

# Current methods may inadequately measure health impacts from oil, natural gas extraction

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An examination of peer-reviewed studies published over six years on hazardous air pollutants associated with the extraction of oil and natural

gas finds that measurements of hazardous air pollutant concentrations near operational sites have generally failed to capture levels above standard health benchmarks; yet, the majority of studies continue to find poor health outcomes increasing as distance from these operations decreases.

While it is unclear why there is a gap in the evidence between environmental sampling and [health](#)-based studies, the current review provides insights into methodological shortcomings that may help explain this discrepancy. Authors state that current health benchmarks may not provide accurate risk estimates from the broad range of pollutants associated with oil and natural gas development, and fail to adequately address potential risks associated with long-term, chronic, lower levels of exposure or from a mixture of chemicals. Further, a failure of sampling methods to properly account for degradation and dispersion of pollutants, or inappropriate sampling timeframes that may not capture peak emission periods that are characteristic of oil and natural gas extraction, may also contribute to the current gap in the literature.

The authors call for additional investigations of emissions using measurements and research that incorporate appropriate timeframes and proximity to oil and gas extraction on health impacts from chronic, low-level ambient hazardous air pollutant exposures, among others.

Energy demands have increased over several decades as technical innovations have led to more extraction of oil and natural gas, making the United States one of the world's leading producers of petroleum and natural gas hydrocarbons. Several [hazardous air pollutants](#) such as benzene, toluene, and ethyl-benzene are listed by the Environmental Protection Agency as known or suspected carcinogens, or that carry other health effects, have been measured at elevated concentrations around oil and [natural gas extraction](#) sites.

The researchers reviewed 37 peer-reviewed journal articles published between Jan. 1, 2012 and Feb. 28, 2018. One focused on Poland and the rest on the U.S.

This review will help guide future research on air quality near oil and natural gas development sites by highlighting [future research](#) priorities. It may also bring insights into possible exposures of communities near oil and [natural gas](#) development and storage sites such as Aliso Canyon in Los Angeles' Porter Ranch, where there was a major methane leak that affected the community.

The review article was published in the 2019 volume of *Annual Review of Public Health*.

**More information:** Diane A. Garcia-Gonzales et al, Hazardous Air Pollutants Associated with Upstream Oil and Natural Gas Development: A Critical Synthesis of Current Peer-Reviewed Literature, *Annual Review of Public Health* (2019). [DOI: 10.1146/annurev-publhealth-040218-043715](https://doi.org/10.1146/annurev-publhealth-040218-043715)

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