

# Why We are Sponsoring the HEI Energy Research Program

- Demonstrate our commitment to the health and safety of our onshore unconventional oil and gas operations.
- Address concerns and scrutiny of unconventional oil and gas operations
  - Communities are unfamiliar with industrial activity; get conflicting information;
  - Public health advocates promote delay; seek greater assurance of negligible risk;
  - Activists see it as a threat to the campaign to decarbonize the energy supply.
- Enhance the scientific literature with credible studies of actual human exposure, and health impacts as warranted.
  - Relevant, accepted protocols.
  - Peer reviewed and published.
  - Basis for evidence-based policy.
- Educate and inform: media et al. often fail to address robustness, uncertainties, identified limitations of studies.

# Media Interpretation of Health Studies

 QUICK VIEWS ON POLITICS, ECONOMICS AND FINANCE

## Study Shows Fracking Is Bad for Babies

55 | JAN 4, 2014 4:58 PM EST  
By [Mark Whitehouse](#)

DENVER AND THE WEST

## Dead babies near oil drilling sites raise questions for researchers

By [Nancy Lofholm](#)  
*The Denver Post* POSTED: 10/28/2014 12:01:00 AM MDT

*The Intelligencer.*  
Wheeling News-Register  
January 12, 2018 | Today's Paper | Submit News | Subscribe Today

## Report: Buckeye Fracking Leads to Asthma Attacks

*The New York Times*  
Citing Health Risks, Cuomo Bans Fracking in New York State  
By THOMAS KAPLAN DEC. 17, 2014

 NEWS HEALTH CULTURE EVENTS SPORTS

DECEMBER 13, 2017

## Local exposure to Pennsylvania fracking sites impacts health of newborns

## How Fracking Is Bad for Our Bodies

With the spread of hydraulic fracturing come untoward social and somatic health effects.

JASON SILVERSTEIN  
*The Atlantic*  
OCT 8 2013, 1:00 PM ET

CLIMATE DESK Grist · Dec 14, 2017

## Fracking harms the health of babies, study shows

By [Nathalie Baptiste](#) on Dec 14, 2017

 The world's top news source on natural health

## Could fracking be causing cancer? This experiment's results say YES... and quite rapidly, too!

Thursday, March 31, 2016 by: L.J. Devon, Staff Writer

# Information to Consider in the Health Study Critique

Key Question: What conclusions on the potential for health effects from unconventional oil and gas operations can be drawn from existing literature, and what are the key uncertainties that research should address?

Begin with all the literature that relates to potential human health impacts from unconventional oil and gas development.

Include:

- health impacts related to exposures from all media; air, water, soil.
- all alleged stressors; e.g. chemicals, psychosocial stress.
- grey literature; e.g., primary sources, abstracts, non-peer reviewed reports, conference proceedings.

Exclude:

- Secondary sources, reviews.
- literature solely focused on air or water quality or monitoring, with no health-related findings.
- methodology papers unless they address hazard assessment or risk characterization of unconventional operations.
- literature on workers in the oil, gas, refinery industry unless it specifically addresses unconventional operations.

# Information to consider in the Health Study Critique

To facilitate appropriate use of the literature describe the strengths, limitations and important knowledge gaps?

- Make conclusions for categories of literature/studies or for individual studies

Hazard-based literature – no attempt to measure or predict exposure; e.g.

- Surveys of potential chemical stressors and related hazards;
- Toxicity studies of fracking fluids or components, produced water, environmental media;
- Endocrine modulation studies

Risk characterizations – includes measurement or consideration of actual exposure; e.g.

- Anecdotal reports;
- Community-based surveys;
- Local or regional public health evaluations;
- Health findings with no measurement of stressors (e.g. proximity as surrogate);
- Epidemiology studies that include exposure measurements

# Key Quality Criteria to Consider

- Protocol / methods: not defined; not relevant; widely accepted; GLP compliant.
- Stressor(s): absent; identified; measured.
- Sample size: inadequate to sufficient.
- Data produced: none; secondary sources; generated with relevant methods.
- Dose-response relationship: absent; described; supported by data.
- Statistical analysis: absent to robust.
- Uncertainty analysis: absent; identified; impact discussed.
- Peer review: absent; biased; weak; robust.

## Epidemiology specific

- Properly selected exposed and unexposed groups (or cases and controls), with matching or stratification of potential confounders (e.g. age, socio-economic status).
- Clinical documentation of outcomes, or some verification other than self-reporting.
- Plausible exposure pathway scenario from source to receptor, proper exposure metrics.
- Control of potential selection bias, not self-selection.
- Proper interpretation of results with strengths and weaknesses described.