Vaping during Pregnancy: Not Just a Bunch of Smoke

The use of vaping continues to increase, including women who are pregnant or planning a pregnancy. Here at MotherToBaby we review the newest studies and gather current information to answer the question, “What do we know about vaping and pregnancy?” For the purpose of this blog, I am going to focus on nicotine vaping.

What are ENDS (vapes)?

Electronic nicotine delivery systems (ENDS) describe a variety of products including:

- Vaporizers
- Vape pens
- Hookah pens
- Tank systems
- Mods
- Electronic cigarettes (e-cigarettes)

For ease, we will call them all vapes for the rest of the blog.

Vapes were originally developed as an alternative to cigarette smoking. Inside they include a battery, a heating device and liquid with many ingredients. These devices are also used to vape other substances, like cannabis. Vapes work by heating a liquid to create a mist (vapor) that a person inhales into their lungs.

The liquid can contain:

- Various flavors

- Nicotine
- Tetrahydrocannabinol (THC)
- Cannabidiol (CBD) oils
- Propylene glycol and glycerol
- Volatile organic compounds (VOCs)
- Contamination such as heavy metals

There is no standard liquid or heating process so knowing what is in the vape can be difficult.

Vapes can contain nicotine that is comparable to the amount in regular cigarettes. Nicotine crosses the placenta, enters the breastmilk, and reaches the developing baby. Some vape products that are marketed as free of nicotine are found to contain nicotine. While vape products may have less toxins than cigarettes, there is still exposure to nicotine and other toxic chemicals, which can increase the chances of pregnancy-related problems.

Studies have now shown that vaping can increase risks to pregnancy like cigarette smoking. This includes increased chances of:

- Miscarriage
- Preterm delivery (birth before week 37)
- Low birth weight (weighing less than 5 pounds, 8 ounces [2500 grams] at birth)
- Gestational hypertension (high blood pressure during pregnancy)

Compared to cigarette smoking, vaping did not show lower risks to a pregnancy and dual use showed the highest risks.

Is vaping a safer alternative than cigarette smoking in pregnancy?

Vape products came on the market in the U.S. in 2007, and their popularity grew quickly. One of the reasons they became so popular was the belief that they were a safer alternative to cigarettes and could help smokers quit or reduce the number of cigarettes they smoke. Heavy cigarette smoking during pregnancy can increase the chances of:

- Miscarriage
- Cleft lip and/or palate (an opening in the upper lip or the roof of the mouth)
- Preterm delivery (birth before week 37)
- Low birth weight (weighing less than 5 pounds, 8 ounces [2500 grams] at birth)
- Sudden infant death syndrome (SIDS)
- Problems with getting pregnant (infertility)
- Ectopic pregnancy (when a fertilized egg implants and grows outside the uterus)
- Placenta previa (placenta blocks the birth canal)
- Placental abruption (placenta breaks away from the uterine wall early)

Cigarette smoking can also have an impact on your baby's health after birth. Smoking has been associated with a higher chance of asthma, childhood obesity, and behavioral problems. See our factsheet on cigarette smoking here.

While pregnancy is a big motivation for women to quit smoking, quitting can be hard. This leads pregnant women to find an alternative that might make the quitting process easier like vaping. The Food and Drug Administration (FDA) does not recommend vaping to help people quit smoking. The use of vape products among non-pregnant patients found no evidence that they help in the effort to quit cigarette smoking. In fact, 2 out of 3 people who use vapes continue smoking cigarettes as well (known as "dual use").

Vaping is not a safer alternative to cigarette smoking in pregnancy.

Health experts recommend that pregnant women avoid all smoking including vaping. Any pregnant woman who is quitting smoking should talk with their health care provider to discuss a plan that is suitable to them. You can also contact resources such as the National Quitline Network (1-800-QUIT NOW) for additional support. You can find more resources to help you quit smoking here. See our factsheet on vaping here.

Quitting is best for you and your baby so go ahead and clear the air!

Questions? Call 866.626.6847 | Text 855.999.3525 | Email or Chat at MotherToBaby.org.

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I recently received a phone call from Molly. Molly told me that she had just found out that she was pregnant; this was a surprise, but a welcome one. However, Molly confessed that she smokes a pack of cigarettes per day and her doctor recommends that she quit smoking since cigarettes can present a number of hazards for her pregnancy and baby. Molly's friend told her that e-cigarettes were safe in pregnancy and would help Molly with her efforts to reduce use of traditional cigarettes. Molly wanted to be sure. "Don't both cigarettes and e-cigarettes both contain nicotine," she asked?

What are e-cigarettes?

'E-cigarettes' is short for ***electronic nicotine delivery system***, sometimes also referred to as vapes, e-hookah, or other slang names. E-cigarettes utilize a device that heats up nicotine-containing fluid from a cartridge, which can then be inhaled as a vapor. Using an e-cigarette does have the potential to avoid some of the hazardous compounds found in traditional cigarettes such as tar and cadmium. However, e-cigarettes are a relatively new product and not very well regulated. Some e-cigarette fluids contain a lot of nicotine while others very little. They often have other substances added to them including preservatives and flavorings. Many of these agents have not been studied regarding their safety in pregnant women.

All of this makes it difficult to draw accurate conclusions about what risk e-cigarettes might present to a pregnant woman and her baby. What we do know is that traditional cigarettes and nicotine (the chemical which is in both tobacco and e-cigarettes) ***do*** present a risk for a wide number of issues including birth defects (cleft lip and palate), miscarriage, and poor growth in the developing baby. In addition, substituting e-cigarettes for traditional cigarettes is not a proven way to quit smoking, and in some cases, people continue to smoke conventional cigarettes as well as e-cigarettes which makes the exposure to the baby even larger. Scientists are still learning about this, and most public health agencies recommend behavioral approaches as the safest strategy for pregnant women who are trying to quit smoking.

Molly is smart to ask about the safety of e-cigarettes before she uses them. She also shows how much she cares about herself and her baby by trying to decrease smoking as much as possible! I suggested she speak with her healthcare provider about strategies for quitting. I also told her about free services like the CDC's Smoker's Quitline (1-800-784-8669).

MotherToBaby has fact sheets on e-cigarettes, cigarette smoke and vaping...

... and people can call (866-626-6847), text (855-999-3525), email, or chat to speak with a specialist on exposures in pregnancy.

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Vaping during Pregnancy: Not Just a Bunch of Smoke

By Lauren Kozlowski, MSW, MPH, MotherToBaby Georgia

Carly called and I could hear the stress in her voice immediately. She had been smoking marijuana on weekends and having a glass of wine most evenings with her dinner. She just found out she was pregnant with her fifth child. Carly knew her baby could suffer if she did not change her use of alcohol and marijuana. Carly was scared, so she contacted MotherToBaby. We were able to discuss what kinds of risk the substances she had used may have, and I shared information with her that she could talk to her doctor about. Carly's story immediately came to mind when talking about Birth Defects Prevention Month's **Tip #6: Boost your health by avoiding harmful substances during pregnancy, such as alcohol, tobacco, marijuana and other drugs.**

Alcohol

Alcohol is actively advertised as a way to relax after a hard day, and it's almost always a part of celebrations. Alcohol is legal to purchase in any amount for most adults 21 and older, making it very accessible. Changing your lifestyle to not drink any alcohol during pregnancy may seem hard, but it is worth it for the health of your developing baby. Though having one drink likely does not mean your baby will automatically have health problems, no amount of alcohol has been proven safe during pregnancy. This means that not drinking alcohol at all during pregnancy is your best bet. Alcohol can cause a range of issues for the health of your child. Some are physical birth defects, while others are related to controlling emotions effectively and learning abilities. Some of these issues last long after birth and can have lifelong effects on your child.

Cigarettes & e-cigarettes

Smoking and the use of tobacco products are activities that many associate with stress reduction and, like alcohol, can be hard to stop. Cigarette smoke contains more than 4,000 chemicals and toxins, including nicotine, tar, arsenic, lead, and carbon monoxide. Some of these chemicals cross the placenta and lower the amount of oxygen and food available for a developing baby. Babies born to mothers who smoke are at increased risk for being born too small (with low birthweight) and prematurely (before 37 weeks of pregnancy). Babies born too small and too early are more likely than other babies to have health complications and may need to stay in the hospital longer. Some studies suggest that babies born to moms who smoke are at risk of having an oral cleft, a birth defect where the lip or roof of the mouth does not fully close. Not smoking is best for you and your baby during pregnancy. Every little bit counts, so even reducing the amount can be helpful to your baby!

In comparison to traditional cigarettes, we know very little about the safety of e-cigarettes (or vaping) during pregnancy. This is because e-cigarettes are largely unregulated, and little research has been done on them. While some moms-to-be may view e-cigarettes as safer alternatives than traditional cigarettes, e-cigarette solutions contain several of the same reproductive or developmental toxins that are found in traditional cigarettes, like nicotine, cadmium and lead. So until more studies have been done on the safety/risk of e-cigarettes, it is best for moms-to-be not to use them.

Marijuana and other street drugs

Another way to boost your health during pregnancy is to not use harmful drugs. For example, women may think marijuana may help with nausea and vomiting (morning sickness). Though we still need more research, studies in animals have shown that exposure to marijuana in the womb may harm a baby's brain development. Marijuana is unregulated in most places, so you don't know what may be in it – certain chemicals, pesticides or other drugs may cross the placenta and impact your baby. In addition to smoking marijuana, using substances that include THC (the active ingredient in marijuana), such as edibles and oils, carries the same potential to affect a baby's brain development. No amount of marijuana or THC has been proven safe to use during pregnancy.

Other street drugs, like cocaine, heroin, LSD, MDMA (ecstasy or Molly), and methamphetamine, also are harmful during pregnancy. Using these kinds of drugs during pregnancy increases a baby's risk for miscarriage, preterm birth, birth defects and neonatal abstinence syndrome (NAS). NAS is a group of conditions caused when a baby withdraws from certain drugs she's exposed to in the womb before birth. NAS is most often caused when a woman takes drugs called opioids during pregnancy. Not a single one of these drugs has a beneficial effect on pregnancy or a developing baby – so for your baby's sake as well as your own, a drug-free pregnancy is a healthier pregnancy.

It is important to realize that giving birth to a baby with ten fingers and ten toes – who looks healthy at birth – is not the end of the story. Effects caused by the use of alcohol, tobacco and other drugs during pregnancy can take a while to show. As a child develops and reaches or fails to reach developmental milestones, only then is it possible to evaluate the long-term effects of prenatal substance exposure on things like the ability to learn and manage emotions. While every pregnancy carries some risk that is out of anyone's control, we want to encourage women to focus on areas of their health that they do have some control over. Taking care of yourself and your health means a healthier baby. Doing what you can to boost your health by avoiding harmful substances during pregnancy is a great place to start!

If you are struggling with substance addiction, talk to your health care provider. You can also find help and treatment referrals by visiting the* Substance Abuse and Mental Health Services Administration (SAMSHA) website *or by calling their national helpline, 1-800-662-HELP (4357).



Lauren Kozlowski, MSW, MPH is serving as the Program Coordinator for MotherToBaby Georgia. She graduated from Boston University with both a Masters of Social Work and a Masters of Public Health. She has experience working with families in both an educational setting, as well as in housing and health, allowing her to recognize the multiple factors contributing to the ability of women and children to thrive. She enjoys living in Atlanta and exploring what the city has to offer.

About MotherToBaby

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Vaping during Pregnancy: Not Just a Bunch of Smoke

By Sonia Alvarado, Senior Teratogen Information Specialist, MotherToBaby

CA

Unless you don't own a television and never listen to the radio, you know that marijuana has been in the news a lot lately and for marijuana users who have had to smoke in illegally, it appears societal attitudes about pot smoking may be changing. Twenty states have laws legalizing some form of marijuana use. Two states, Colorado and Washington, have legalized its recreational use. In an interview, the NFL Commissioner seemed to leave open the possibility that medicinal use could be considered for NFL players if there was scientific evidence that it was helpful to treat injuries and pain. Even President Obama has said that he doesn't believe marijuana is any more dangerous than alcohol. Marijuana is currently listed as a Schedule I drug. Other Schedule I drugs include heroin, lysergic acid diethylamide (LSD), 3,4-methylenedioxymethamphetamine (ecstasy).

What The Research Shows Us

According to studies, pregnant women who use illicit substances are more likely to use marijuana compared to other drugs. This is often due to the belief that marijuana is less harmful to the developing embryo and fetus, compared to other drugs such as cocaine or heroin.

Marijuana is Cannabis. The delta-9-tetrahydrocannabinol (THC) in the Cannabis plant produces the psychoactive effect or "high." Marijuana can be smoked in a joint, inhaled through a bong or vaporizer, eaten in food and teas/beverages, used in tinctures, and topical balms. Smoking and ingestion exposes the user to THC, producing the high. When smoked in a joint, the user is exposed to carbon monoxide from the burning of the leaf as well as tar, which can stay behind in the lungs.

Marijuana use during pregnancy has been studied since the 1960's. Like all studies, there are weaknesses that have been pointed out. For example, asking women about past drug use may not be the most accurate way to make a connection between the dose of the drug and the adverse effects because the women may have forgotten. Also asking women to volunteer information about drug use, which they may fear disclosing even in a confidential setting, may make it difficult to know how frequently pregnant women use drugs overall. Still, a number of experts have reviewed hundreds of reports in humans and animals. At least to this point, the studies do not support an association between marijuana smoking and birth defects. One large study of 12,825 interviews done after delivery, did not find a statistical association between marijuana use and birth defects.

However, the studies also show that marijuana is not risk free. Studies have reported associations between marijuana smoking and growth restriction and lower birth weight, particularly in women who keep smoking through delivery or late in pregnancy. An Australian study of almost 420,000 live births reported a higher risk for neonatal intensive care admission for newborns exposed prenatally to pot. Also, there are reports of abnormal responses or behaviors in the newborn period and this suggests a toxicity or withdrawal. The symptoms include exaggerated and prolonged startle reflexes (sleep cycle disturbances with high-pitched crying.) In a Brazilian study, exposed newborns were "more irritable and less responsive to calming, cried more during the examination, and exhibited more jitteriness and startles than the non-exposed neonates." Pregnant women who smoke daily and/or through delivery, have a higher risk for complications in their pregnancy compared to women who quit in the first trimester.

Researchers have attempted to assess the long-term effects of prenatal marijuana exposure. Studies of 3, 10 and 14-year old prenatally exposed children suggest that the prenatal exposure to high doses of marijuana may make it harder for children to learn and may affect their emotions (increased aggression) and increase depression symptoms. Studies are needed to assess which prenatally exposed children are most at risk. Its important to note that the children in these studies often have had prenatal exposure to other drugs as well, struggles with poverty and other life challenges, making it difficult to know that the findings are due to a single drug exposure.

So Where Does Marijuana Rank Compared To Other Drugs?

Alcohol: Specific to use during pregnancy, marijuana is not alcohol. Alcohol is still the drug with the highest risk and the widest range of birth defects, including physical, mental and behavioral. Alcohol is a drug with the highest use throughout the world, easy legal access, and social acceptance.

Cocaine: Cocaine, by comparison, is associated with a small risk for birth defects, and a higher risk for admission to newborn intensive care for withdrawal and toxicity. Additionally, cocaine is associated with prenatal growth retardation, lower birth weight, shorter length, and smaller head circumference. Studies suggest the effects on height extend into childhood.

Heroin: Heroin has not been associated with an increased risk for birth defects, however, is associated with a higher risk for withdrawal and admission to newborn intensive care and sudden infant death syndrome.

Bottomline: Snuff Out Smoking It

Clearly, marijuana use in pregnancy is not preferable, nor less risky, compared to most other drugs when a side-by-side comparison is made. Changing societal attitudes doesn't change the fact that the developing embryo (and fetus) is dependent on the mother for oxygen, nutrients and a balance of hormones, chemicals and other substances to grow normally. Disrupting the normal fetal environment, through the introduction of marijuana or other recreational drugs, puts the pregnancy at risk in the short-term and possibly the long term as well.



Sonia Alvarado is a bilingual (Spanish/English) Senior Teratogen Information Specialist with MotherToBaby California, a non-profit that aims to educate women about medications and more during pregnancy and breastfeeding. Along with answering women's and health professionals' questions regarding exposures during pregnancy/breastfeeding via MotherToBaby's toll-free hotline, email and private chat counseling service, she's provided educational talks regarding pregnancy health in community clinics and high schools over the past decade.

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