-quality in private drinking wells in communities with and without hydrofracturing.***
- 3. An environmental epidemiological study should be performed to determine whether air pollution associated with unconventional natural gas drilling increases the incidence of respiratory illness and cardiovascular disease.***
- 4. Epidemiological data must be accompanied with exposure data: proximity mapping, biomonitoring, and biomarkers of exposure and effect.***

Acknowledgements

Members of the working group

Leslie Reinlib, PhD Program Officer

Liam O'Fallon, MA Program Analyst

Sara Mishamandani

