

Health Impacts of Shale Gas Development: A Collection of Research

TOP CONCERNS

OF LIVING NEAR SHALE GAS DEVELOPMENT (SGD)



AIR QUALITY

SGD emits toxic substances into the air that we breathe and absorb into our skin



WATER QUALITY

Wastewater and chemical spills release toxic pollutants into our drinking water



NOISE & LIGHT

Unnatural noise, light, and vibration from SGD can be disturbing and harmful



SOIL

Hazardous pollutants associated with SGD can settle to the ground and contaminate soil



STRESS

Health effects and disturbances can cause uncertainty and stress



Drilling of a shale gas well in Washington County, PA. Courtesy of Bob Donnan.

Epidemiological studies are conducted by observing human populations to evaluate whether there is a relationship between an exposure and a health impact. With continuing community exposure to shale gas development (sometimes called fracking), being aware of the epidemiological associations between shale gas development and health outcomes is crucial to protecting public health.

The table below presents findings of epidemiological studies that have found statistically significant associations between exposure to shale gas development and adverse health outcomes. This information was compiled from more than 50 peer-reviewed, published research articles featured in four literature reviews and from more recent research.¹⁻⁴ Exposure to shale gas development in these studies was evaluated using a variety of metrics. All health outcomes were confirmed by a medical provider unless noted as self-reported. This table does not represent all the research on the topic.



BIRTH IMPACTS

- Congenital heart defects, neural tube defects^{5,16}
- Small for gestational age,^{6,8} lower mean birth weight,⁶⁻¹⁰ low birth weight^{7,8}
- Lower 5-minute APGAR score⁸
- Preterm delivery,⁹⁻¹⁰ high-risk pregnancy⁹
- Infant mortalities¹⁰
- Congenital heart defects¹¹
- Hypertension during pregnancy¹⁴
- Congenital anomalies¹⁵
- Higher odds of limb reduction defects and spina bifida¹⁶



CARDIOVASCULAR

- Augmentation index, systolic blood pressure¹³
- Cardiology hospitalizations¹⁴
- Blood/immune system hospitalizations¹⁵
- All-cause hospitalizations and blood/immune hospitalizations in females¹⁶
- Systolic and diastolic blood pressure, changes in heart rate, release of stress hormones¹⁷⁻¹⁹
- Elevated blood pressure, hypertension, ischemic heart disease, stroke²⁰



RESPIRATORY

- Self-reported respiratory symptoms²¹
- Mild, moderate, and severe asthma exacerbations^{22, 42}
- Pediatric asthma-related hospitalizations^{23,28}
- Increased hospitalizations in older adults for respiratory disease (>65 years old)²⁹



NEUROLOGICAL

- Self-reported chronic rhinosinusitis, fatigue, migraine²⁴



DERMAL

- Self-reported dermal symptoms, including rashes, dermatitis, irritation, burning, itching, hair loss²¹
- Skin hospitalizations²⁵



CANCER

- Urinary bladder cancer²⁶
- Acute lymphocytic leukemia (ages 5-24)^{27,34}
- Neoplasm hospitalizations¹⁵



MOTOR VEHICLE ACCIDENTS

- Multivehicle truck accidents with injury²⁸



MENTAL HEALTH (SELF-REPORTED)

- Anxiety, sleep disturbance²⁹
- Stress, worry, collective trauma³⁰
- Annoyance, sleep disturbance²⁰
- Depression³⁸
- Increase in psychotropic medication use³⁸



REPRODUCTIVE HEALTH

- Genitourinary hospitalizations²⁵
- Sexually transmitted infections – gonorrhea, chlamydia^{31-33,40,41}

Note: These outcomes have been attributed to an influx of temporary workers and associated truck traffic that occurs during shale gas development.

If you have health concerns related to shale gas development, you should speak with a trusted health or mental health professional. For additional resources, visit environmentalhealthproject.org.

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