

Risk Perception about Hydraulic Fracturing in Eastern States

Marilyn V. Howarth, MD, FACOEM

Director, Community Outreach and Engagement Core

**Adjunct Associate Professor, Department of Emergency
Medicine**

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Perelman
School of Medicine
UNIVERSITY of PENNSYLVANIA

CEET

CENTER OF EXCELLENCE IN ENVIRONMENTAL TOXICOLOGY

Mission: Community Outreach and Engagement Core

- ◆ **Engage community stakeholders in a collaborative process to select and address environmental health problems**
- ◆ **Engage researchers at the Center of Excellence in Environmental Toxicology and the other Environmental Health Core Centers to perform research on environmental health problems important to community stakeholders**

Polarization of Communities



Community Engagement Lessons

- ◆ **Information about process and health impacts lacking**
- ◆ **Physicians unable to answer their questions**
- ◆ **Some residents found the information from government and industry conflicting or unclear**
- ◆ **Substantial changes in communities affected people differently- some viewed positively and some negatively**
- ◆ **Some residents perceived great risk and others did not**

Risk Perception

- ◆ Risk perception is a subjective evaluation of potential for harm that aids people in negotiating the uncertainties and potential dangers of life

Paul Slovic, 1999, Risk Analysis, 19(4), 689-701

Voluntary vs. Involuntary

- ◆ People will accept much greater risks if they are voluntary
- ◆ The greater the perceived benefit the greater tolerance for the risk

Why Study Risk Perception?

- ◆ **Increased risk perception is associated with adverse health outcomes**
- ◆ **Anger, fear and anxiety increase with increasing risk perception**
- ◆ **Negative affective states have been shown to increase pro-inflammatory reactivity which has implications for cardiovascular disease and cancer among others**

Eli Puterman et al., 2013, Int. J. Behav. Med.

- ◆ **Anxiety can reduce productivity and if severe, be disabling**

Risk Perception about Hydraulic Fracturing in Eastern States



◆ Pouna Saberi MD, MPH, Jessica Fishman PhD, Kathleen Propert PhD, Trevor Penning PhD



◆ Kathleen Gray PhD, Janas Sinclair PhD
Center of Environmental Health and Susceptibility UNC Chapel Hill



University of Rochester Medical Center

◆ Katrina Korfmacher PhD
Environmental Health Sciences Center
University of Rochester



◆ Erin Haynes PhD
Center for Environmental Genetics
University of Cincinnati

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- ◆ **Design and validate a survey tool to assess risk perception in people living near HF**
- ◆ **Identify factors that affect risk perception among people living near HF as compared to those living elsewhere**
- ◆ **Disseminate findings to health professionals, communities, decision makers, and industry**
- ◆ **Inform the research agenda on the environmental health impacts of HF**
- ◆ **Mitigate risk and engage communities**

Factors Associated with Risk Perception

ECONOMICS

- fair financial compensation
- level of financial security
- lawsuits
- experience with land leasing

TRUST and ACCOUNTABILITY

- government
- industry
- health agencies

UNCERTAINTY

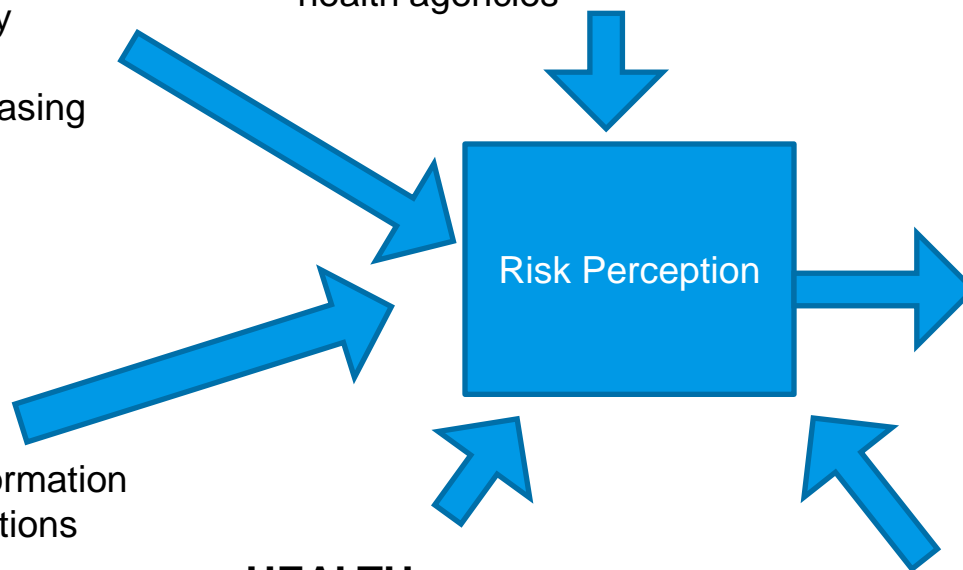
- conflicting scientific information
- ambiguity of needed actions
- unclear exposures
- unclear timeframe of exposure

HEALTH

- medical illness
- children present
- pregnant women present

EXPERIENCE

- noise
- traffic
- flare
- fire or explosion
- proximity



- Anxiety**
- Depression**
- Social Isolation**
- Sleeping difficulty**
- Loss of productivity**

Methods

- **Design survey**
- **Pilot survey in each state**
- **Administer survey online to 900 residents of NC, NY, OH & PA using market research group**
- **Analyze results**

Outcomes

- ◆ Findings will inform communication for community stakeholders about risk perception regarding HF
- ◆ Existing communication and outreach tools will be tailored based on findings
- ◆ Outreach to physicians and other medical providers to discuss how factors associated with risk perception can be used in the care of patients
- ◆ Findings will inform the research agenda on the environmental health impact of HF
- ◆ Findings will inform industry about factors that may help to mitigate risk

