Air Pollution, Allergies, and Asthma – When Breathing during Pregnancy Is Difficult

The air we breathe matters and often we do not have control over what is in it. For many, the Spring season brings beautiful flowers and a most welcome warming of temperatures, as well as spending more time outside. It also marks the explosion of pollen, which can irritate both those with allergies and people with asthma. Being outside to engage in outdoor activities also means we are exposed to any air pollution that may be present.

Pregnancy is a sensitive time for both the parent and the developing baby. Preventing issues related to allergies, asthma and air pollution is important for a few reasons. If you do have issues with asthma and it affects your breathing, the amount of oxygen in your blood can drop; this can create problems for baby as you are their source of oxygen while pregnant. The baby may have trouble growing as much as they should or may be born at a low birth weight. This can put the baby at higher risk for several health issues.

There has been increasing research on the possible effects of air pollution on pregnancies. Some studies suggest that higher amounts of pollution in the air are related to babies being born too small or too early. Air pollution also can make asthma symptoms worse. There are some ways to lower the amount of air pollution you are exposed to, and this may be even more important for those that live near highways or high traffic areas, or near landfills. Some clear ideas from the American Pregnancy Association include:

- Buying an air purifier to use in your home
- Checking the air quality before planning outdoor activities to see if it is dangerous for groups sensitive to air pollution or pollen. Simply visit this website and enter your zip code: https://www.airnow.gov/
- Choosing to spend more time indoors when air quality is low
- Buying some plants to have in your home that are known to improve air quality. Some common household plants known to help with this include Peace Lilies, Snake plants, Philodendrons, Spider plants, or Rubber Trees

Other important things to consider are checking in with your healthcare provider about any types of medications you may use to treat your asthma or allergies. Quitting your medications as soon as you become pregnant is often not the best choice for you or baby and managing your symptoms is important for the reasons discussed above. MotherToBaby has a landing page on asthma that includes resources: https://mothertobaby.org/pregnancy-breastfeeding-exposures/asthma/ and one about allergies: https://mothertobaby.org/pregnancy-breastfeeding-exposures/allergies/ These pages have links to fact sheets on many medications that are used to treat symptoms related to both topics.

As you move through the Spring months into Summer, try to appreciate the seasons while also being aware of how air quality can affect your health. As the saying goes, when you are pregnant you are “breathing for two.” As a reminder, our fact sheets also have breastfeeding information near the bottom of them that you can check out. We also encourage you to remember air quality can affect young children as well – especially ones with asthma. Finding a healthcare provider you and your family can see routinely to manage asthma related issues is important in order to avoid emergency room visits.

Take a deep breath and remember, whatever your concerns are, experts at MotherToBaby will do our best to give you

useful information based on research, or to point you in the right direction if we are unable to help.

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Carrie called MotherToBaby on a Monday morning. She sounded anxious. “I just got home from a pretty wild bachelorette party held last week in New Orleans. I started feeling nauseous on the plane and I have thrown up twice this morning. I couldn’t eat breakfast. I’m really tired and my breasts hurt a little. I’m worried I might be pregnant.” Carrie was wondering if we could help her figure out if she was pregnant or not. Although MotherToBaby mainly answers questions about medications and other exposures during pregnancy and breastfeeding, the “am I pregnant” question is one we hear often.

This call reminded me of another one that I received several weeks prior – Anya called to say that she was two days late for her period, but she hadn’t been able to take a pregnancy test just yet. She was taking birth control pills and had missed one day but took two pills the next day, just like her doctor had told her to do if that happened. She was hoping she wasn’t pregnant, but she was worried that taking the birth control pills may have increased the chance for a birth defect in her baby if she was pregnant.

January is National Birth Defects Awareness Month, and a great time for those planning a pregnancy to review their own risk for having a child with a birth defect. Over half of all pregnancies in this country are unplanned. Talk with one of our specialists. Together with MotherToBaby, you can consider your own risk in a thorough discussion. Also see this link to the CDC page on birth defects prevention.

Back to our callers' situations. There are many signs of early pregnancy and they may be different from person to person. Yet there can be other reasons a person might have any of these symptoms, which is why it's important to perform a pregnancy test. The following symptoms could be side effects from hormonal contraception OR early signs of illness OR your period is about to start OR actually signs of pregnancy. These include light vaginal bleeding or spotting, mild uterine cramping, sore or swollen breasts, feeling tired, feeling bloated, feeling moody, urinating more often than usual, food aversions, nausea or vomiting, constipation, stuffy or runny nose. Even a missed period might not mean you are pregnant.

If you think you may be pregnant, the best way to know for sure is to take a pregnancy test. Home pregnancy tests, sold at grocery stores, pharmacies and drugstores, are about 90% accurate on the day you are supposed to have your period. If you wait just one more week, the tests are reported to be about 97-99% accurate. Taking a test sooner than the day your period is supposed to start can lead to false negative results. How? Pregnancy tests measure a hormone called human chorionic gonadotropin (hCG) in your urine and your body only makes this hormone if you're pregnant. Your body makes more hCG as time passes though, and your test could be negative if there isn't enough hCG to measure in your urine yet. Home urine pregnancy tests are just as accurate as the urine tests at the doctor's office when they are used correctly and at the right time in your menstrual cycle. Before you begin, make sure to check the expiration date on the outside of the box. Carefully read the instructions. If you still aren't sure about the result, visit a clinic to be tested again.

While a woman waits until the day she can take a pregnancy test, meaning until she knows for certain whether or not she is pregnant, it's important to avoid alcohol, smoking, and drugs. All of these substances can be harmful to a pregnancy and to a developing baby. MotherToBaby is an excellent resource for discussing these exposures during pregnancy, plus for any medications you might be taking. This conversation can be useful in making decisions with your doctor about continuing or stopping a medication. In some cases, it may actually be better to continue taking certain medicines, for both your own health and the baby's well-being. Don't stop your medications until you speak with your doctor or pharmacist.

If your period has not started within a week after a negative result, you should take another pregnancy test. If it's still negative, make an appointment with your healthcare professional to determine what may be going on. You might be stressed, be exercising too much, getting sick or experiencing hormonal imbalances. All of these should be discussed with a doctor. If you are not pregnant, it's also an excellent time to discuss short-term birth control or long-acting reversible contraception (LARC) like IUDs or birth control implants. No contraceptive method is 100% effective, and I've spoken with people who became pregnant even with LARC, but the chance of an unplanned pregnancy is far less with correct use of contraception with every sexual act. It's also a good idea to start tracking your periods to learn more about your body and to know when to expect your period. Check out your app store for free apps like: Flo, Clue Period & Cycle Tracker, or Ovia Fertility & Cycle Tracker.

If your home pregnancy test is positive, make an appointment with your healthcare provider. The sooner your pregnancy is confirmed, the sooner you can begin prenatal care. Either before or when you suspect a pregnancy, begin taking a daily prenatal vitamin with at least 400mcg of folic acid. These help support the baby's growth and development and are an important supplement to a good nutritious diet. Check to see if you are up to date on all recommended vaccines. Get some exercise, plenty of sleep, and pay attention to your mental health. See our healthy pregnancy blog post for more details. MotherToBaby is here to help with any questions you have throughout pregnancy and while breastfeeding.

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The year of the pandemic has not been easy. It has left most doctors and essential workers drained from the added stress. But I just got off a telehealth visit (sadly, a part of my new normal) with my long-standing patient and I am so excited! My patient (and myself) has struggled to lose weight for most of her life, but considering some of her chronic medical conditions, she was so motivated to lose weight prior to her pregnancy. I am so ecstatic because I love my patient! My patient, beautiful inside and out, has just made some lifestyle changes that will make her pregnancy that much safer for her and her baby.

Obesity and Its Impact during Pregnancy

Based on a large US survey, close to 60% of women are either overweight or obese. Unfortunately, obesity increases risks for both mom and baby during pregnancy. In early pregnancy, obese women have an increased risk of miscarriage and later in pregnancy an increased risk of stillbirth. There is also an increased risk of birth defects, most notably defects of the spinal cord, heart, face and limbs. Additionally, detecting these anomalies poses a greater challenge. Accounting for how ultrasound scientifically works, it is difficult for ultrasound detection of fetal abnormalities in obese women. The higher the body mass index of a patient, the lower the anomaly detection rate. Compared to non-obese women, obese women also have higher risks of heart complications, diabetes in pregnancy, sleep apnea, blood pressure disorders such as preeclampsia and heart dysfunction. Our obese patients need to be closely monitored for possible complications throughout pregnancy.

At time of delivery, studies and clinical practice tell us that obese women have an increased risk of a cesarean section. After their delivery, they are more apt to struggle with an infection of the womb or infection of the cesarean incision.

Prepping Before Pregnancy

January is Birth Defects Prevention Month and this year's theme is "5 Tips for Birth Defects Prevention," which includes the following tip: Before you get pregnant, try to maintain a healthy weight.



Due to all the potential complications, the best time to address obesity is before becoming pregnant. This is where mom-to-be may need the greatest support in helping to optimize health and the health of baby. Weight loss is the one thing we can do to help change our health. I often tell my patients that we cannot change our genetics, our family or personal medical history, but we can make lifestyle changes that can make a lasting difference in our baby's health and ours. Achieving optimal weight, or even just starting to work toward it, can be achieved through so many avenues such as nutrition and exercise, help with medication, or even surgery. The many approaches should be personally customized to mom-to-be.

During pregnancy, we recommend less weight gain for our overweight patients. Overweight and obese patients should gain between 15-25 lb (6.8-11.3 kg) and 11-20 lb (5.0-9.1 kg) respectively. Increased testing and monitoring in pregnancy is often recommended. A healthy diet in protein, fats and carbohydrates as well as exercise should be discussed with your doctor. What works for me may not work for some of my patients and that is important to know – Each of us are beautifully individual!

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A Guest Blog by the Allo Hope Foundation's Bethany Weathersby

I grew up in a large family, loving both the chaos and the built-in friendships that came with having four siblings. My mom had five normal pregnancies and five healthy children, and I always (naively) assumed my experience would be the same.

Seven weeks ago my dream of having five kids — just like my mom — became a reality when I delivered my fifth living child, a beautiful 8-pound boy we named August. But while my mom's path to five children was smooth and uneventful, my journey to five kids was painful, rocky and tumultuous. I found myself faced with a question I never expected I would have to answer: what do I do when my baby is attacked by my own immune system?

The Diagnosis

My first two pregnancies were free of complications as I carried and birthed two healthy boys, Liam and Asher. It was when I was 9 weeks pregnant with my third child — our first girl — that my obstetrician gave me the news I was not expecting. My first trimester blood work came back positive for anti-Kell (or anti-K) antibodies, and I now had a condition called maternal alloimmunization.

Maternal alloimmunization, commonly known as Rh disease or isoimmunization, occurs when a woman makes red blood cell antibodies after being exposed to a blood type different from her own. This exposure to a foreign blood type usually occurs during a blood transfusion or a previous pregnancy. The woman's immune system views the foreign blood as a threat and creates antibodies to destroy it. This can be a serious problem if the woman becomes pregnant with a baby who has the offending blood type. In these cases the antibodies can cross the placenta in the second or third trimester and destroy the baby's red blood cells. This is called hemolytic disease of the fetus and newborn (HDFN). HDFN can have devastating consequences for the baby, including anemia, fetal hydrops and even death.

I knew about the more common anti-D antibodies or Rh disease, which can be prevented with the administration of Rhogam, but I had never heard of anti-Kell antibodies. Anti-Kell is one of the many other red cell antibodies that are similar to anti-D, but cannot be prevented. The more I learned about my diagnosis, the more discouraged I became. I realized that while my body was growing and nurturing my daughter, it was simultaneously trying to destroy her. I felt desperate to protect her from my antibodies.

Options and Questions

I immediately began researching treatment options. I learned that women with red cell antibodies should be closely monitored and treated by a maternal fetal medicine (MFM) specialist. Antibody titers show how many antibodies are in the mother's blood. Titers are checked regularly until they reach the critical level. Once titers are critical it means that there is a risk of the baby developing severe fetal anemia. The baby can be monitored for anemia by special ultrasounds called MCA doppler scans. These scans measure how quickly the baby's blood is flowing through the middle cerebral artery in the brain. If it is flowing too quickly, the doctors know the baby is anemic and in need of a blood transfusion. Blood transfusions can be done in utero if the baby becomes anemic before birth.

The critical titer for Kell is 4. My titer was 1,024 right from the start of the pregnancy. My husband and I were terrified thinking through the possibilities.

I was referred to an MFM an hour away. In the online research I'd done to try to understand my diagnosis, I came across information about treatments called plasmapheresis and IVIG. These treatments had been used in severe cases to protect the baby from the mother's antibodies until the fetus was big enough for an intrauterine blood transfusion.

I printed off a copy of the study I found showing the efficacy of the treatments and brought it to my MFM appointment at 16 weeks. I asked if we should start the treatments to protect my baby in case she was becoming anemic. The MFM said the treatments were unnecessary and considered experimental. He also explained that they would not be checking the baby for anemia until further along in the pregnancy because nothing could be done to help anemic babies before 20 weeks. The smaller the baby, the more difficult and dangerous intrauterine blood transfusions are.

I left my appointment feeling uneasy, not knowing whether or not my baby was anemic. My mind buzzed with anxiety as I thought through my unanswered questions. I had read other women's accounts of successful intrauterine blood transfusions as early as 16 and 17 weeks gestation. Why did my doctors think that nothing could be done for my baby before 20 weeks? Why couldn't we be proactive and try the plasmapheresis and IVIG treatments I had read about online?

My fears grew day by day as I worried about my baby girl. I wanted to know exactly what was happening inside my body. Was my daughter safe and thriving? Or was my womb an unseen battleground where she fought for her life, unaided by all of us here on the outside?

I finally convinced my MFMs to do an MCA scan at 18 weeks to check our baby for fetal anemia. The results were devastating. The scan confirmed that our girl was extremely anemic and had started to develop fetal hydrops as a result. Our MFMs were not very hopeful about the outcome since the anemia was already so severe. They attempted an intrauterine blood transfusion the next day, but our little girl, Lucy Dair, died a week later at 19 weeks gestation.

Grief

Lucy was beautiful. She weighed one pound and was 9 inches long. My husband and I were completely overcome with grief. There is no pain in the world like losing a child.

To make matters worse, we not only lost our beautiful daughter Lucy; we also lost our hopes for future children all in one day. We were told that we could not have any more biological children since the antibodies tend to become more aggressive with each subsequent pregnancy.

Trying Again

Even after the doctors warned us of the dangers of future pregnancies, I could not let go of my dream for a big family. Five kids. How could we try again knowing that my own immune system would attack and possibly kill my next baby? I felt guilty for still wanting to grow my family despite having two living children while desperately wishing for better treatment options for alloimmunized women.

The plasmapheresis and IVIG treatments that we hadn't tried during my pregnancy with Lucy kept coming to mind. Could they be effective in a future pregnancy?

After many months of research, discussion and prayer, my husband and I decided to try again for another baby. This time we had a plan: we would use a different team of MFMs in a different state, and we would start plasmapheresis and IVIG treatments early in the pregnancy. Intrauterine blood transfusions can actually be done as early as 15 weeks so we would start weekly MCA scans at 14 weeks to monitor for fetal anemia.

We traveled 11 hours to Houston, Texas to find an MFM who was an expert on alloimmunized pregnancies. It turns out many women have to travel to other cities, states and sometimes even other countries in order to find MFMs who have experience treating alloimmunization and HDFN.

Our new team of doctors was extremely cautious and proactive, monitoring the baby carefully week after week. Our hope grew as the treatments seemed to be working, and, we found out we were having another baby girl.

The treatments kept her safe from my antibodies until 24 weeks when she became anemic and needed her first intrauterine blood transfusion. In total, our daughter had five intrauterine blood transfusions and was born healthy at 38 weeks. We named her Nora Juliet, our little light bringing joy back into our family. But she was also a reminder of the outcome that we could have had with Lucy if we had received the same care during my first alloimmunized pregnancy.

We went on to have two more little boys with the help of plasmapheresis and IVIG treatments as well as the help of our incredible MFMs. Our third son, Callum, had 3 intrauterine blood transfusions and was born at 34 weeks and our fourth son, August, was born at 37 weeks after seven intrauterine blood transfusions.

Hope and Advocacy

Over the years I have become an advocate for other women around the world who are facing alloimmunization and HDFN. I have seen familiar stories play out in their families: the shock of the unexpected complication, the terror that comes with a new diagnosis and the fear of not knowing how to protect their children.

Unfortunately, due to the rarity of alloimmunization and the variation in care practices around the world, well-managed pregnancies and ideal infant outcomes are not universal, but I have hope that they can be. Treatment options are improving for families facing alloimmunization. New clinical trials are underway to hopefully provide less invasive treatments for babies threatened by HDFN. In 2019, I started a non-profit organization called The Allo Hope Foundation in order to bring awareness to the disease and provide support and education to families facing alloimmunization and HDFN.

If I could go back in time to the moment I first learned about my antibodies and if I could tell myself anything it would be this: You are your baby's best advocate and you have to be her voice. With the right medical care there is hope for your baby and it is up to you to find the doctors who will provide that care. Research, learn and speak up. These antibodies do not have to determine the size of your family.

To learn more about maternal alloimmunization and HDFN visit https://allohopefoundation.org.

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Sometimes we have anxiety about…well, having anxiety. Kristen contacted MotherToBaby and was asking about ways to manage her already extremely high anxiety around pregnancy and birth during the pandemic. Should I even try to get pregnant right now? How will I deal with my anxiety and stress if I do become pregnant? What if almost no one in my family can even come to the hospital when I go into labor? How can I deal with my anxiety during labor and birth? I could tell she had a tremendous amount on her mind.

It is completely normal to feel stressed and anxious, and Kristen is not alone. Many people, regardless of whether they are pregnant during the time of COVID-19 or not, are experiencing higher levels of anxiety. The important thing is to address the anxious feelings and learn ways to manage them. I have some ideas on how to do just that! But one thing I need to emphasize: if your anxiety is excessive, ongoing, difficult to control, and interferes with your daily living, this may be a sign of generalized anxiety disorder and I encourage you to talk to your doctor or a mental health professional.

Managing Anxiety

There are ways to manage anxiety and stress that may be commonly shared, but in case you haven't heard them before below are some tips you can try at home:

- Exercise, even if it is going for a brief walk outside
- Call a friend just to catch up
- Volunteer or donate to a cause you care about – often doing things to help others actually can make you feel good
- Try to eat healthy, nourishing foods
- Journal as a way to express what you are feeling
- Take a break from your screen time on phones, tablets and TV – especially before bed
- If you feel like nothing really helps to address your feelings of anxiety and stress, or if you are feeling really down, make an appointment to talk to your healthcare provider and be honest about how you're feeling

If you do feel like you need to talk to your healthcare provider, how do you do it? Remind yourself that healthcare providers are not only trained to talk about mental health topics with their patients, but that they likely talk to multiple people every day or week about them. Sometimes pregnancy increases anxiety that is already present, and for others it may be that they are experiencing it for the first time. Being pregnant does not mean that you are immune from or that you cannot be treated for mental health issues.

Before you go to see your healthcare provider, you can write down some notes on what you hope to say. Try to be as honest as possible and ask about the variety of options you have to address your anxiety or symptoms, including what you can try at home, who you may be able to see for some form of talk therapy, and if necessary, what medications the provider may recommend trying. Remember, just because you bring up anxiety or mental health, it does not mean you will be put on a medication. Equally as important, if you need to take a medication to help you manage better, there are several options you can take during your pregnancy.

Working on dealing with your anxiety before becoming pregnant is always a great idea, but you can address it at any point during pregnancy or in the postpartum period. There is never a bad time to improve your mental health (doing so is not only good for you, but also good for your baby) and it is never too late. In addition, I have had women express that admitting they need help makes them feel weak or selfish. In truth, it is the opposite – it takes courage to ask for support when we need it!

COVID-19, Labor and Delivery

The other piece of Kristen's worry was having support in the delivery room. Due to COVID-19 many hospitals and birthing centers may be reducing the number of support people someone can have present during delivery. In addition, no one may be allowed in nearby waiting rooms. Giving birth can be one of the most challenging events for a person and having support during labor and delivery is incredibly important for getting through it with both a healthy mom and a healthy baby. First, you should speak with your planned delivery hospital/center to learn what their most current rules are for time of delivery and ask about any extra precautions they are taking due to COVID-19. Once you have that information, you can figure out what your game plan is. Other things to consider include:

- Does the hospital offer doulas? Would you want to hire your own? If you hire one and s/he is not allowed in the delivery room, can she call in and be there via facetime and text? Can she spend extra time going over pain management techniques with you and your support partner in advance if she is unable to be there herself?
- You can also consider programs like Hypnobirthing or Lamaze classes that really work with women to be confident in managing their experience during labor and delivery. Sometimes the type of prenatal education you choose to receive can help you feel more prepared and aware of what to expect, which alone may help reduce fear of the unknown.

In short, try not to panic with all of the questions you may have about dealing with anxiety. Write down your questions and make sure to ask your healthcare provider and the place you plan to deliver all of them. Prepare for what you can, take care of yourself, ask for help when you need it and trust that you have the strength to get through anything – because you do.

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