THE ENVIRONMENTAL & MATERNAL + CHILD HEALTH TOOLKIT

PROTECT THE HEALTH OF YOU AND THOSE YOU CALL FAMILY
The goal of *The EH & MCH Toolkit* is to highlight common environmental threats to maternal and child health. Covering both physical and behavioral EH risks, the toolkit identifies direct sources of exposure, discusses dangerous health consequences for women and infants, and provides tips for prevention and resources. The toolkit aims to raise awareness through evidence-based information and serves as an educational guide to improve MCH well-being and development.

While the topics in this toolkit relate to mothers and children, it may also be useful to parents, caretakers, families, and friends of pregnant people.
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INTRODUCTION

ENVIRONMENTAL HEALTH

Environmental health (EH) is the study of people and the environment. Environmental health is a branch of public health, and together they help protect people from disease and injury that is linked to the environment. This is achieved through education, correcting environmental hazards, and promoting environmental justice. By working in the community to solve environmental health problems, both private and public organizations can work to limit causes of disease and injury.

MATERNAL & CHILD HEALTH

Maternal & child health (MCH) examines the health of women and infants before, during, and after pregnancy. Public health programs target access to OBGYN care, identifying risk factors for mortality and preterm births, and preventing pregnancy complications. Promoting healthy practices and providing a supportive network during this period of physical, mental, and emotional vulnerability facilitates the overall health outcomes and wellbeings of both mother and child.

Information in this toolkit is up to date as of July 2023.
Our day-to-day environment contains many potential hazards and threats that may harm human health. While these dangers can harm any part of the population, certain groups are more likely to experience higher rates of disease and injury. This is the case with pregnant mothers and children, due to their vulnerable status.

Climate change continues to threaten the world around us, making it vital to address these environmental hazards within the community as early as possible. Knowing the risk behaviors, promoting prevention, and emphasizing good public health practices can promote long-term health of mothers and infants. In turn, we can improve the health of the entire population.
Vulnerable populations are groups requiring additional protection in the scope of public health. The Centers for Disease Control and Prevention (CDC) uses several indicators (demographic, health status, occupation, income) to help determine which communities are most “vulnerable.” Pregnant women and children are among these groups.

**PREGNANT WOMEN**

Pregnancy presents a wide range of physical, emotional, personal, and developmental challenges (morning sickness, changing bodies, accounting for another human life, family planning, etc.). Experiencing such tremendous changes, pregnant women are predisposed to several health complications particularly during labor and delivery.

- **Risks:** Pre-eclampsia, cardiac arrest, stroke, postpartum depression
- **Maternal Mortality:** 32.9 deaths/100,000 live births in USA *(CDC, 2021)*
  - Death by any cause related to pregnancy (excludes accidents/incidents)
- **Goal:** Ensure maternal health through perinatal & postnatal periods

**INFANTS & CHILDREN**

Infants and children are constantly undergoing rapid and various rates of development, making them one of the world’s most vulnerable populations. Their bodies are physically, neurologically, and behaviorally different from an adult’s. Therefore, even when exposed to the exact same stressors as adults, they require certain adjustments and extra attention.

- **Risks:** Developing immunity, developmental/behavioral delay
- **Infant Mortality:** 543.6 deaths/100,000 live births in USA *(CDC, 2021)*
  - Death by any cause before the infant’s first birthday
- **Goal:** Safe birth and healthy childhood development
## TYPES OF EH ISSUES

### PHYSICAL ENVIRONMENT & SOCIAL ENVIRONMENT

<table>
<thead>
<tr>
<th>PHYSICAL ENVIRONMENT</th>
<th>SOCIAL ENVIRONMENT</th>
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</thead>
<tbody>
<tr>
<td>The environment that physically surrounds a person and includes tangible elements and structures.</td>
<td>The social setting made up of a person's behaviors, beliefs, customs, and practices.</td>
</tr>
<tr>
<td>Physical, chemical, biological, or radiological agents.</td>
<td>Relationship dynamics, personal lifestyle habits, or social status.</td>
</tr>
</tbody>
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### CHEMICAL EXPOSURES

<table>
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### CLIMATE CHANGE

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### COMMUNITY & RELATIONSHIPS

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<td>Social Isolation</td>
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<td>Neighborhood</td>
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</table>

### SOCIOECONOMIC STATUS

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<th>Page</th>
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<tbody>
<tr>
<td>SES, Poverty, &amp; Access to Care</td>
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</table>

### SUBSTANCE USE

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
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<td>Alcohol</td>
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<td>Cannabis</td>
<td>52</td>
</tr>
<tr>
<td>Smoking</td>
<td>54</td>
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<tr>
<td>Opioids</td>
<td>57</td>
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</tbody>
</table>

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Environmental hazards exist all around us. Some, like smog and air pollution, are easier to detect. However, many are hidden in products and activities we use and do daily.

Interact with the map below to explore where you may find physical health hazards in your community.

How to navigate:
- Hover your mouse over the blue dot to read a summary on each specific hazard
- Click the underlined title to learn more about that hazard, the MCH impacts, and ways to prevent negative health outcomes
Humans come into contact with chemicals every day.

Brushing your teeth involves chemicals. However, when instructions about how to use toothpaste are properly followed, you should not be harmed.

However, not all chemicals are safe.

If humans come into contact with harmful chemicals, they may experience injury or disease.

This section will cover a variety of chemical exposures, including air pollution, lead, mercury, PFAS, pesticides, and endocrine disruptors.

We encourage you to visit the resources section on page 65 to find out more to protect you and the health of your friends and family.
Clean air is necessary to sustain life on earth. However, both human and natural activities can increase the amount of harmful chemicals within the air. This can lead to air pollution, which can have a profound impact on human health.

Air pollution is found both indoors and outdoors:

<table>
<thead>
<tr>
<th><strong>INDOOR SOURCES</strong></th>
<th><strong>OUTDOOR SOURCES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Combustion sources within homes (includes tobacco, heating and cooking supplies that use wood or coal)</td>
<td>• Transportation, such as burning fuel for cars, trucks, ships, planes, and trains</td>
</tr>
<tr>
<td>• Cleaning supplies, paint, insecticides</td>
<td>• Industrial emissions, such as factories burning fuel for energy</td>
</tr>
<tr>
<td>• Building materials (new or old)</td>
<td>• Methane emissions from cows</td>
</tr>
<tr>
<td>• Outdoor sources entering the home through window</td>
<td>• Stationary power generation</td>
</tr>
<tr>
<td></td>
<td>• Chemical manufacturing</td>
</tr>
<tr>
<td></td>
<td>• Wildfires or volcanic eruptions</td>
</tr>
</tbody>
</table>

Visit the Climate Change section on Page 27 to learn more about how greenhouse gases can increase global temperatures.
PARTICULATE MATTER

Particulate matter (PM) are tiny pieces of solids or liquids within the air, such as dust, dirt, soot, or smoke that can be harmful to human health. Particulate matter varies in size, and can be small or large.

Small particulate matter is known as ‘PM2.5’ and is considered hazardous as their size makes it easier to enter the lungs and bloodstream. Tobacco smoke is a common type of small particulate matter.

Large particulate matter is known as ‘PM10’ and can be irritating to the eyes, nose, and throat. Dust is one common type of large particulate matter.

MATERNAL & CHILD HEALTH IMPACTS

Air pollution exposure during pregnancy can have severe health consequences for pregnant people and their children:

- Increase risk of pre-term delivery and stillbirth
- Higher risk that baby will have low birth weight
- More likely to develop heart defects
- Greater risk of miscarriage
- Increase the occurrence of asthma
- Cause bronchitis and lung damage
- Harm brain development, cardiovascular and immune systems
Smoke from the occasional wildfire can reach your community and have negative health effects.

AIR QUALITY

Air pollution can worsen on certain days due to multiple environmental factors. Pregnant women and those with children should pay attention to air quality alerts and take appropriate action to limit time exposed to air pollution.

AIR QUALITY ALERTS

The Air Quality Index (AQI) is what the EPA uses to report air quality. It is a useful tool for finding out what the air quality looks like in your area. This tool can be found online, or on the weather app on your smartphone. The AQI is useful to identify when certain sensitive groups should avoid being outside, due to potential health effects. Sensitive groups are people who experience health effects when exposed to the air.

Visit the Climate Change section on Page 27 to learn more about how wildfires will effect human health.
## AIR QUALITY INDEX CHART

Use **this chart** to understand the meaning of air quality alerts:

<table>
<thead>
<tr>
<th>Daily AQI Color</th>
<th>Levels of Concern</th>
<th>Values of Index</th>
<th>Description of Air Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Good</td>
<td>0 to 50</td>
<td>Air quality is satisfactory, and air pollution poses little or no risk.</td>
</tr>
<tr>
<td>Yellow</td>
<td>Moderate</td>
<td>51 to 100</td>
<td>Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.</td>
</tr>
<tr>
<td>Orange</td>
<td>Unhealthy for Sensitive Groups</td>
<td>101 to 150</td>
<td>Members of sensitive groups may experience health effects. The general public is less likely to be affected.</td>
</tr>
<tr>
<td>Red</td>
<td>Unhealthy</td>
<td>151 to 200</td>
<td>Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.</td>
</tr>
<tr>
<td>Purple</td>
<td>Very Unhealthy</td>
<td>201 to 300</td>
<td>Health alert: The risk of health effects is increased for everyone.</td>
</tr>
<tr>
<td>Maroon</td>
<td>Hazardous</td>
<td>301 and higher</td>
<td>Health warning of emergency conditions: everyone is more likely to be affected.</td>
</tr>
</tbody>
</table>
PROTECTIVE ACTIONS

- Pay attention to air quality alerts in the weather app
- Avoid burning leaves, trash, or other materials
- Use environmentally safe paints and cleaning products
- Wear an N95 mask when outdoors during poor air quality days
Heavy Metals

Heavy metals include lead, cadmium, cobalt, and mercury. Exposure to heavy metals can be higher in certain jobs, such as construction workers, miners, firing range employees, smelters, welders, and artists.

Exposure to lead and mercury are the focus of this section.

LEAD

Sources of exposure to lead include lead-based paint, water, food, soil, imported lead-based goods, and certain occupations.

The most common source of lead is lead-based paint, which is often found in homes built before 1978.

Lead can enter the body through inhalation or ingestion:

- **Inhalation** or breathing in lead can occur when products containing lead are melted or burned.
- **Ingestion** of lead can occur in homes where lead paint is stripped back, or when children put lead paint chips in their mouth.
- **Ingestion** of lead-contaminated dust, water, and food can also occur. Contamination can also occur when water travels through lead pipes in a home.

Homes built before 1978 are more likely to contain lead paint.
LEAD POISONING

Lead poisoning occurs through breathing in or swallowing lead.

Children under six years of age are at a high risk of lead poisoning, as they are still growing very rapidly at this stage and their bodies can absorb lead very easily.

Once lead enters the body, it is stored in the bones and tissues and can be released into the bloodstream and pass to the fetus during pregnancy.

MATERNAL & CHILD HEALTH IMPACTS

Lead exposure can have severe health consequences for pregnant people and their children:

- Miscarriage
- Low birth weight
- Pre-term birth
- Damage to the brain and nervous system
- Learning, memory, hearing, and speech problems
- Developmental delays
- Negatively impact intellectual and motor development
- Harm a baby’s brain, kidneys and nervous system
PREVENTION

The primary way to reduce exposure to lead is by removing lead-contaminated products from the home. If an adult or child has already been exposed to lead, it is important to visit a doctor to ask about blood-testing to analyze the extent of the exposure and create a care plan.

Women and children who should discuss lead testing with their care provider include those who:

- Live in homes built before 1978
  - These homes may contain lead paint or lead pipes
- Live with someone who works with lead for their job
- Recently immigrated from an area where lead contamination is high (i.e. living in an area where leaded gasoline is still used)
- Live near a current or closed lead source such as mines, battery recycling plants, or smelters

There is no safe amount of lead for anyone to ingest. If you believe you have been exposed to lead, ask your doctor about blood testing.
Mercury is the most toxic heavy metal in the environment. Sources of mercury exposure include:

- contaminated fish and shellfish
- silver dental fillings, also known as 'crowns'
- broken fever thermometers
- antiques
- some jewelry

### MATERNAL & CHILD HEALTH IMPACTS

High exposure to mercury during pregnancy can cause damage to:

- NERVOUS SYSTEM
- LUNGS
- KIDNEYS

Fish is the most common source of mercury.

Fish is still an important source of vital nutrients that supports the development of a baby’s brain and spinal cord during and after pregnancy.

Mercury in the mother's body can be spread to a breastfed infant. There are ways to safely consume fish during pregnancy and breastfeeding.

If you are concerned about mercury exposure, talk to your doctor about testing.
PROTECTIVE ACTIONS

In most cases fish can be safely consumed during pregnancy and breastfeeding. The FDA and EPA recommend choosing fish that are lower in mercury. This chart can be used to make that choice easier, and is summarized below:

<table>
<thead>
<tr>
<th>Best Choices</th>
<th>Good Choices</th>
<th>Avoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchovy</td>
<td>Tuna (including albacore, yellowtail, white; canned,</td>
<td>King mackerel</td>
</tr>
<tr>
<td>Atlantic mackerel</td>
<td>fresh, or frozen)</td>
<td></td>
</tr>
<tr>
<td>Catfish</td>
<td>Mahi mahi</td>
<td>Bigeye tuna</td>
</tr>
<tr>
<td>Cod</td>
<td>Snapper</td>
<td>Shark</td>
</tr>
<tr>
<td>Flounder</td>
<td>Halibut</td>
<td>Swordfish</td>
</tr>
<tr>
<td>Herring</td>
<td>Spanish mackerel</td>
<td></td>
</tr>
<tr>
<td>Lobster</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oyster</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salmon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sardine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scallop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrimp</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skipjack tuna</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tilapia</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Consider switching from a mercury thermometer to an electric thermometer.

NEVER use a vacuum or broom to clean up mercury spills. Contact Poison Control if you are exposed to mercury.
PFAS (per- and polyfluoroalkyl substances) are a group of man-made chemicals that have been used since the 1940s in many different industrial and consumer products.

PFAS have been of greater concern to the public in recent years. Information on PFAS is being updated every day, and there may be updated information since the creation of this toolkit.

HAZARDOUS EXPOSURES

PFAS are widely used. In the environment, these chemicals are found in:

- **SOIL**: PFAS are often found in the soil near contaminated areas from factories.
- **AIR**: PFAS enter the air from factories that use the chemicals and emit them.
- **WATER**: PFAS are found in both private wells and public water systems.
PFAS exposure occurs most commonly by eating and drinking contaminated food and water, including:

- Drinking contaminated water
- Eating fish from contaminated water
- Eating food grown near areas with high levels of PFAS
- Eating foods prepared in packaging made with PFAS

PFAS can be found in just about any consumer product. Some of the most common products include:

- Carpet
- Fabric
- Firefighting foams
- Non-stick coating on cookware and food packaging

**MATERNAL & CHILD HEALTH IMPACTS**

Exposure to PFAS in pregnant people and their children may lead to:

- Increased risk of high blood pressure
- Higher risk of pre-eclampsia
- Decreased vaccine response in children
- Low birth weight in infants

PFAS can pass from an exposed mother to their baby through breastfeeding, but the CDC currently maintains that any harm from PFAS does not outweigh the benefits of breastfeeding.
PROTECTIVE ACTIONS

- Call your water company to find out if PFAS are in your water
- Look into private well testing if you are not on public water
- Avoid consuming fish caught in water contaminated with PFAS
- Avoid fast & processed foods, as the packaging often uses PFAS
- Be aware of common sources of PFAS & try to buy alternatives

- If you are on a private well, visit the EPA’s site to look for a list of approved labs that test for PFAS
  - Please note that lab testing may be expensive
- Stay up to date about PFAS by visiting the EPA’s website
- Use Virginia's PFAS Detection tool to learn more about PFAS in your area

Levels of PFAS in bottled water are not monitored by the FDA, so drinking from them is not necessarily a safe alternative.

Technologies such as activated carbon or ion exchange treatment are used to filter PFAS from the water. These treatments will often be utilized in drinking water treatment facilities.

If you are on private well water, these treatments can be used where water enters the home. It is important to note that the cost can vary for private treatments in the home.

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Pesticides

Pesticides are chemicals used to control pests and plants.

Certain pests or plants are limited because they are known to carry disease, such as mosquitoes, ticks, fleas, rats, and mice. Diseases that can be spread by these pests include:

- **Mosquitoes**: dengue, malaria, chikungunya, yellow fever, zika
- **Ticks**: lyme disease
- **Fleas**: plague
- **Mice & rats**: salmonella, plague, monkeypox

Some examples of pesticides include:

- **Insecticides**: control insects
- **Herbicides**: control weeds or other unwanted plants
- **Fungicides**: control mold, mildew, and rust

**HAZARDOUS EXPOSURE**

Pesticides are widely used due to their useful application. *Reference pages 24 & 39 for more information about safely using pesticides.*

Exposure to small amounts of pesticides is also common due to their heavy use. However, pesticides can harm human health when used unsafely, especially in high amounts.
MATERNAL AND CHILD HEALTH IMPACTS

Some pesticides can have negative health effects on the population, especially pregnant women and children. Long term exposure to pesticides over time may lead to:

- Cancer
- Damage to nervous system
- Thyroid hormone imbalance
- Difficulty breathing
- Organ damage
- Learning difficulties
- Birth defects

PROTECTIVE ACTIONS

It is important to exercise caution when using pesticides.

- Proper storage and labelling of pesticides in the home
- Do not use more than needed
- Always read the product's label
- Follow the label's instructions
Endocrine Disrupting Chemicals

Certain pesticides are also classified as endocrine disruptors. Endocrine disrupting chemicals (EDCs) are substances that can interfere with the body’s endocrine system. The endocrine system plays a large role in how hormones are used throughout the body.

The endocrine system plays a role in:

- Sleep
- Metabolism
- Reproduction
- Growth and development

EDCs can interfere with hormones by changing how they are made, broken down, and used in functions in the body.

HAZARDOUS EXPOSURE

Common EDCs include BPA, dioxins, perchlorate, PFAS, phthalates, parabens, phenols, phytoestrogens, certain flame retardants, PCBs, and triclosan. These chemicals are often found in products such as:

- Plastic bottles and containers
- Food can liners
- Detergents
- Toys
- Cosmetics
- Pesticides
Endocrine disrupting chemicals (EDCs) have been linked to health problems among pregnant people and children, such as:

- Changes to intellectual function
- Impacts on the central nervous system

Though EDCs are still being studied, there is some evidence to suggest a link between EDCs and the following conditions:

- ADHD
- Decreased immune response to vaccines
- Disruption to metabolism
- Changes in puberty
- Fertility and reproduction issues

**PROTECTIVE ACTIONS**

- Read labels on commonly used consumer goods
- Try purchasing BPA-free products
- Avoid personal care products with phthalates or parabens
- Do not store plastic packaged food or water in a hot car
- Avoid microwaving plastic containers
- Wash fruits and vegetables before eating them
CLIMATE CHANGE refers to a combination of higher temperatures, increasing sea levels, and shifts in weather patterns resulting in flooding, droughts, and more.

These activities can be the result of natural events such as volcanic eruptions or changes in the sun’s energy, but HUMAN ACTIVITY has shown to be one of the main driving forces.

BETWEEN 1901-2020 temperatures across the world increased by **1.98 °F**

While this may not seem like a lot, on a global scale this increase is unusual and has severe health-related consequences.

WHY? The release of greenhouse gas emissions (burning of coal, natural gas, and oil) traps heat in the earth's atmosphere causing rises in temperature.
Emissions

HAZARDOUS EXPOSURES

Burning fossil fuels and cutting down forests release harmful amounts of **carbon dioxide and greenhouse gases** in the air. These gases absorb and **trap heat in the atmosphere**. Without proper removal, heat will continue to accumulate and gradually increase global temperatures.

- **Rising Temperatures**
- **Excessive Heat**
- **Unusual Weather Patterns**

If emissions continue at its current rate, the earth's temperature could **increase by 5 to 10 °F** in the next 70 years.

MATERNAL & CHILD HEALTH IMPACTS

Heat exposure presents major health risks for pregnant people, as the body works harder to regulate both their temperature and the baby's.

- **Dehydration**
- **Exhaustion**
- **Heat stroke and/or heat-related death**

Harsh, hot weather may also deter or prevent easy access to transportation and medical care.
PROTECTIVE ACTIONS

- Drink plenty of fluids to stay hydrated
- Limit time outside and maximize time in shady spots
- Wear lightweight clothing
- Avoid high-impact exercise and sweat-inducing activities
Flooding

HAZARDOUS EXPOSURES

Changes in climate are causing more frequent precipitation and rainfall leading to rising sea levels, hurricanes, surge storms, and floods.

- Increased Precipitation
- Rising Sea Levels
- Hurricanes
- Destructive Flooding
- Surge Storms

**VA SEA LEVEL BY YEAR (2004-22)**

Yearly sea level change in Norfolk, VA. Increasing trend shows gradual rise in sea level from 2004-2022.

**INTERACTIVE COASTAL MAP**

Link to interactive, visual map that shows changes in sea level, and storm/flood risk zones.

**INJURIES**
- Cuts, punctures, fractures, broken bones, physical blows

**DAMAGES**
- Buildings, roads, food/water supply, communities, personal property

**DEBRIS**
- Tree branches, broken glass, loose waste, electrical lines

**DROWNING**
- Even strong swimmers can get swept away by strong waters
### MATERNAL & CHILD HEALTH IMPACTS

The emotional and physical stress of floods and natural disasters have been linked to the following MCH outcomes:

- Anemia (low red blood cell count)
- Eclampsia (high blood pressure and potential seizures)
- Miscarriage
- Post-Traumatic Stress Disorder (PTSD)
- Pre-term birth
- Low birth weight

Physical damages are not the only hazards that come with extreme precipitation. **Bacteria or viruses** in flood water may mix with drinking water and cause **waterborne illnesses**. This can cause acute infections in pregnant mothers and subject fetuses to severe future birth defects.

<table>
<thead>
<tr>
<th>TOP WATERBORNE DISEASES IN THE US</th>
<th>SYMPTOMS</th>
<th>MCH COMPLICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Otitis Externa &quot;Swimmer's Ear&quot;</td>
<td>Tenderness, pain, itchiness, swelling in the ear; fluid discharge</td>
<td>No known fetal risk, but ear discomfort in mother</td>
</tr>
<tr>
<td>Norovirus</td>
<td>Diarrhea, nausea, stomach pain, vomiting</td>
<td>Electrolytes imbalances may cause pre-term birth or urinary tract infections</td>
</tr>
<tr>
<td>Giardia</td>
<td>Diarrhea, dehydration, gas, greasy stools, stomach pain, vomiting</td>
<td>Malabsorption (problem with intestines absorbing nutrients) and diarrhea may affect fetus</td>
</tr>
</tbody>
</table>
The build-up of moisture in flood debris could also lead to mold growth. These fungi spread through the release of spores, which are small airborne particles, and can cause the outdoor air quality to worsen.

PROTECTIVE ACTIONS

- Create a flood plan - risk evaluation, evacuation, safe spots
- Prepare emergency kits - first aid, food/water, batteries
- WAIT! Do not attempt to go out during an emergency
- Proceed with caution when walking through debris

Visit the Outdoor Air Quality section on page 35 to learn more about how airborne irritants affect respiratory health.
Foodborne Infections

HAZARDOUS EXPOSURES

Perishable foods, and especially raw meats, must be kept at certain temperatures to be safe for consumption. Warm temperatures and humidity create a favorable environment for pathogen growth in these foods. **Salmonella** is one of the most common types of bacteria that causes food poisoning. Recent data suggests that **warming trends may be causing an increase** in Salmonella cases.

**Bacteria:** Salmonella, E. coli  
**Viruses:** Norovirus, rotavirus  
**Parasites:** Giardia, tapeworms

Salmonella is contracted through undercooked food or contaminated water and causes **gastrointestinal irritation**.

**FECES**
Contact with the stool of infected wild or domestic animals

**WATER**
Aquariums or tanks can contaminate human water

**SALIVA**
Contact with animal feeders, dry food, or pet toys

**MEAT**
Undercooked or raw meat, seafood, or unpasteurized dairy

Monthly Salmonella cases in Mississippi (2002-11) show higher incidence rates during the warm summer months.
Foodborne illness can have severe health consequences for pregnant people and their children:

- Dehydration
- Bacteria in bloodstream
- Inflammatory diseases (meningitis or arthritis)
- Birth defects
- Low birth weight

**FDA TEMPERATURE GUIDE**

- **MEAT & POULTRY:** 140-160 °F
- **EGGS:** until yolk and whites are firm
- **SEAFOOD:** at least 145 °F
- **LEFTOVERS:** at least 166 °F

Fully cooking your food can help prevent Salmonella! The US Food & Drug Administration recommends these temperatures.

**PROTECTIVE ACTIONS**

- Thoroughly cook meats based on FDA recommendations
- Wear latex or protective gloves when handling raw meat
- Wash your hands before and after touching animals
- Throw out meats that are past their "Best Before" dates

Always remember to wash your hands after handling raw meat and disinfect all surfaces, plates, & utensils!
Outdoor Air Quality

HAZARDOUS EXPOSURES

Changes in climate cause longer, more intense wildfire and allergy seasons. Their byproducts - smoke, carbon dioxide, and respiratory irritants (pollen/airborne allergens) - pollute and reduce the air quality.

Smoke  Hazardous Chemicals  Respiratory Irritants

MATERNAL & CHILD HEALTH IMPACTS

Exposure to poor outdoor air quality can have severe health consequences for pregnant people and their children:

- Coughing, wheezing, sinus irritation
- Respiratory diseases (bronchitis, asthma, emphysema)
- Damage to lungs & heart
- Miscarriage or pre-term birth
- Intrauterine growth restriction
- Congenital abnormalities or defects
- Infant mortality
- Low birth weight
- Changes in brain and lung development
PROTECTIVE ACTIONS

- Limit outdoor activities during peak wildfire/allergy season
- Wear a surgical-grade face mask
- Check the Air Quality Index (AQI) before going outside
- Improve indoor air quality with an air purifier or filter
Vector-Borne Infections

HAZARDOUS EXPOSURES

Temperature changes impact seasonal weather patterns causing increased precipitation, longer summer months, and general climate changes. These changes can be favorable for disease carrying organisms (vectors) that are typically only active during certain times of the year. Vectors surviving for longer periods of time can lead to increased disease transmission.

- **Mosquitos**: dengue, malaria, chikungunya, yellow fever, zika
- **Ticks**: Lyme disease
- **Fleas**: plague
- **Snails**: schistosomiasis

Mosquitos, ticks, fleas, and snails carry infectious pathogens that can be passed to humans through biting or bloodsucking.

Due to Virginia’s heavily forested areas, which are breeding grounds for ticks, **LYME DISEASE** is the most common vector-borne infection.

![Map showing Lyme disease prevalence in Virginia from 1996 to 2018.](image)

From 1996 to 2018, the prevalence has significantly risen and swept across the Northeastern region of the United States, including Virginia.
LYME DISEASE

HOW IS IT SPREAD?
Lyme disease is spread through small, often unnoticeable tick bites. At first, most experience minimal irritation and are unaware the bite, unless the site is on a visible part of their body.

WHAT ARE THE SIGNS?
Lyme disease can cause severe swelling, heart palpitations, headaches, muscular stiffness, or neurological pain.

WHAT ARE THE DANGERS?
While the rates of transmission from mother to infant are low, during pregnancy, Lyme disease is dangerous for the mother’s individual health and can cause infections in the placenta. Longer-lasting symptoms may include arthritis, fatigue, or trouble with cognitive functions like memory.

Untreated symptoms only get worse! If you think you have Lyme disease, seek medical attention immediately.

KNOW WHAT TO LOOK FOR! Lyme disease rashes have a very distinct, circular shape. It is very common to see multiple rings around the main site, resembling a bullseye pattern. They can look different depending on skin color.

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PROTECTIVE ACTIONS

☐ Check yourself and others for ticks after being outside
☐ Avoid grassy, woody areas - stay on clear paths
☐ Wear sleeved-shirts (tucked in), socks, & closed-toed shoes
☐ Use EPA-approved repellents (DEET, picaridin, IR3535, etc.)

Check if your repellent is Environmental Protection Agency (EPA) registered at https://www.epa.gov/insect-repellents
The Social Determinants of Health (SDOH) are economic and social factors which examine health through a non-medical lens. The 5 categories consider how policies, social norms, identities, and systems shape the way people live and impact their quality of life.

The SDOH influences a person's living conditions and environment. These societal exposures may have negative impacts on maternal and child health outcomes. Below are social environment risk factors for MCH and how they relate to the SDOH.
Community support and mental health play a vital role in maternal and child outcomes. A stressful social environment surrounding a mother and child significantly impact wellness and development.

Stressful social environments are linked to... 
- **DEPRESSION** in 93% of research studies on perinatal mental health
- **ANXIETY** in 75%
- **SELF HARM** in 75%

Social support from partners & families can help block the effects of Mental Health Challenges by increasing a mother's subjective well-being (SWB)

Mothers with strong social networks show:
- Less poor pregnancy outcomes
- Stronger confidence in parenting abilities
- Deeper bonds with their children

**MEASURES OF SWB**
- **QUALITY OF LIFE**
- **HAPPINESS**
  - (+) and (-) AFFECTIVITY
- **SATISFACTION WITH LIFE**
Family Stress

CONTRIBUTING FACTORS

While raising a family is fulfilling, managing all the responsibilities, obligations, and pressures can be a challenge. Often stressful family events overlap, build up, and cause tremendous strains. Some common situations that can create a stressful home environment are:

Conflicting Schedules: Overlapping responsibilities (work, school, extracurriculars, sports, etc.), limited time, transportation, or if the children's activities require active parental involvement.

Child Development: As children grow, they experience various physical, emotional, and mental changes (entering school, socialization, puberty, relationships, etc.). Transitioning between stages, from birth through adolescence, requires constant guidance and discipline.

Financial Planning: Short- and long-term budgeting for the costs of living, family expenses, and other unexpected expenditures.
Family Discord: Differences in personality, stage of life, and opinion lead to strains and conflict. Disagreements between any family members (partner to partner, parent to child, sibling to sibling, etc.) affects the entire household.

Martial Conflict: Arguments between parents are normal, especially when trying to balance work, life, and home roles. Relationship conflicts create high-tension environments and can make the family dynamic uncomfortable.

Conflict is normal, but when does it become too much? Know the warning signs of a potentially abusive situation.

- Signs of extreme jealousy
- Complete control of finances
- Sexual pressure or coercion
- Verbal or physical intimidation
- Destruction of personal things
- Preventing independence

QUICK FACTS

- 1 in 3 WOMEN and 1 in 4 MEN are victims of physical domestic violence
- In the US ~20 PEOPLE PER MINUTE are physically abused by a partner
- WOMEN AGES 18-24 are the most commonly abused age group

If you believe you are in a potentially unsafe environment, call the 24/7 National Domestic Violence Hotline (1-800-799-7233) or text "START" to 88788.

For additional support, see our domestic violence resources (page 71)
STRESS MANAGEMENT

While many social environment stressors are unavoidable, communicating your needs and limits to your family can help reduce some pressure throughout your pregnancy.

- Lean on your family and friends

  As stressful as parenting can be, your family and friends are here for you. Spend time doing leisure activities (walks, games, movie nights, etc.) and other enjoyable activities.

- Ask for help from your partner/spouse

  Communicate your concerns and worries with your partner. The more they know the better they are able to help, create solutions to alleviate stresses, and take some responsibilities off of you.

- Explore workplace & community resources

  - Research what benefits and resources your job offers
  - Explore what your community distribution centers offer (strollers, cribs, baby clothes)
  - Ask friends or co-workers for used baby supplies

- Reserve consistent "Me" time in your family's schedule

  Take breaks for yourself. Block off specific times in the family schedule that are reserved just for you. Mediation, self-care nights, reading, or doing other hobbies are great for relieving stress.
Social Isolation

CONTRIBUTING FACTORS

Pregnancy can feel **lonely** when mothers **disconnect from their regular social network** of friends and colleagues. Pregnancy factors, emotional changes, and other barriers can disrupt normal social activity and cause pregnant women to experience **isolation**:

**Physical Limitations:** Some pregnant women are encouraged to reduce physical demands like high intensity activities and heavy lifting to avoid potential miscarriage, preterm birth, or injury. Especially during the last trimester when their mobility is restricted, this may discourage women from participating in their usual social activities.

**Restricted Travel:** While most travel guidelines (for planes, cruises, etc.) allow pregnant women onboard until about 24-28 weeks, many choose to delay unnecessary travel until after giving birth. This may cause them to go months without seeing long-distance friends and family.

**Maternity Leave:** For working mothers, taking time off from their jobs is a drastic social shift. Going from daily social stimulation at work to a slower pace at home can feel disjointing.

**Emotional Withdrawal:** The physical and hormonal challenges of pregnancy can lead to varying moods, body dissatisfaction, discouraged mindsets, etc. all of which may lower a mother's motivation to socialize. While often unintentional, that emotional withdrawal can impact in their social network.

**Women experiencing social isolation are at a higher risk for death during or after pregnancy**
TIPS TO AVOID ISOLATION

You may not be able to participate in all of your normal pre-pregnancy social events, but it's still important to stay connected. Find alternative ways to maintain contact and lean on friends for support.

- **Plan regular activities with friends**
  
  Commit to regular activities with your friends. Whether that be low-impact outings or a girl's night in, remember that your friends are here for you.

- **Stay virtually connected**
  
  For those long-distance friends, stay connected online. Social media and video calls make it easier to maintain those relationships.

- **Find your local pregnancy support group**
  
  Find other mothers in your community through local pregnancy support groups. These can be great for sharing pregnancy tips, getting advice, and surrounding yourself with others going through similar experiences.

Having support after birth is just as important as during pregnancy. Postpartum Support International has multiple chapters that offer peer support and resources.
Neighborhood Contributing Factors

It's important to examine a pregnant woman's surrounding community and neighborhood. Characteristics such as neighborhood quality, safety, and density contribute to emotional and physical distress.

**Violence & Crime**
Areas with high violence or crime rates can cause ongoing safety concerns and contribute to stress, high blood pressure, low physical activity, and postpartum depression.

**Urban Areas**
Individuals in both highly populated or sparsely populated areas may have transportation and financial challenges, which are linked to higher levels of depression.

**Weak Community**
Neighborhoods with a weak sense of community can further socially isolate pregnant women. Not having reliable, supportive neighbors to call in cases of emergency can also be dangerous for expecting mothers.

Emergency Resources
Know what emergency resources are available in your area and make sure they are easily accessible in case of an emergency.

- Emergency/Disaster Services (by phone or hotline)
- Medical Support (OBGYN, your practitioner, local hospital)
Socioeconomic status (SES) describes how the combination of social and economic factors determine a person’s relative place in society.

SES IS DETERMINED BY

- Type of Occupation
- Income
- Level of Education

they create inequalities in

Power
Privilege
Opportunity

Socioeconomic status impacts access to health care and can create disparities and barriers to the quality of care.

- Unaffordable medical services
- Costs of transportation
- Childcare & baby supplies expenses
MATERNAL AND CHILD HEALTH IMPACTS

- Inconsistency with and gaps in perinatal care
- Lack of pre-natal screening to detect complications
- Lack of health care provider or peer support
- Lack of lifestyle and nutrition advice
- Limited tools to prepare for labor and delivery
- Pre-term birth
- Intrauterine growth restriction
- Infant mortality

Prenatal care provides benefits to babies before and after birth, including positive impacts to neurological development.

POSITIVE DEVELOPMENTAL OUTCOMES

- Higher rates of reading and cognitive abilities
- Decreased behavioral problems
- Decreased risk of attention deficit-hyperactivity disorder (ADHD)
SUPPORT SERVICES

Low-Cost Prenatal Care Services

- Family-planning clinics
- Community health centers
- Medicaid
- Planned Parenthood

Baby Supplies Distribution Centers/Organizations

- SERVE
- VDH Low Income Safety Seat Program
- National Diaper Bank Network
- Community food banks, shelters, etc.
According to the CDC, 10% of pregnant women reported alcohol use while pregnant.

40% of women who reported alcohol use while pregnant also reported using other substances (CDC, 2020).

Substance use refers to the use of drugs such as alcohol, tobacco, or other drugs that can be consumed, inhaled, injected, or absorbed into the body with possible dependence or other effects.

This section will cover alcohol, cannabis, smoking, and opioids.

Understanding the risks of substance use can help protect you and those you call family.

Utilize the resources in this toolkit to find out how you can get support.
Alcohol

Alcohol is an ingredient that is found in beverages, such as beer, wine, and liquor. Drinking any alcoholic drink can lead to intoxication and other serious health effects.

There is no safe amount of alcohol to consume during pregnancy.

Alcohol passes to the fetus from the mother's blood through the umbilical cord.

MATERNAL AND CHILD HEALTH IMPACTS

Alcohol use while pregnant can have severe health consequences for pregnant people and their children:

- Increased risk of miscarriage
- Fetal Alcohol Spectrum Disorders (FASDs)

Fetal alcohol spectrum disorders include a range of problems resulting from consumption of alcohol during pregnancy, including:

- abnormal facial features
- small head size
- low body weight
- hyperactive behavior
- learning difficulties and disabilities
- speech and language delays
- intellectual disabilities
- issues with the heart, kidneys and bones

FASDs last a lifetime and has no cure. To prevent FASDs, do not drink alcohol during pregnancy.
**INTERVENTIONS**

- ✓ Understand the risks of using alcohol while pregnant
  
  **VISIT:** [https://www.cdc.gov/alcohol/faqs.htm](https://www.cdc.gov/alcohol/faqs.htm)

- ✓ Get help if you can't stop drinking
  
  **VISIT:** [https://drughelpline.org/](https://drughelpline.org/)

- ✓ Know that it is never too late to stop drinking if pregnant
  
  **VISIT:** [https://www.cdc.gov/ncbddd/fasd/alcohol-use.html](https://www.cdc.gov/ncbddd/fasd/alcohol-use.html)

- ✓ Visit page 77 to learn about more resources that can help
Cannabis

Cannabis, also known as marijuana, is one of the most widely used drugs during pregnancy. Cannabis contains tetrahydrocannabinol (THC), which can cause mind-altering effects.

Cannabis can be smoked and/or consumed.

MATERNAL AND CHILD HEALTH IMPACTS

THC is also known to cross the placenta during pregnancy, which means it can cause harm to a developing baby. Additionally, the act of smoking cannabis has other negative health effects. See page 57 to learn more about the dangers of smoking.

Cannabis can pose a danger to health, whether it is smoked or consumed by eating gummies or food with THC. Cannabis is never safe to use during pregnancy, and may lead to:

- Increases risk of preterm birth
- Higher chance of stillbirth
- Issues with brain development
- Learning, memory, and decision making issues
- Alters coordination and reaction time

If you or a loved one struggles with substance use, contact SAMHSA's Helpline at 1-800-622-HELP (4357)

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Cannabis can also pass to breastfed babies through breastmilk, which can cause further complications for a baby’s developing brain.

CANNABIS AND BREAST MILK

Chemicals from cannabis products can pass to the infant through breastmilk.

It is not advised to use cannabis products while breastfeeding due to the potential health impacts on infants.
INTERVENTIONS

- Understand the risks of using marijuana while pregnant
  
  VISIT: [https://www.samhsa.gov/marijuana/marijuana-pregnancy](https://www.samhsa.gov/marijuana/marijuana-pregnancy)

- Know the risks of using marijuana if breastfeeding
  

- Know that cannabis smoke can be as harmful as tobacco smoke

  VISIT: [https://www.lung.org/quit-smoking/smoking-facts/health-effects/marijuana-and-lung-health#:~:text=Marijuana%20Smoke&text=Smoke%20from%20marijuana%20combustion%20has,and%20carcinogens%20as%20tobacco%20smoke.&text=Beyond%20just%20what%27s%20in%20there,typically%20smoked%20differently%20than%20tobacco.](https://www.lung.org/quit-smoking/smoking-facts/health-effects/marijuana-and-lung-health#:~:text=Marijuana%20Smoke&text=Smoke%20from%20marijuana%20combustion%20has,and%20carcinogens%20as%20tobacco%20smoke.&text=Beyond%20just%20what%27s%20in%20there,typically%20smoked%20differently%20than%20tobacco.)

- Visit page 77 to learn about resources that can help
Smoking

Nicotine is an addictive substance that is found in a variety of e-cigarettes, hookahs, pipes and tobacco products, such as cigarettes and cigars.

MATERNAL AND CHILD HEALTH IMPACTS

Smoking tobacco causes a variety of negative health outcomes for pregnant people and their children:

- More likely to develop heart disease
- Higher risk of stroke
- Higher risk of lung cancer
- Higher risk of abnormal bleeding
- Low birth weight
- Premature birth
- Damage to lungs and brain
- Higher chance of developing birth defects
- Increase risk of Sudden Infant Death Syndrome (SIDS)

Sudden Infant Death Syndrome (SIDS) is used to describe unexplained deaths among infants less than one year old. Lifestyle habits, such as quitting smoking can help reduce the odds of SIDS occurring.
SECONDHAND SMOKE

Even people who do not smoke can suffer from the health consequences caused by smoke. There is no amount of secondhand smoke that is safe to be exposed to.

Secondhand smoke is when nonsmokers breathe in smoke from people smoking tobacco or marijuana products nearby.

MATERNAL AND CHILD HEALTH IMPACTS

Secondhand smoke can have severe health consequences for pregnant people and their children during and after birth:

- More likely to have a newborn with low birth weight
- Lung cancer
- Changes in the way the brain regulates breathing
- Severe asthma that can be life-threatening
- Neonatal abstinence syndrome (NAS) - see page 62
- Increase risk of Sudden Infant Death Syndrome (SIDS)
INTERVENTIONS

Lifestyle changes to quit smoking can:

- Reduce the risk of developing smoking-related illnesses
- Improve oxygen flow and growth of the baby
- Decrease the risk of preterm birth

Prenatal cigarette exposure is the leading cause of infant morbidity and mortality in the United States.

DID YOU KNOW?

Understand the risks of smoking while pregnant

VISIT:

Understand the risks of secondhand smoke

VISIT: https://www.cdc.gov/tobacco/secondhand-smoke/health.html#:~:text=Secondhand%20smoke%20causes%20heart%20disease%20and%20stroke&text=Among%20adults%20who%20do%20not,each%20year%20in%20the%20U.S.&text=Adults%20who%20do%20not%20smoke%20and%20are%20exposed%20to%20secondhand,disease%20by%2025%E2%80%93%2030%25.
Thinking about quitting?
Quit Now Virginia is a FREE service for Virginians 13 years & older looking to quit.

- **Eliminate secondhand smoke from the home**
  
  **VISIT:** [https://www.cdc.gov/vitalsigns/tobacco/index.html](https://www.cdc.gov/vitalsigns/tobacco/index.html)

- **Talk to your doctor or find a resource to help quit**
  
  **VISIT:** [https://quitnowvirginia.org/](https://quitnowvirginia.org/)

- **Know that it is never too late to stop smoking if pregnant**
  
  **VISIT:**
  [https://www.cdc.gov/tobacco/campaign/tips/diseases/pregnancy.html](https://www.cdc.gov/tobacco/campaign/tips/diseases/pregnancy.html)

- **Visit page 77 to learn about resources that can help**
Opioids

Opioids are a class of drugs including:
- **prescription opioids** (oxycodone, hydrocodone, morphine)
- heroin
- fentanyl

Prescription opioids may be given to patients by doctors to **treat moderate to severe pain**.

Opioids have a **high potential for abuse** and have dangerous side effects, such as **overdose**.

**An overdose is when a drug overwhelms the body, often making it more difficult to breathe, and can result in death.**

**MATERNAL AND CHILD HEALTH IMPACTS**

The use of opioids during a pregnancy can have severe health consequences for pregnant people and their children:

- **Opioid use disorder**
- **Higher chances of experiencing overdose or death**
- **Pre-term birth**
- **Stillbirth**
- **Neonatal abstinence syndrome (NAS)**
Neonatal abstinence syndrome (NAS) occurs when babies are exposed to substances in the womb. Upon birth, these babies show symptoms of withdrawal that can last between 4 and 6 months.

Symptoms of NAS includes:

- Seizures
- Birth defects
- High-pitched crying
- Overactive reflexes
- Sweating, vomiting, diarrhea
- Sleep issues

QUICK FACTS

- 75% of drug overdoses that occurred in 2020 were caused by opioids.
- Among pregnant women, opioid use disorder quadrupled between 1999 and 2014.

If you or a loved one struggles with substance use, contact SAMHSA's Helpline:

1-800-622-HELP (4357)
OPIOID OVERDOSE

SIGNS OF AN OVERDOSE

- Color of the skin is lighter than usual
- Skin is very damp or moist
- Fingernails or lips appear blue or purple
- Vomiting or making gurgling noises
- No response to sound or noise
- Breathing is slow or has stopped
- Pin point sized pupils

If these signs are present, IMMEDIATELY CALL 9-1-1.

- If the person is not breathing, begin CPR
- Treat the person with Narcan/Naloxone if it is available

1. IF YOU SUSPECT SOMEONE HAS OVERDOSED,

2. IMMEDIATELY CALL 9-1-1,

3. GIVE THEM NARCAN NASAL SPRAY & PERFORM CPR IF NEEDED
INTERVENTIONS

Understand the risks of opioid abuse

- Be aware that opioids have high potential of misuse and can lead to addiction.
- Use opioids as prescribed.
- Do not share your prescription with others. Keep opioids in a safe place away from children.

Talk to your doctor

- If you are prescribed opioids and find out you are pregnant, be sure to discuss this with your doctor.
- Creating a plan to prevent opioid use disorder before getting pregnant is recommended by the CDC to promote a healthy pregnancy.

Learn about Narcan

- Narcan, also known as Naloxone can help reverse opioid overdose.
- If possible, get trained in how to administer Narcan.

Visit page 79 to learn about resources that can help

- Get trained to administer Narcan
- Find out how to get free Narcan
- Get support

DID YOU KNOW?

Virginia has a Safe Harbour Law that protects those who get help for anyone who overdoses.
EMERGENCIES

If you or anyone with you is in immediate danger, call 911.
If you or anyone with you is experiencing a crisis, call or text the 988 Suicide & Crisis Lifeline

24/7 free, confidential support & resources for people in distress.
CALL OR TEXT: 988
WEBSITE: https://988lifeline.org/

NAVIGATING THIS SECTION

Please use this legend to find resources near you

Name* resource services Prince William County
Name\textsuperscript{NV} resource services the Northern Virginia Region
Name\textsuperscript{VA} resource services Virginia - see website for more details
Name\textsuperscript{US} resource services the nation

Resources are organized by the type of environmental hazard. If you are looking for services specific to information you read in the EH & MCH Toolkit, they will be under the same topic name.

Resources compiled July 2023.
Chemical Exposures

GENERAL

- **Local Health Department** [VA]
  
  Contact your local health department for concerns related to environmental health.

  **WEBSITE:** https://www.vdh.virginia.gov/environmental-health/

- **Region 3 Pediatric Environmental Health Specialty Unit** [VA]
  
  Answering questions about potential child exposure to environmental hazards. Services Virginia, District of Columbia, Maryland, West Virginia, Delaware and Pennsylvania.

  **CALL:** (610) 519-3478

  **WEBSITE:** https://www.epa.gov/children/region-3-childrens-environmental-health-mid-atlantic-states

- **Virginia Department of Health Tox Line** [VA]
  
  The toxicology department can help you identify potential health impacts of chemical or biological agents.

  **CALL:** (804) 864-8182

  **WEBSITE:** https://www.vdh.virginia.gov/environmental-health/public-health-toxicology/

AIR POLLUTION

- **Air Quality Index** [US]
  
  Get air quality data where you live.

  **WEBSITE:** https://www.airnow.gov/
HEAVY METALS

- En Español - Información sobre el plomo CDC
  In Spanish - Information about lead CDC
  SITIO WEB / WEBSITE:
  https://www.cdc.gov/nceh/lead/resources/spanish-communication-resources.html

- Five things you can do to lower your child's lead level
  Information sheet from the CDC
  WEBSITE: https://www.cdc.gov/nceh/lead/docs/5things-508.pdf

- Lead Safe Virginia VDH VA
  Providing education about preventing lead poisoning in Virginia.
  WEBSITE: https://www.vdh.virginia.gov/leadsafe/

- Virginia Household Water Quality Program VA VA
  Provides water clinics to test for a variety of substances (including lead) in private wells throughout Virginia.
  WEBSITE: https://www.wellwater.bse.vt.edu/index.php

PFAS

- Approved Laboratories for PFAS Testing EPA US
  Please note private water testing for PFAS can be expensive. For all other water testing needs in Virginia, we recommend using the Virginia Household Water Quality Program (see lead section).
PESTICIDES

- Pesticides and their Impact on Children EPA
  
  EPA factsheet about pesticides.
  

- Virginia Office of Drinking Water (ODW) VA
  
  FAQs, resources, and information about PFAS in Virginia drinking water.
  
  WEBSITE: https://www.vdh.virginia.gov/drinking-water/pfas/

ENDOCRINE DISRUPTORS

- Endocrine Disruptors NIH
  
  General information regarding endocrine disrupting chemicals from the National Institute of Environmental Health Sciences.
  
  WEBSITE: https://www.niehs.nih.gov/
Climate Change

GENERAL

- Sierra Club[^us]
  
  Environmental organization protecting wildlife, air, water, energy, and reducing the impacts of climate change.

  WEBSITE: [https://www.sierraclub.org/](https://www.sierraclub.org/)

EMISSIONS

Refer to Air Pollution resources on Page 66.

FLOOD/DISASTER PREPAREDNESS

- Disaster Distress Helpline[^us]
  
  24/7 national hotline for disaster crisis counseling, coping strategies, and referrals. Disasters include tornados, hurricanes, floods, wildfires, earthquakes, mass violence, disease outbreaks, etc.

  CALL OR TEXT: 1-800-985-5990

- Virginia Department of Environmental Quality*
  
  Disaster preparedness plans and resources for debris, hurricanes, animal emergencies, and droughts.

  WEBSITE: [https://www.deq.virginia.gov/our-programs/disaster-preparedness](https://www.deq.virginia.gov/our-programs/disaster-preparedness)
**FOODBORNE INFECTIONS**

- **Food Safety FDA**
  
  *Food safety and handling guide by the Food and Drug Administration. Recommendations for cooking temperatures.*

  **WEBSITE:** https://www.fda.gov/food/people-risk-foodborne-illness/lifelong-food-safety-food-safety-moms-be

- **Meat and Poultry Hotline USDA US**
  
  *Report a problem with store-bought meat, poultry, or eggs to the United States Department of Agriculture.*

  **CALL:** 1-888-674-6854
  
  **WEBSITE:** https://foodcomplaint.fsis.usda.gov/eCCF/

- **My Meal Detective* VA**
  
  *Foodborne illness complaint form that sends report the Virginia Department of Health for evaluation. Local health district will contact for follow-up if necessary.*

  **WEBSITE:** https://redcap.vdh.virginia.gov/redcap/surveys/?s=PJACE4A4EY

**OUTDOOR AIR QUALITY**

*Refer to Air Pollution resources on Page 64.*

**VECTOR-BORNE INFECTIONS**

- **Insect Repellent Regulations EPA**
  
  *Environmental Protection Agency insect repellent guide. Identify which repellants are EPA registered, methods for application, and tips for preventing bites.*

  **WEBSITE:** https://www.epa.gov/insect-repellents
Community & Relationships

FAMILY STRESS

- ACTS Domestic Violence Support*
  
  Free anger management, conflict resolution, and healthy relationship development for children and youth affected by domestic violence.

  WEBSITE: https://www.actspwc.org/services/domestic-violence#cp

- National Domestic Violence Hotline\textsuperscript{US}
  
  24/7 hotline for relationship conflict and domestic violence. Advocates provide confidential support services either by phone call or chat.

  CALL: 1-800-799-7233

  TEXT "START" to: 88788

- Virginia Sexual and Domestic Violence Action Alliance \textsuperscript{VA}
  
  Non-profit advocacy organization providing a network of resources, support, and communities for survivors of sexual and intimate partner violence.

  WEBSITE: https://vsdvalliance.org/
• **Youth Initiatives** *NV*
  
  *Intervention, Prevention, & Education (IPE), family reunification, and Violence Prevention and Intervention Program (VPIP).*
  
  **WEBSITE:** https://www.nvfs.org/our-services/early-childhood-development/healthy-families/

**SOCIAL ISOLATION**

• **Doula Registry** *VA*
  
  *Search for doulas licensed with the Virginia Certification Board.*
  
  **WEBSITE:** https://www.vacertboard.org/doula-registry

• **MIS Share Fairfax** *VA*
  
  *Support groups for women experiencing the loss of child through miscarriage, stillbirth, or infant death.*
  
  **WEBSITE:** http://misshare.org/

• **Pregnancy & Postpartum Psychosis Community Mosaic** *US*
  
  *Online community blog for mothers to submit personal essays, creative writing, poetry, artwork, and videos sharing their pregnancy or postpartum psychosis.*
  
  **WEBSITE:** https://pppawarenessday.org/community-mosaic-submission/

• **Pregnancy or Postpartum Psychosis (PPP) Facebook Groups** *US*
  
  - PPP Activism & Advocacy: https://www.facebook.com/groups/869281459947181/
  - PPP Forum: https://www.facebook.com/groups/357619024101/
  - PPP Survivors: https://www.facebook.com/groups/413383649158314/
Postpartum Support Virginia  
*VA US*
Peer support, resources, and referrals for postpartum mothers. Multiple chapters by region and across the U.S. under Postpartum Support International.

**WEBSITE:** [https://postpartumva.org/](https://postpartumva.org/)

**NEIGHBORHOOD**

- **Prince William County Coordinated Entry System***
  Homeless, facing eviction, living in a car/street/unsuitable housing. Rapid Re-housing program available.

  **WEBSITE:** [https://www.pwcva.gov/department/social-services/homeless-and-winter-shelters](https://www.pwcva.gov/department/social-services/homeless-and-winter-shelters)

- **Prince William County Transitional Housing***
  Families with children. Fee 30% of household income.

  **WEBSITE:** [https://www.pwcva.gov/department/housing-community-development/transitional-housing](https://www.pwcva.gov/department/housing-community-development/transitional-housing)

- **SERVE***
  Shelter, housing, and utilities. Prescriptions and dental help.

  **WEBSITE:** [https://www.nvfs.org/our-services/](https://www.nvfs.org/our-services/)
Socioeconomic Status

INFANT & BABY SUPPLIES

• Fairfax Diaper Bank Network NV
  Works with distribution organizations to provide families in Northern Virginia free diapers. See website for list of partners.

  WEBSITE: https://www.fairfaxdiapers.com/partners

• Low Income Safety Seat Program VDH VA
  Free car safety and booster seats for income-eligible families provided by the Virginia Department of Health.


FOOD & CLOTHING

• ACTS Food Assistance*
  Monthly food pick-up on walk-in basis. New client enrollment Wednesdays 10am-1pm.

  WEBSITE: https://www.actspwc.org/services/food-assistance

• ACTS Thrift Store*
  Vouchers to Second ACTS thrift store if loss of possessions due to floods, fires, bed bugs.

  WEBSITE: https://www.actspwc.org/thrift-store
• Capital Area Food Bank*<sup>NV</sup>
  
  *Direct food distribution to those in need.*
  
  WEBSITE: https://www.capitalareafoodbank.org/find-food-assistance/

• Creating Foundations for Hope*
  
  *Food distributed at East End Mobile Home Park.*
  
  WEBSITE: https://cfhva.org

• Haymarket Regional Food Pantry*
  
  *Weekly food pick-up (3-4 meals) for registered clients.*
  
  WEBSITE: https://haymarketfoodpantry.org/

• House of Mercy Thrift Store*
  
  *Clothes once a month for each registered family member. Once a year special occasion for teens.*
  
  WEBSITE: https://houseofmercyva.org/programs/food-pantry-client-services/

• Northern Virginia Family Service*<sup>NV</sup>
  
  *Emergency food assistance, nutrition information, & budgeting.*
  
  WEBSITE: https://www.nvfs.org/our-services/health-well-being/food-assistance/

• SERVE Food Assistance*<sup>NV</sup>
  
  *Tuesday and Thursday intakes, appointment and ID needed.*
  
  WEBSITE: https://www.nvfs.org/our-services/homelessness-housing/serve-campus/

• St. Francis Bill Mehr Drop-In Shelter*
  
  *Food, showers, clothing, tents, blankets.*
  
  WEBSITE: https://stfrncis.org/meals-for-the-homeless/
• St. Vincent de Paul*
  
  *Food, finances, utilities, prescriptions, gas cards, coats.*

  **WEBSITE:** [https://www.olasvdp.org/](https://www.olasvdp.org/)

• Women, Infants, and Children (WIC)* **NV**
  
  *Provides supplemental food and health care referrals to eligible women in Virginia.*

Substance Use

GENERAL

- **Community Healthcare Coalition of Greater Prince William***
  
  Aims to prevent substance abuse and promote mental health and healthy behaviors. Provides free resources and more to the residents of Prince William County, Manassas, and Manassas Park.

  **WEBSITE:** [https://preventioncoalitionofgpw.org/](https://preventioncoalitionofgpw.org/)

- **Controlled Substance Public Disposal Locations**
  
  Find out where you can safely dispose of unused or expired medicines to prevent improper use or disposal. We recommend expanding the search radius to find a site near you.

  **WEBSITE:**
  [https://apps.deadiversion.usdoj.gov/pubdispsearch/spring/main?execution=e1s1](https://apps.deadiversion.usdoj.gov/pubdispsearch/spring/main?execution=e1s1)

- **Community Services Board***
  
  Coordinated care for developmental delays, disabilities, mental illness, substance use.

  **WEBSITE:** [https://www.pwcva.gov/department/community-services](https://www.pwcva.gov/department/community-services)

- **Crisis Intervention Services***
  
  Scheduled and walk-ins. Mental health, substance abuse and/or intellectual disabilities.

  **WEBSITE:** [https://www.pwcva.gov/department/community-services/crisis-intervention](https://www.pwcva.gov/department/community-services/crisis-intervention)
• **Family Insight** \( ^{NV \ VA} \)
  
  *Behavioral therapy, in-home and outpatient services, substance use disorder services.*

  **WEBSITE:** [https://familyinsight.net/](https://familyinsight.net/)

• **MommyMeds for Moms** \( ^{US} \)

  *App for pregnant and breastfeeding mothers to ensure safe breastfeeding while using prescription and over the counter medicines. Download on the app store.*

  **WEBSITE:** [https://infantrisk.com/infantrisk-center-resources](https://infantrisk.com/infantrisk-center-resources)

• **New Horizons Clinic Based Services** *

  *Providing services for youth and their families regarding mental health, substance use, and more:*

  **WEBSITE:** [https://www.pwcva.gov/department/community-services/nh-clinic-based](https://www.pwcva.gov/department/community-services/nh-clinic-based)

• **Partnership to End Addiction** \( ^{US} \)

  *Online support meetings for parents & caregivers*

  **WEBSITE:** [https://drugfree.org/](https://drugfree.org/)

• **SAMHSA National Helpline** \( ^{US} \)

  *Providing referrals and support for mental and/or substance use disorders.*

  **CALL:** 1-800-622-HELP (4357) **OR TEXT** your zip-code to 435748 (HELP4U)

  **WEBSITE:** [https://www.samhsa.gov/find-help/national-helpline](https://www.samhsa.gov/find-help/national-helpline)
• **Shatterproof** US
  
  *Providing education, resources, and commitment to ending the stigma about addiction:*

  WEBSITE: https://www.shatterproof.org/learn/addiction-resources/family-and-friends

• **Substance Abuse and Addiction Hotline** US
  
  *Get free information about substance use or misuse 24/7.*

  CALL: 1-844-289-0879

  WEBSITE: https://drughelpline.org/
**ALCOHOL**

- Alcoholics Anonymous US
  
  *Find a local AA chapter near you:*
  
  **WEBSITE:** [https://www.aa.org/find-aa](https://www.aa.org/find-aa)

**CANNABIS**

Refer to the general substance use resources on page 77.

**SMOKING**

- Quit Now Virginia VA
  
  *FREE service for all Virginians 13 and older looking to quit tobacco. Available for all tobacco/nicotine usage including cigarettes, cigars, e-cigarettes, vaping, and smokeless tobacco (snuff, snus, dip, etc.)*
  
  **WEBSITE:** [https://quitnowvirginia.org/](https://quitnowvirginia.org/)

- Quit Smoking CDC US
  
  *Tips from former smokers:*
  
  **CALL** 1-800-QUIT-NOW (1-800-784-8669) **OR TEXT** QUITNOW to 333888
  
  **LLAMAR** 1-855-DÉJELO-YA (1-855-335-3569) **or TEXT** DÉJELO YA al 333888
  
  **WEBSITE / SITIO WEB:**
  
  [https://www.cdc.gov/tobacco/campaign/tips/quit-smoking/index.html](https://www.cdc.gov/tobacco/campaign/tips/quit-smoking/index.html)
OPIOIDS

- **Chris Atwood Foundation* NV**
  
  *Harm reduction program servicing the Northern Virginia region. Offering NARCAN training, and free services including sterile syringes, fentanyl testing strips, and more:*
  
  **CALL:** (703) 662-6076  
  **WEBSITE:** [https://www.thecaf.org/](https://www.thecaf.org/)

- **NEXT Distro **VA
  
  *Online and mail-based harm reduction service providing Naloxone. Virginia residents may receive a one-time Naloxone package via mail:*
  
  **WEBSITE:** [https://nextdistro.org/virginia](https://nextdistro.org/virginia)

- **Opioid Response & Naloxone Education in Prince William County* **
  
  *Attend opioid overdose response and Naloxone education in Prince William County:*
  
  **WEBSITE:** [https://www.pwcva.gov/department/community-services/naloxone-education](https://www.pwcva.gov/department/community-services/naloxone-education)

- **REVIVE! **VA
  
  *Learn how to save a life from an opioid overdose, get NARCAN, and more:*
  
GLOSSARY

- **Allergens**: particles that cause allergic reactions
- **Acute**: presentation of immediate symptoms, short-term
- **Airborne**: existing in the air
- **Anxiety**: bodily response to stressful environments; feelings of uneasiness, distress, dread
- **Arthritis**: inflammation of the joints
- **Asthma**: respiratory disease that causes lungs and airways to close up; difficulty breathing, coughing, wheezing
- **Attention Deficit-Hyperactivity Disorder**: brain disorder that causes difficulty focusing and sitting still
- **Bacteria**: small, single-cell organisms
- **Cardiac Arrest**: sudden cessation of the heart beating, interruption of blood circulation to body systems that can cause loss of physiological functions
- **Cardiovascular**: relating to the heart and blood vessels
- **Chronic**: illness that exists for a long period of time
- **Cognitive Stimulation**: exercises that target improving brain function
- **Combustion Sources**: products that burn substances, for example a gas stove or wood-burning fireplace
- **Dehydration**: condition where the body has a deficiency in water content; can impact normal functions
- **Depression**: mood disorder involving feelings of sadness, loss of interest, or prolonged emotional distress
- **Disparity**: (health) inequalities or gaps in access to adequate healthcare
- **Endocrine disruptors**: natural or man-made chemicals that affect the body's hormones or endocrine system
- **Endocrine system**: group of organs (glands) responsible for secreting hormones and regulating functions throughout the body
- **Fetus**: an unborn baby at (8-10+ weeks) gestation; undergoes major growth and development to prepare for birth
- **Gastrointestinal**: relating to the stomach, large intestines, and small intestines
- **Hazardous**: risky or dangerous to human health
- **Heart Palpitations**: irregular, rapid heart activity
- **Immunocompromised**: having a weakened immune system that increases risk for contracting diseases or infections
- **Intersectionality**: how inequalities across gender, race, social class, ethnicity, and other identifying characteristics interact and impact a person's relationships, opportunities, and advantages in society
- **Intestinal**: relating to the intestines
- **Intrauterine**: situated within the uterus
- **Irritant**: particles or a substance that causes inflammation to the body
- **Low Birth Weight**: a weight at birth of less than 5.5 pounds. Infants with low birth weight are 20X more likely to die compared to infants with a higher weight
- **Malaria**: a parasitic disease carried by mosquitos; causes fevers, chills, and excessive sweating
- **Maternal Mortality Rate**: death of a woman during pregnancy or within 42 days after pregnancy, regardless of cause of death
- **Meningitis**: an infection that causes swelling and inflammation of the protective layers (meninges) surrounding the brain and spinal cord
• **Miscarriage:** the sudden loss of fetus before week 20 of gestation
• **Mortality:** death, relating to death
• **Morbidity:** the state of being diseased, abnormality to healthy status
• **Nervous system:** includes the brain, spinal cord, and nerves responsible for sending signals throughout the body
• **Neurological:** relating to the nervous system
• **Obstructive Pulmonary Disease:** a chronic condition that blocks airflow to the lungs making it difficult to breathe and oxygenate the body
• **Ozone (O₃):** a very reactive gas (can be either naturally occurring in environment or produced by humans); "good" ozone creates a protective layer in the atmosphere and shields the earth from ultraviolet sunrays; "bad" ozone occurring near ground level can be toxic to humans and contribute to air pollution
• **Pathogen:** a microorganism (bacteria or virus) that can cause infection or disease
• **Perinatal:** general period of time that includes before, during, and after pregnancy
• **Placenta:** an organ within the uterus; develops during pregnancy; delivers oxygen and other nutrients to fetus
• **Postnatal:** period of time after childbirth
• **Poverty:** lacking materials and resources (food, shelter, clothes, money, etc.) and other basic needs
• **Pre-eclampsia:** pregnancy complication that can be characterized by high blood pressure, high levels of protein in urine, or organ damage; early child delivery is often recommended
• **Pre-term Birth:** childbirth occurring before 37 weeks of pregnancy (full term is considered 40 weeks)
• **Public Health**: the science of promoting the health of people and their communities

• **Replication**: the biological duplication or reproduction of cells, pathogens, organisms, etc.

• **Respiratory**: relating to the organ system required for breathing; includes airways, lungs, and blood vessels

• **Schistosomiasis**: a disease carried by parasitic worms living in snails; causes inflammation to the intestines or urinary tract

• **Spores**: a single cell that can reproduce independently

• **Stillbirth**: the birth of a baby who has died in the uterus

• **Toxic**: a substance that is poisonous and harmful to the human body

• **Transmission**: the passing of pathogens from organism to organism

• **Vector**: an organism that spreads a pathogen (typically by biting or bloodsucking)

• **Waterborne**: existing in water sources
REFERENCES

A variety of resources provided by government agencies, scientific journals, and accredited organizations were used to inform this EH & MCH Toolkit. If you are interested in exploring these materials, view the full list of references below.

GENERAL

- Socially vulnerable populations overview - ATSDR
- Vulnerable populations - CDC
- Measures of social vulnerability - ATSDR
- Maternal and infant mortality rates - CDC
- Children as vulnerable populations - CDC
- Physical environment and hazards - CDC
- Social determinants of health - HHS/OASH
- Social Ecological Model for public health - Clark County Public Health Center
- Impacts of environmental and social exposures co-occurrence - Current Environmental Health Reports Journal

SHUTTERSTOCK IMAGES

Interactive image

Air Pollution

Climate Change
- Smoke Stacks Emmitting Carbon Pollution Into Stock Photo 1654659178 | Shutterstock
- Electronic Mobile Sign That Says Excessive Stock Photo 1478799623 | Shutterstock
CHEMICAL EXPOSURES

Air Pollution

- Health effects of chemical exposures
- Indoor air quality - EPA
- Sources of air pollutants – NIH
- Sources of greenhouse gas emissions - EPA
- Particle pollution - CDC
- Impact of maternal air pollution exposure on children’s lung health
- Childhood asthma and exposure to traffic and nitrogen dioxide
Heavy Metals (Lead & Mercury)

- Lead and other heavy metals – reproductive health – CDC & NIOSH
- Lead and breastfeeding – CDC
- Lead poisoning - WHO
- Childhood lead poisoning prevention – populations at higher risk – CDC
- Childhood lead poisoning prevention – pregnant women – CDC
- Health effects of lead exposure - CDC
- Lead poisoning prevention - CDC
- Who is at risk of lead exposure - ATSDR
- 5 things you can do to help lower your child’s lead level
- Lead safe – information for parents
- Toxicity, mechanism, and health effects of some heavy metals
- Mercury and pregnancy – March of Dimes
- How people are exposed to mercury - EPA
- Breastfeeding - CDC
- Advice about eating fish for pregnant people and young children - FDA
- Advice about eating fish factsheet - FDA

PFAS

- PFAS - EPA
- PFAS concentration in soil
- Stimulate PFAS fate and transport in air - EPA
- PFAS and your health - ATSDR
- ToxFAQs for Perfluoralkyls - ATSDR
- PFAS in drinking water VDH
- PFAS in private well water VDH
- Laboratories approved by EPA to support UCMR 5
- PFAS Tracking Tool ODW/DEQ
- PFAS Exposure Reduction
- Reducing PFAS in drinking water with treatment technologies - EPA

**Pesticides**
- Basic information about pesticide ingredients - EPA
- Pesticides and their impact on children - EPA
- Tips to limit various types of pesticide exposure - CDC
- Effect of endocrine disruptor pesticides: a review - NIH
- Pesticides – NIEHS/NIH
- Endocrine Disrupting Chemicals
- Effect of endocrine disruptor pesticides: a review - NIH
- Endocrine System – Endocrine Society
- Environmental health Endocrine Disruptors – NIEHS/NIH
- Environmental Exposure Research Endocrine Disruptors – NIEHS/NIH
- Lifestyle interventions to reduce endocrine-disrupting exposures – Environment International
- What you can do about EDCs – Endocrine Society
- Intervention to reduce exposure to phthalate metabolites, bisphenol A, triclosan, and parabens – International Journal of Hygiene and Environmental Health
- Interventions on reducing exposure to EDCs – Risk Management and Healthcare Policy

**CLIMATE CHANGE**
- Climate change statistical projections - NOAA
- Climate change overview - IPCC
- Impacts of small global temperature increase - NOAA

**Emissions**
- Overview of greenhouse gases - EPA
- Recommendations for reducing prenatal exposure to environmental agents - ACOG
- Global temperatures historical data - NOAA
Extreme weather human health impacts - NIEHS/NIH

**Flooding**
- U.S. sea level report cards - VIMS
- Rising sea levels interactive map - SouthernEnvironment.org

**Foodborne Infections**
- Climate change and Salmonella - NIH
- Salmonella overview - Mayo Clinic
- Treating Salmonella during pregnancy - AmericanPregnancy.org
- Food and Drug Administration (FDA) cooking temperature guide for reducing Salmonella - FDA
- Giardiasis overview - NIH

**Outdoor Air Quality**
- Importance of outdoor air quality - EPA
- Air pollution and adverse birth outcomes - NIH

**Vector-borne Infections**
- Viral infections during pregnancy - NIH
- Vector-borne diseases overview - NIH
- Lyme disease overview - VDH
- Ticks and Lyme disease fact sheet - CDC
- Lyme disease and pregnancy - AmericanPregnancy.org
- U.S. top water-borne diseases - CDC
- Approved insect repellents - EPA

**COMMUNITY & RELATIONSHIPS**

**Family Stress**
- Household and family expenses
- Family support and pregnancy - NIH
- Relationship stress
- Family stress - APA
- Domestic violence national statistical data - NCADV

**Social Isolation**
- Social support and mental health problems during pregnancy - Reproductive Health Journal
- Social support and pregnancy experiences - NIH
• Social support and pregnancy subjective well-being - NIH
• Complex social factors and pregnancy - NIH
• Social support and pregnancy subjective well-being - NIH
• Complex social factors and pregnancy - NIH

Neighborhoods
• Neighborhood safety and MCH outcomes - NIH
• Neighborhood relations and environment on preterm birth - NIH
• Mother and infant self-reports on neighborhood quality - Journal of Child and Family Studies
• Comparison of urban and rural communities on adverse pregnancy outcomes - Gynecology and Obstetrics Clinical Medicine Journal
• Impacts of neighborhood stress - Syracuse University/NIMH
• Neighborhood violence and stress during pregnancy - NIH

SOCIOECONOMIC STATUS
• Socioeconomic status overview - Maricopa Community Colleges
• Socioeconomic status basic definition - APA
• Poverty and adverse pregnancy outcomes - Drexel University College of Medicine
• Poverty during pregnancy - NIH
• Poverty and maternal mental health - The Lancet Global Health Journal

SUBSTANCE USE
• Substance use - CDC
• Polysubstance use during pregnancy - CDC
• Substance use during pregnancy - CDC

Alcohol
• Alcohol and public health - CDC
• Fetal alcohol spectrum disorders - CDC
• Fetal alcohol spectrum disorders – NIH
• Alcohol use in pregnancy and miscarriage - NIH
Cannabis

- Prenatal, perinatal, and Neonatal Exposure to Cannabis – National Academies Press/NIH
- Marijuana and Public Health - CDC
- Breastfeeding and special circumstances – marijuana - CDC
- Marijuana and pregnancy – SAMHSA
- Marijuana and cannabis use disorder - CDC
- Secondhand marijuana smoke - CDC
- Marijuana and pregnancy – March of Dimes
- Health effects of marijuana - CDC
- Know the risks of marijuana - SAMHSA

Smoking

- The Health Consequences of Smoking – US Surgeon General, US Dept. of Health and Human Services
- Sudden Unexpected Infant death and Sudden Infant Death Syndrome - CDC
- SIDS – The American Academy of Pediatrics
- Substance use during pregnancy - CDC
- Infant Morbidity and Mortality Attributable to Prenatal Smoking – American Journal of Preventive Medicine
- Trends in smoking during pregnancy – BMC Pregnancy and Childbirth
- Association of Maternal Cigarette Smoking and Smoking Cessation with Preterm Birth – JAMA Network Open
- Smoking, Pregnancy, and Babies - CDC

Secondhand Smoke (see smoking)

- Secondhand Smoke - CDC
- Health Problems Caused by Secondhand Smoke - CDC

Opioids

- Opioid Basics - CDC
- Understanding the Opioid Overdose Epidemic - CDC
- Opioid Overdose Basics – National Harm Reduction Coalition
- Opioid Use Disorder Documented at Delivery Hospitalization - CDC
• Understanding Drug Overdoses and Deaths - CDC
• Neonatal Abstinence Syndrome – Stanford Medicine
• Opioid and Opioid Misuse Disorder – MedlinePlus/NIH
• Arrest and prosecution when experiencing or reporting overdoses – Code of Virginia
• About Opioid Use During Pregnancy - CDC
• Naloxone - SAMSHA

COMMON ACRONYMS

ACOG: American Congress of Obstetricians and Gynecologists
APA: American Psychological Association
ATSDR: Agency for Toxic Substance and Disease Registry
CDC: Centers for the Disease Control and Prevention
EPA: Environmental Protection Agency
FDA: U.S. Food and Drug Administration
IPCC: Intergovernmental Panel on Climate Change
HHS: Department of Health and Human Services
NIEHS: National Institute of Environmental Health Sciences
NIH: National Institutes of Health
NIMH: National Institute of Mental Health
NIOSH: National Institute for Occupational Safety and Health
NOAA: National Oceanic and Atmospheric Administration
OASH: Office of the Assistant Secretary of Health
VDH: Virginia Department of Health
VIMS: Virginia Institute of Marine Science
WHO: World Health Organization
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