



Introduction to Obstetric Services

Congratulations! This is an exciting time in your life. At Upper Great Lakes Family Health Center, we want to do everything possible to ensure you have a healthy pregnancy and a healthy baby. Our goal is to provide you and your baby with safe and appropriate care throughout your pregnancy and delivery.

What You Can Expect

To provide the best care possible, it is important for us to gain an understanding of your health during pregnancy. Although some of the topics we need to explore are sensitive and may be difficult to openly discuss, please be assured your honesty and cooperation are very important in allowing us to effectively care for your baby.

You will be meeting with each of the Upper Great Lakes Family Health Center OB Providers during your pregnancy. This will allow our team to get to know you and in turn, you can get to know them. Our OB Providers provide on-call services for you and your baby, 24 hours – 7 days a week – 365 days a year. On the day you deliver, one of our OB providers will be dedicated to making sure your delivery goes smoothly and there with you every step of the way.

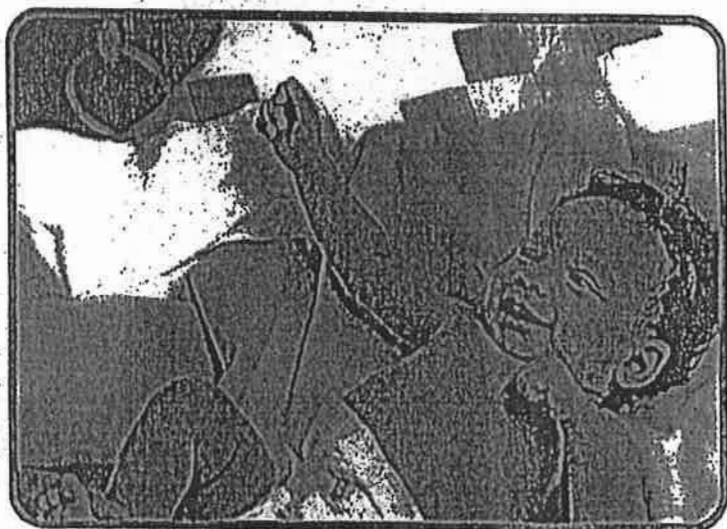
Prenatal visits are scheduled monthly up until the third trimester. After 30 weeks, appointments are scheduled every two weeks, with weekly visits occurring after the 36th week until the day of your delivery. If for some reason you are unable to attend your scheduled appointment, please give us 24-hour advance notice so other patients may be provided with the opportunity to see one of our OB/GYN providers.

During your first visit, the OB/GYN team will discuss routine screenings and any additional tests that are specific to helping us care for you and your baby. Early in your pregnancy, you will be asked to submit blood and urine samples so that we can ensure that standard screenings and testing is complete. These tests are extremely important to the health of both you and your baby during this special time. In addition to OB/GYN services, Upper Great Lakes Family Health Center provides Pediatric services. We have 5 board certified Pediatricians onsite, ready and available to care for your baby. You will have an opportunity to meet them following the delivery while in the hospital.

We want to thank you for choosing our OB/GYN team here at Upper Great Lakes Family Health Center. We look forward to providing you with high quality team-based care for you and your baby.

Sincerely,

Ashley Chamberlain, CNM
Taylor Landers, CNM
Christiann Rosemurgy, CNM
Janet Turner, MD
Devyn Dempsey, DO



MIHP

Maternal Infant Health Program

MIHP

Maternal Infant Health Program

Where can I get more information about MIHPs in my area?

For information:

Go to the Michigan Department of Community Health web page at www.michigan.gov/mihp

Michigan Department
of Community Health

MDCH

Rick Snyder, Governor
James K. Haveman, Director

MDCH is an Equal Opportunity Employer, Services and Programs Provider.

DCH-1417 (07-12) Previous versions obsolete.



Information for Medical and
Social Service Professionals



A program that helps women take care of themselves and their babies.

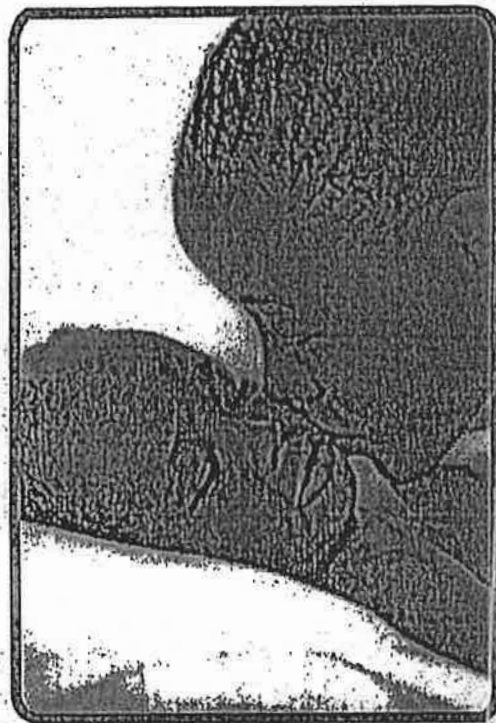
MIHP is a program for women covered by Medicaid during pregnancy and up to 60 days after birth, and infants covered by Medicaid. Formerly known as Maternal Support Services/Infant Support Services (MSS/ISS), MIHP provides social support, information, and care coordination services to promote healthy pregnancies, good birth outcomes, and healthy infant development.

MIHP programs are certified, monitored, and funded by the Michigan Department of Community Health and are intended to supplement regular prenatal and infant care by medical providers (doctors, nurse midwives, nurse practitioners and physician assistants).

How can MIHP assist me in providing the best possible care for my pregnant and infant Medicaid patients?

MIHP providers are multidisciplinary teams of qualified nurses, social workers, dietitians and infant mental health specialists (if available) who will:

1. Conduct a comprehensive risk assessment across multiple domains, including health risks, smoking, alcohol use, drug use, stress, depression and mental health, social support, abuse/violence, basic needs, breastfeeding, infant development, and infant health and safety.
2. Develop a care plan for your patient, based on your input and the risk assessment results.
3. Communicate with you about your patient's status.
4. Follow-up with your patient through home or clinic visits.
5. Provide care coordination for your patient, including referrals to community services.
6. Provide your patient with access to transportation to medical appointments, WIC, substance abuse treatment, childbirth and parenting education classes.
7. Provide educational interventions for your patient.



How can my staff and I encourage our patients to enroll in MIHP?

You could emphasize that if your patient enrolls, she will have:

- Access to FREE transportation to medical appointments, WIC, and childbirth or parent education classes.
- An experienced health professional who will:
 - Answer her questions about being pregnant.
 - Answer her questions about caring for her infant.
 - Help her get food or a place to live.
 - Help her learn about eating nutritious foods.
 - Help her with any health problems that could affect her pregnancy, such as diabetes, asthma, high blood pressure, depression or anxiety.
 - Help her make any health changes that she decides to make, such as quitting or cutting down on smoking, alcohol or drugs.
 - Help her if she's concerned about an abusive/violent person in her life.
 - Answer her questions about family planning (birth control).
 - Connect her with different community services, such as childbirth education classes or baby pantries that give out baby items for free.

Women, Infants & Children (WIC)

WIC is a supplemental nutrition program that provides food, nutrition counseling, breastfeeding support, and access to health services for low-income pregnant, breastfeeding, & postpartum women, and to infants & children, up to age five, who are found to be at nutritional risk. Fifty-three percent of infants born in the US receive WIC benefits. WIC is administered locally by the Health Department.

What does WIC Provide?

WIC provides supplemental foods to meet the nutrient needs of children and pregnant and breastfeeding women, such as calcium, iron, folic acid, vitamins A & C. Participants receive WIC benefits in the form of a debit (Bridge Card) which they may redeem at any WIC authorized retail store throughout Michigan. [Click here](#) for a complete list of WIC eligible foods.

Nutrition education is an important component of the WIC Program. Education relates to the nutritional needs of the WIC client(s). Participants with high risk nutrition conditions are referred to a registered dietitian for a nutrition care plan & counseling. Common nutrition education topics include nutrition during pregnancy, infant feeding, nutrition during childhood, and wise food shopping. [Click here](#) to learn how to access online education.

Breastfeeding Support: A Mother's milk has everything a baby needs to grow and stay healthy. WIC provides answers to breastfeeding questions and support in the form of peer counselors to help moms and babies with breastfeeding problems. WIC can also help breastfeeding mothers by providing breast pumps to use when returning to work or school. For additional information about the benefits of breastfeeding, [click here](#).

Referrals: An added benefit of the WIC Program is screening for other health problems and referrals to other appropriate health and social services. These referrals may be for Medicaid, MI-Child, Healthy Kids, Food Stamps, immunizations, child health screening, family planning, and more.

Who is Eligible for WIC?

Applicants must meet all of the following 4 criteria:

1. Fall into one of the following categories:

- Pregnant Women
- Breastfeeding Women up to 1 year from delivery
- Postpartum Women up to 6 months from delivery
- Infants
- Children up to their 5th birthday

2. Resident of the state of Michigan. U.S. Citizenship is not required.

3. Income eligible or a Medicaid recipient.

4. Determined by WIC clinic staff to be at nutrition and/or health risk.



WIC Clinic Locations

Baraga County

Western Upper Peninsula Health Department
303 Baraga Ave, L'Anse, MI. 49946
906-524-6142

Gogebic County

Western Upper Peninsula Health Department
210 N Moore St, Bessemer, MI. 49911
906-667-0200

Houghton/Keweenaw Counties

Western Upper Peninsula Health Department
540 Depot St, Hancock, MI. 49930
906-482-7382

Faith Lutheran Church

26016 Depot St, Calumet, MI. 49913
906-482-7382 (Monday–Thursday)
906-370-8694 (Fridays)

Ontonagon County

Western Upper Peninsula Health Department
408 Copper St, Ontonagon, MI. 49953
906-884-4485



UPPER GREAT LAKES
FAMILY HEALTH

Routine tests during pregnancy



At Upper Great Lakes Health- OB, we want you and your baby to remain healthy throughout your pregnancy.

We also want to anticipate any potential health challenges you or your baby might face, so we can be fully prepared to care for you.

Below are some of the most common laboratory tests we'll ask you to undergo while you're pregnant. We've also included a screening outline that explains which tests are recommended during each trimester. Your provider may recommend additional tests, depending on your health needs.

Initial testing

These lab tests are routinely recommended as part of your prenatal care. They help identify (and rule out) conditions that could complicate your pregnancy.

Complete blood count

In some cases, this test is conducted in each trimester of pregnancy. Your red blood cell number indicates whether you have anemia (not enough healthy red blood cells). Your white blood cell number shows how many disease-fighting cells are in your blood. Your platelet count can reveal whether you could have problems related to blood clotting.

Blood type

Determines your blood type (A, B, AB or O) and your Rh factor (positive or negative). If you are Rh negative, a RhoGAM injection will be recommended during, and possibly after, your pregnancy to reduce the chances of fetal anemia in future pregnancies.

Urinalysis

A urine test to screen for urinary-tract infection, diabetes or preeclampsia (a serious illness that includes extremely high blood pressure).

Urine culture

The definitive test for bladder and kidney infections, which are common during pregnancy.

Rubella

A blood test to determine if you've had a rubella (German measles) infection or if you have been vaccinated against this disease.

Hepatitis B

A virus that infects the liver. If you test positive for hepatitis B, your provider can help prevent you from transmitting the infection to your baby by vaccinating him or her within the first hours of life. It's still safe for you to breastfeed.

Human immunodeficiency virus (HIV)

A virus that attacks the immune system. A pregnant woman with HIV could pass the virus to her baby. However, medications and other strategies can be used to protect at-risk newborns.

Other sexually transmitted diseases (STDs)

Syphilis, chlamydia and gonorrhea can cause complications for you and your baby. If you have an STD, you will be treated for it during pregnancy and retested later to see if the treatment was successful.

Pap smear

A cervical-cancer screening. If you are due for your pap smear during your pregnancy, your provider will complete it during your physical exam.

Tuberculosis (TB)

If you test positive for this serious lung infection, your provider will recommend a chest X-ray — usually after you deliver. Medications and other strategies can help protect your baby and close family members from contracting TB.



Genetic counseling

Genetic counseling is different from genetic testing. Genetic counselors have advanced training in genetics, and they are able to assess your and/or your partner's genetic risk factors. They will review your personal medical history and pregnancy history, as well as your family history. Genetic counselors help educate individuals and couples who are pregnant or are thinking of becoming pregnant. They can explain what causes certain conditions, how these conditions are passed down, how doctors test for them and manage them, and what the typical prognosis is.

If you have the following family-history factors, you may want to seek genetic counseling or evaluation:

- If you or your partner have a family history of any of the following issues, or already have a child with any of the following conditions:
 - Intellectual disability
 - Neural tube defects, such as spina bifida
 - Chromosome abnormalities, such as Down syndrome
 - Single gene defects, such as cystic fibrosis or Phenylketonuria
 - Cleft lip or palate
 - Visual or hearing impairments
 - Heart defects
 - Cancers
 - Short stature
 - Learning disabilities
 - Psychiatric disorders
 - Other genetic disorders
- If you have had multiple miscarriages and stillbirths, or infant deaths
- If you and/or the father of the baby has a parent with an “autosomal dominant disorder” (a mutated gene that could cause certain genetic disorders, such as Huntington’s disease in a child), or any inherited disorder present in many generations of your family
- If both you and the father of the baby are carriers for an autosomal recessive disorder (meaning you both have the gene but are not affected yourself); parents usually find this out through a screening or because they already have a child who is affected
- If the mother is known or thought to be a carrier of an X-linked disorder, such as hemophilia
- If you or the father of the baby is known to be a carrier of a balanced chromosome abnormality

You may also want to seek genetic counseling for the following pregnancy factors:

- A serum screening indicates a higher risk for Down syndrome, neural tube defects or trisomy 18
- Baby’s mother is 35 years or older at delivery
- Baby’s father is significantly older than average at the time of conception
- Mother or baby has been exposed to harmful drugs, chemicals, radiation or infection
- Mother’s ultrasound shows abnormalities in the baby or there are other abnormal test results
- The mother (or father) has certain health concerns, including:
 - Schizophrenia
 - Depression
 - Alcoholism
 - Diabetes
 - Seizure disorder
 - Thyroid disorder
 - Other conditions that are linked to birth defects, including medications you may have taken for the condition
- There is an infertility issue and your doctor suspects a chromosome abnormality
- You used assisted reproductive techniques to get pregnant, or you are donating eggs or sperm for those purposes
- You are thinking of getting pregnant but know that you and your partner are at high risk for genetic disorders because of family or personal medical history

Other reasons to seek genetic counseling include:

- You have a great deal of anxiety (whether other factors apply or not) about birth defects
- You have a specific ethnic background or you are living in an area where certain disorders are more prevalent, such as Tay-Sachs disease, sickle cell disease or thalassemia
- You and your partner are related by blood, or the pregnancy resulted from incest



Ultrasounds

Ultrasound scans (sonograms) are very safe. An ultrasound uses high-frequency sound waves to show an image of your internal organs, evaluate your baby's development and health, and verify your baby's due date. The number of ultrasounds you'll need depends on several factors, including your and your baby's health, your prior ultrasound and blood test results, and any complications during your pregnancy. There are two kinds of ultrasounds that doctors use during pregnancy.

Abdominal ultrasound

Your provider rubs a water-based gel on your abdomen and uses a handheld probe called a transducer. The gel makes it easier for your care provider to move the transducer around your abdomen and capture images of the organs.

Transvaginal ultrasound

The physician or technician will insert a smaller ultrasound transducer into your vagina. Your provider might use this kind of ultrasound in early pregnancy because it provides a clearer image.

Fetal ultrasounds are safe. Some women may feel a slight pressure from the transducer on their abdomens or in their vaginas, but it is generally not painful. Ultrasounds do not use radiation, so there is no risk. For those allergic to latex, the test typically involves using a latex sheath to cover the transvaginal ultrasound transducer. Let your provider know if you have a latex allergy.

First-trimester prenatal screening tests

First-trimester ultrasound

- Establish your baby's due date (this is the most accurate way to do so)
- Determine the number of fetuses you're carrying and identify placental structures
- Diagnose an ectopic pregnancy (when pregnancy develops outside the uterus) or miscarriage
- Examine the uterus and pelvic anatomy
- In some cases, detect fetal abnormalities

Ultrasound test for fetal nuchal translucency (NT)

- Noninvasive test conducted between 11 weeks and 2 days, and 14 weeks and 2 days
- Measures the back of baby's neck for increased fluid or thickening; helps screen for Down syndrome and trisomy 18 (Edwards syndrome)
- Detects certain severe birth defects

Maternal serum screening test

- Screens your blood for biochemical markers that may indicate your baby is at higher risk for certain genetic diseases and birth defects.
- When used together, nuchal translucency screenings and maternal blood tests are very effective at determining if the fetus might have birth defects, such as Down syndrome and trisomy 18

Noninvasive prenatal testing (NIPT) for birth defects

- Typically recommended for mothers at high risk of carrying a baby with a chromosomal abnormality (mothers over age 35 or mothers with a family history of birth defects, for instance)
- May be recommended if an earlier blood test or ultrasound is abnormal
- NIPT is a safe, simple blood test that can be performed as early as the first trimester

Genetic testing (carrier testing)

- Your provider may recommend genetic testing if you and/or your partner have a family history of genetic disorders or if you have previously given birth to a baby with a genetic abnormality
- Genetic disorders are often passed on from parent to child
- If your baby does end up having health issues, knowing in advance can give you time to prepare and can also help your physician or midwife provide your baby with extra medical support at birth

Examples of genetic disorders that can be diagnosed before birth include:

- Cystic fibrosis
- Duchenne muscular dystrophy
- Hemophilia A
- Thalassemia
- Sickle cell anemia
- Polycystic kidney disease
- Tay-Sachs disease

If screening test results are abnormal, your provider may recommend genetic counseling and further testing.

Chorionic villus sampling (CVS)

- May be offered to women who are at increased risk for carrying a baby with chromosomal abnormalities or have a family history of a genetic defect
- Usually performed between 10 and 12 weeks of pregnancy
- Tests placental tissue for chromosomal and genetic abnormalities
- CVS doesn't provide information on neural-tube defects, such as spina bifida; women who undergo CVS also need a follow-up blood test for neural-tube defects between 15 and 20 weeks of pregnancy
- Some women aren't suitable candidates for CVS or get incomplete results; a follow-up amniocentesis may be necessary

Second-trimester (mid-trimester) prenatal screening tests

Mid-trimester ultrasound (the "18-to-20 week scan")

- Check fetus for abnormalities
- Assist in prenatal tests, such as an amniocentesis
- Check amount of amniotic fluid
- Examine blood-flow patterns
- Observe fetal behavior and activity
- Measure length of mother's cervix
- Monitor fetal growth

Multiple-marker blood tests

- A sample of your blood, taken between 15 and 20 weeks of pregnancy, is used to test proteins and hormones (biochemical markers)
- These markers can offer information about your risk of having a baby with certain genetic conditions or birth defects
- Abnormal test results might mean you'll need additional tests
- A multiple-marker screening is not 100-percent accurate; it's simply a screening to determine whether you need extra testing
- When you undergo both first- and second-trimester screenings, the combination of tests can much more accurately detect an abnormality than just a single screening

Amniocentesis

- Generally offered to women between weeks 16 and 20 of pregnancy who have a high risk of carrying a baby with chromosomal abnormalities
- Involves inserting a long, thin needle through your abdomen into the baby's amniotic sac to withdraw a small sample of the amniotic fluid
- The sample is checked for chromosomal disorders and open neural tube defects, such as spina bifida
- Some women feel a bit of cramping during or after the procedure
- Avoid any strenuous activities for 24 hours after an amniocentesis
- If you're carrying twins or other multiples, your provider may need samples from each amniotic sac
- Sometimes, the positions of the babies or placenta, the amount of fluid or other reasons may make an amniocentesis impossible to complete

Third-trimester prenatal screening tests

Glucose challenge/tolerance test (diabetes screening) and repeat CBC (complete blood count)

- You'll drink a sugary solution, wait one hour, then undergo a blood-sugar-level test at a lab
- If results are abnormal, you'll undergo a glucose tolerance test, usually between weeks 24 and 28 of pregnancy
- Abnormal glucose levels could indicate gestational diabetes, which is treatable

Group B streptococci (GBS)

- GBS bacteria normally live in the vagina and rectum
- Rarely, newborns can get seriously ill if exposed to GBS during delivery
- You'll be tested for GBS (via a swab of the vagina and rectum) between weeks 35 and 37 of pregnancy
- If you test positive, your provider may give you antibiotics during labor to help protect your baby from infection

Third-trimester ultrasound (if necessary)

- Monitor fetal growth
- Check the amount of amniotic fluid
- Determine fetal position
- Assess the placenta

Fetal monitoring

- Checks the rate and rhythm of the fetus's heartbeat
- During prenatal visits, your provider often uses a handheld Doppler device to count the fetal heart rate
- During labor, your provider may use a continuous electronic fetal monitor that is placed on your abdomen
- Your baby's heart rate may change depending on what's happening inside your uterus
- Monitoring your baby helps your provider catch an abnormal fetal heart rate
- An abnormal pattern may indicate that your baby is having a problem, such as not getting enough oxygen; if this happens, your provider will talk to you about options to keep the baby healthy, such as an emergency or cesarean delivery



Prenatal Genetic Screening Tests

Frequently Asked Questions

What is prenatal genetic testing?

Prenatal genetic testing gives parents-to-be information about whether their [fetus](#) has certain [genetic disorders](#).

What are genetic disorders?

Genetic disorders are caused by changes in a person's [genes](#) or [chromosomes](#). [Aneuploidy](#) is a condition in which there are missing or extra chromosomes. In a [trisomy](#), there is an extra chromosome. In a [monosomy](#), a chromosome is missing. [Inherited disorders](#) are caused by changes in genes called [mutations](#). Inherited disorders include [sickle cell disease](#), [cystic fibrosis](#), [Tay-Sachs disease](#), and many others. In most cases, both parents must carry the same gene to have an affected child.

What are the two main types of prenatal genetic tests?

There are two types of prenatal tests for genetic disorders:

1. Prenatal [screening tests](#): These tests can tell you the chances that your fetus has an aneuploidy and a few other disorders. This FAQ focuses on these tests.
2. Prenatal [diagnostic tests](#): These tests can tell you whether your fetus actually has certain disorders. These tests are done on [cells](#) from the fetus or [placenta](#) obtained through [amniocentesis](#) or [chorionic villus sampling \(CVS\)](#). [FAQ164 Prenatal Genetic Diagnostic Tests](#) focuses on these tests.

Both screening and diagnostic testing are offered to all pregnant women.

What are the different types of prenatal genetic screening tests?

Screening tests can tell you your risk of having a baby with certain disorders. They include [carrier screening](#) and prenatal genetic screening tests:

- Carrier screening is done on parents (or those just thinking about becoming parents) using a blood sample or tissue sample swabbed from inside the cheek. These tests are used to find out whether a person carries a gene for certain inherited disorders. Carrier screening can be done before or during pregnancy.
- Prenatal genetic screening tests of the pregnant woman's blood and findings from [ultrasound exams](#) can screen the fetus for aneuploidy; defects of the brain and spine called [neural tube defects \(NTDs\)](#); and some defects of the abdomen, heart, and facial features. This FAQ focuses on these tests. They include first- [trimester](#) screening, second-trimester screening, combined first- and second-trimester screening, and [cell-free DNA](#) testing.

What is first-trimester screening?

First-trimester screening includes a test of the pregnant woman's blood and an ultrasound exam. Both tests usually are done together between 10 weeks and 13 weeks of pregnancy:

- The blood test measures the level of two substances.
- The ultrasound exam, called a [nuchal translucency screening](#), measures the thickness of a space at the back of the fetus's neck. An abnormal measurement means there is an increased risk that the fetus has [Down syndrome \(trisomy 21\)](#) or another type of aneuploidy. It also is linked to physical defects of the heart, abdominal wall, and skeleton.

What is second-trimester screening?

Second-trimester screening includes the following tests:

- The “quad” or “quadruple” blood test measures the levels of four different substances in your blood. The quad test screens for Down syndrome, [Edwards syndrome \(trisomy 18\)](#) , and NTDs. It is done between 15 weeks and 22 weeks of pregnancy.
- An ultrasound exam done between 18 weeks and 22 weeks of pregnancy checks for major physical defects in the brain and spine, facial features, abdomen, heart, and limbs.

What is combined first- and second-trimester screening?

The results from first-and second-trimester tests can be combined in various ways. Combined test results are more accurate than a single test result. If you choose combined screening, keep in mind that final results often are not available until the second trimester.

What is cell-free DNA testing?

Cell-free DNA is the small amount of [DNA](#) that is released from the placenta into a pregnant woman’s bloodstream. The cell-free DNA in a sample of a woman’s blood can be screened for Down syndrome, [Patau syndrome \(trisomy 13\)](#) , Edwards syndrome, and problems with the number of [sex chromosomes](#) . This test can be done starting at 10 weeks of pregnancy. It takes about 1 week to get the results. A positive cell-free DNA test result should be followed by a diagnostic test with amniocentesis or CVS.

What do the different results of prenatal screening tests mean?

Results of blood screening tests for aneuploidy are reported as the level of risk that the disorder might be present:

- A positive screening test result for aneuploidy means that your fetus is at higher risk of having the disorder compared with the general population. It does not mean that your fetus definitely has the disorder.
- A negative result means that your fetus is at lower risk of having the disorder compared with the general population. It does not rule out the possibility that your fetus has the disorder.

Diagnostic testing with CVS or amniocentesis that gives a more definite result is an option for all pregnant women. Your [obstetrician](#) or other health care professional, such as a [genetic counselor](#), will discuss what your screening test results mean and help you decide the next steps.

How accurate are prenatal genetic screening tests?

With any type of testing, there is a possibility of false-positive results and false-negative results. A screening test result that shows there is a problem when one does not exist is called a false-positive result. A screening test result that shows there is not a problem when one does exist is called a false-negative result. Your health care professional can give you information about the rates of false-positive and false-negative results for each test.

What should I consider when deciding whether to have prenatal genetic testing?

It is your choice whether to have prenatal testing. Your personal beliefs and values are important factors in the decision about prenatal testing.

It can be helpful to think about how you would use the results of prenatal screening tests in your pregnancy care. Remember that a positive screening test tells you only that you are at higher risk of having a baby with Down syndrome or another aneuploidy. A diagnostic test should be done if you want to know a more certain result. Some parents want to know beforehand that their baby will be born with a genetic disorder. This knowledge gives parents time to learn about the disorder and plan for the medical care that the child may need. Some parents may decide to end the pregnancy in certain situations.

Other parents do not want to know this information before the child is born. In this case, you may decide not to have follow-up diagnostic testing if a screening test result is positive. Or you may decide not to have any testing at all. There is no right or wrong answer.

Glossary

Amniocentesis: A procedure in which amniotic fluid and cells are taken from the uterus for testing. The procedure uses a needle to withdraw fluid and cells from the sac that

holds the fetus.

Aneuploidy: Having an abnormal number of chromosomes. Types include trisomy, in which there is an extra chromosome, or monosomy, in which a chromosome is missing. Aneuploidy can affect any chromosome, including the sex chromosomes. Down syndrome (trisomy 21) is a common aneuploidy. Others are Patau syndrome (trisomy 13) and Edwards syndrome (trisomy 18).

Carrier Screening: A test done on a person without signs or symptoms to find out whether he or she carries a gene for a genetic disorder.

Cell-Free DNA: DNA from the placenta that moves freely in a pregnant woman's blood. Analysis of this DNA can be done as a noninvasive prenatal screening test.

Cells: The smallest units of a structure in the body. Cells are the building blocks for all parts of the body.

Chorionic Villus Sampling (CVS): A procedure in which a small sample of cells is taken from the placenta and tested.

Chromosomes: Structures that are located inside each cell in the body. They contain the genes that determine a person's physical makeup.

Cystic Fibrosis (CF): An inherited disorder that causes problems with breathing and digestion.

Diagnostic Tests: Tests that look for a disease or cause of a disease.

DNA: The genetic material that is passed down from parent to child. DNA is packaged in structures called chromosomes.

Down Syndrome (Trisomy 21): A genetic disorder that causes abnormal features of the face and body, medical problems such as heart defects, and mental disability. Most cases of Down syndrome are caused by an extra chromosome 21 (trisomy 21).

Edwards Syndrome (Trisomy 18): A genetic condition that causes serious problems. It causes a small head, heart defects, and deafness.

Fetus: The stage of human development beyond 8 completed weeks after fertilization.

Genes: Segments of DNA that contain instructions for the development of a person's physical traits and control of the processes in the body. The gene is the basic unit of heredity and can be passed from parent to child.

Genetic Counselor: A health care professional with special training in genetics who can provide expert advice about genetic disorders and prenatal testing.

Genetic Disorders: Disorders caused by a change in genes or chromosomes.

Inherited Disorders: Disorders caused by a change in a gene that can be passed from parents to children.

Monosomy: A condition in which there is a missing chromosome.

Mutations: Changes in genes that can be passed from parent to child.

Neural Tube Defects (NTDs): Birth defects that result from a problem in development of the brain, spinal cord, or their coverings.

Nuchal Translucency Screening: A test to screen for certain birth defects, such as Down syndrome, Edwards syndrome, or heart defects. The screening uses ultrasound to measure fluid at the back of the fetus's neck.

Obstetrician: A doctor who cares for women during pregnancy and their labor.

Patau Syndrome (Trisomy 13): A genetic condition that causes serious problems. It involves the heart and brain, cleft lip and palate, and extra fingers and toes.

Placenta: An organ that provides nutrients to and takes waste away from the fetus.

Screening Tests: Tests that look for possible signs of disease in people who do not have signs or symptoms.

Sex Chromosomes: The chromosomes that determine a person's sex. In humans, there are two sex chromosomes, X and Y. Females have two X chromosomes and males have an X and a Y chromosome.

Sickle Cell Disease: An inherited disorder in which red blood cells have a crescent shape, which causes chronic anemia and episodes of pain.

Tay–Sachs Disease: An inherited disorder that causes mental disability, blindness, seizures, and death, usually by age 5.

Trimester: A 3-month time in pregnancy. It can be first, second, or third.

Trisomy: A condition in which there is an extra chromosome.

Ultrasound Exams: Tests in which sound waves are used to examine inner parts of the body. During pregnancy, ultrasound can be used to check the fetus.

If you have further questions, contact your ob-gyn.

Don't have an ob-gyn? [Learn how to find a doctor near you.](#)

FAQ165

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Frequently Asked Questions

What is carrier screening?

Carrier screening is a type of genetic test that can tell you whether you carry a **gene** for certain **genetic disorders**. When it is done before or during pregnancy, it allows you to find out your chances of having a child with a genetic disorder.

What is a recessive disorder?

Most carrier screening is for **recessive disorders**. It takes two genes—one inherited from the mother and one inherited from the father—for a person to get a recessive disorder. If a person has only one gene for a disorder, he or she is known as a **carrier**. Carriers often do not know that they have a gene for a disorder. They usually do not have symptoms or have only mild symptoms.

What are the chances of having a child with a recessive disorder?

If both parents are carriers of a recessive gene for a disorder, there is a 25 percent (1-in-4) chance that their child will get the gene from each parent and will have the disorder. There is a 50 percent (1-in-2) chance that the child will be a carrier of the disorder—just like the carrier parents. If only one parent is a carrier, there is a 50 percent (1-in-2) chance that the child will be a carrier of the disorder.

How is carrier screening done?

Carrier screening involves testing a sample of blood, saliva, or tissue from the inside of the cheek. Test results can be negative (you do not have the gene) or positive (you do have the gene). Typically, the partner who is most likely to be a carrier is tested first. If test results show that the first partner is not a carrier, then no additional testing is needed. If test results show that the first partner is a carrier, the other partner is tested. Once you have had a carrier screening test for a specific disorder, you do not need to be tested again for that disorder.

When can carrier screening be done?

Some people decide to have carrier screening before having children. Carrier screening also can be done during pregnancy. Getting tested before pregnancy gives you a greater range of options and more time to make decisions.

Do I have to have carrier screening?

Carrier screening is your choice. You can choose to have carrier screening, or you can choose not to. There is no right or wrong choice.

What carrier screening tests are available?

Carrier screening is available for a limited number of diseases, including

- [cystic fibrosis](#)
- [fragile X syndrome](#)
- [sickle cell disease](#)
- [Tay–Sachs disease](#)

Some of these disorders occur more often in certain races or ethnic groups. For example, sickle cell disease often affects people of African descent. Tay–Sachs disease typically affects people of Eastern or Central European Jewish, French Canadian, and Cajun descent. But anyone can have one of these disorders. They are not restricted to these groups.

Who should have carrier screening?

All women who are thinking about getting pregnant or who are already pregnant are offered carrier screening for cystic fibrosis, [hemoglobinopathies](#) , and [spinal muscular](#)

[atrophy \(SMA\)](#) . You can have screening for additional disorders as well. There are two approaches to carrier screening for additional disorders: 1) targeted screening and 2) expanded carrier screening.

What is targeted carrier screening?

In targeted carrier screening, you are tested for disorders based on your ethnicity or family history. If you belong to an ethnic group or race that has a high rate of carriers for a specific genetic disorder, carrier screening for these disorders may be recommended. This also is called ethnic-based carrier screening. If you have a family history of a specific disorder, screening for that disorder may be recommended, regardless of your race or ethnicity.

What is expanded carrier screening?

In expanded carrier screening, many disorders are screened using a single sample. This type of screening is done without regard to race or ethnicity. Companies that offer expanded carrier screening create their own lists of disorders that they test for. This list is called a screening panel. Some panels test for more than 100 different disorders. Screening panels usually focus on severe disorders that affect a person's quality of life from an early age.

Is one approach better than the other?

Before testing, you and your [obstetrician–gynecologist \(ob-gyn\)](#) can discuss the benefits and limitations of each carrier screening approach. You also can talk with a [genetic counselor](#) . In some cases, both targeted screening and expanded screening can be tailored to your individual situation.

What choices do I have if my partner and I are carriers of a genetic disorder?

If you have carrier screening before you get pregnant, you have several options:

1. You can get pregnant and have prenatal [diagnostic tests](#) to see if the [fetus](#) has the disorder.
2. You can choose to use [in vitro fertilization \(IVF\)](#) with donor [eggs](#) or [sperm](#) to get pregnant. With this option, the [embryo](#) can be tested before it is transferred to the [uterus](#) .

3. You may choose not to get pregnant.
4. You may choose to adopt a child.

If you have carrier screening after you get pregnant, your options are more limited. In either case, your ob-gyn or a genetic counselor can explain your risks of having a child with the disorder.

How accurate is carrier screening?

In a small number of cases, test results can be wrong. A negative test result when you have a gene for the disorder tested is called a **false-negative** result. A positive test result when you do not have a gene for a disorder is called a **false-positive result**.

Are results of carrier screening private?

The Genetic Information Nondiscrimination Act of 2008 (GINA) makes it illegal for most health insurers to require genetic testing results or use results to make decisions about coverage, rates, or preexisting conditions. GINA also makes it illegal for employers to discriminate against employees or applicants because of genetic information. GINA does not apply to life insurance, long-term care insurance, or disability insurance.

If you find out that you are a carrier of a gene for a genetic disorder, you may want to tell other family members. They may be at risk of being carriers themselves. There is no law that states that you have to do so. If you choose to tell family members, your ob-gyn or genetic counselor can advise you about the best way to do this. It cannot be done without your consent.

Glossary

Carrier: A person who shows no signs of a disorder but could pass the gene to his or her children.

Carrier Screening: A test done on a person without signs or symptoms to find out whether he or she carries a gene for a genetic disorder.

Cystic Fibrosis: An inherited disorder that causes problems with breathing and digestion.

Diagnostic Tests: Tests that look for a disease or cause of a disease.

Egg: The female reproductive cell made in and released from the ovaries. Also called the ovum.

Embryo: The stage of development that starts at fertilization (joining of an egg and sperm) and lasts up to 8 weeks.

False-Negative: A test result that says you do not have a condition when you do.

False-Positive: A test result that says you have a condition when you do not.

Fetus: The stage of human development beyond 8 completed weeks after fertilization.

Fragile X Syndrome: A genetic disease of the X chromosome that is the most common inherited cause of mental disability.

Gene: A segment of DNA that contains instructions for the development of a person's physical traits and control of the processes in the body. The gene is the basic unit of heredity and can be passed from parent to child.

Genetic Counselor: A health care professional with special training in genetics who can provide expert advice about genetic disorders and prenatal testing.

Genetic Disorders: Disorders caused by a change in genes or chromosomes.

Hemoglobinopathies: Any inherited disorder that affects the number or shape of red blood cells in the body. Examples include sickle cell disease and the different forms of thalassemia.

In Vitro Fertilization (IVF): A procedure in which an egg is removed from a woman's ovary, fertilized in a laboratory with the man's sperm, and then transferred to the woman's uterus to achieve a pregnancy.

Obstetrician–Gynecologist (Ob-Gyn): A doctor with special training and education in women's health.

Recessive Disorders: Genetic disorders caused by two genes, one inherited from each parent.

Sickle Cell Disease: An inherited disorder in which red blood cells have a crescent shape, which causes chronic anemia and episodes of pain.

Sperm: A cell made in the male testes that can fertilize a female egg.

Spinal Muscular Atrophy (SMA): An inherited disorder that causes wasting of the muscles and severe weakness. SMA is the leading genetic cause of death in infants.

Tay–Sachs Disease: An inherited disorder that causes mental disability, blindness, seizures, and death, usually by age 5.

Uterus: A muscular organ in the female pelvis. During pregnancy, this organ holds and nourishes the fetus. Also called the womb.

If you have further questions, contact your ob-gyn.

Don't have an ob-gyn? [Learn how to find a doctor near you.](#)

FAQ179

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Medications Safe for Use During Pregnancy

The medications listed below are considered safe to take during your pregnancy. You should take these medications according to the package directions. Please contact the office if you have any questions regarding the medication list or if you continue to have symptoms that are not helped by the medication.

Seasonal Allergies

- Cetirizine (Zyrtec®)
- Diphenhydramine (Benadryl®)
- Fexofenadine (Allegra®)
- Fluticasone (Flonase®) nasal spray
- Loratadine (Claritin®)

Cold & Flu

- Acetaminophen (Tylenol® Cold & Flu, Tylenol® Sinus Severe)
- Benzocaine (Cepacol®)
- Budesonide (Rhinocort®) nasal spray
- Dextromethorphan (Robitussin®)
- Guaifenesin (Mucinex®)
- Mometasone (Nasonex®) nasal spray
- Pseudoephedrine (Sudafed®) - avoid in 1st trimester or if you have blood pressure
- Vicks® Vapor Rub
- Complementary: Emergen-C®, Zicam®, saline rinse/spray, Neti-Pot, saltwater gargle

Constipation

- Bisacodyl (Dulcolax®) suppository
- Docusate (Colace®)
- Fiber (Citrucel®, Fibercon®, Metamucil®)
- Polyethylene Glycol (Miralax®)
- Complementary: probiotics, magnesium supplement 200-600mg every night

Diarrhea

- Loperamide (Imodium®)
- Complementary: probiotics

Fever

- Acetaminophen (Tylenol®)

Headaches

- Acetaminophen (Tylenol®)
- Avoid NSAIDs (aspirin, ibuprofen, naproxen)
- Complementary: magnesium supplement 200-600mg daily, caffeine, cold compress

Heartburn

- Calcium (Tums®, Maalox®, Mylanta®)
- Esomeprazole (Nexium®)
- Famotidine (Pepcid®)
- Lansoprazole (Prevacid®)
- Omeprazole (Prilosec®)
- Complementary: apple cider vinegar, papaya enzymes

Hemorrhoids

- Hydrocortisone hemorrhoid cream (Anusol®, Preparation H®)
- Complementary: witch hazel (Tucks®), sitz bath

Insomnia

- Acetaminophen (Tylenol® PM)
- Diphenhydramine (Benadryl®)
- Doxylamine (Unisom®)
- Avoid melatonin.
- Complementary: magnesium supplement 200-600mg daily

Nausea

- Vitamin B6 25mg 3x daily
- Dimenhydrinate (Dramamine®)
- Diphenhydramine (Benadryl®)
- Doxylamine (Unisom®) - alone or in combination with Vitamin B6
- Complementary: Ginger 250mg 4x daily, acupressure (Sea-Bands®)

Restless Legs

- Magnesium supplement 200-600mg daily or topical spray
- Increase hydration

Yeast Infection

- Miconazole (Monistat® 7 day)
- Complementary: probiotics

ADVICE ABOUT EATING FISH

For Those Who Might Become or Are Pregnant or Breastfeeding and Children Ages 1 – 11 Years

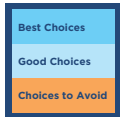


Fish‡ provide key nutrients that support a child's brain development.

Fish are part of a [healthy eating pattern](#) and provide key nutrients during pregnancy, breastfeeding, and/or early childhood to support a **child's brain development**:

- Omega-3 (called DHA and EPA) and omega-6 fats
- Iron
- Iodine (during pregnancy)
- Choline

Choline also supports development of the **baby's spinal cord**. Fish provide iron and zinc to support **children's immune systems**. Fish are a source of other nutrients like protein, vitamin B12, vitamin D, and selenium too.



Choose a variety of fish that are lower in mercury.

While it is important to limit mercury in the diets of those who are pregnant or breastfeeding and children, many types of fish are both nutritious and lower in mercury.

This chart can help you choose which fish to eat, and how often to eat them, based on their mercury levels.

What is a serving? As a guide, use the palm of your hand.



Pregnancy and breastfeeding:
1 serving is 4 ounces

Eat 2 to 3 servings a week from the "Best Choices" list
(OR 1 serving from the "Good Choices" list).



Childhood:

On average, a serving is about:

- 1 ounce at age 1 to 3
- 2 ounces at age 4 to 7
- 3 ounces at age 8 to 10
- 4 ounces at age 11

Eat 2 servings a week from the "Best Choices" list.

Best Choices

Anchovy	Herring	Scallop
Atlantic croaker	Lobster,	Shad
Atlantic mackerel	American and spiny	Shrimp
Black sea bass	Mullet	Skate
Butterfish	Oyster	Smelt
Catfish	Pacific chub	Sole
Clam	mackerel	Squid
Cod	Perch, freshwater	Tilapia
	and ocean	
Crab	Pickering	Trout, freshwater
Crawfish	Plaice	Tuna, canned light
Flounder	Pollock	(includes skipjack)
Haddock	Salmon	Whitefish
Hake	Sardine	Whiting

Good Choices

Bluefish	Monkfish	Tilefish
Buffalofish	Rockfish	(Atlantic Ocean)
Carp	Sablefish	Tuna, albacore/
Chilean sea bass/	Sheepshead	white tuna, canned
Patagonian toothfish	Snapper	and fresh/frozen
Grouper	Spanish mackerel	Tuna, yellowfin
Halibut	Striped bass (ocean)	Weakfish/seatrout
Mahi mahi/dolphinfish		White croaker/
		Pacific croaker

Choices to Avoid HIGHEST MERCURY LEVELS

King mackerel	Shark	Tilefish
Marlin	Swordfish	(Gulf of Mexico)
Orange roughy		Tuna, bigeye

What about fish caught by family or friends? Check for [fish and shellfish advisories](#) to tell you how often you can safely eat those fish. If there is no advisory, eat only one serving and no other fish that week. Some fish caught by family and friends, such as larger carp, catfish, trout and perch, are more likely to have fish advisories due to mercury or other contaminants.

www.FDA.gov/fishadvice
www.EPA.gov/fishadvice

FDA U.S. FOOD & DRUG
ADMINISTRATION

EPA United States
Environmental Protection
Agency



ADVICE ABOUT EATING FISH

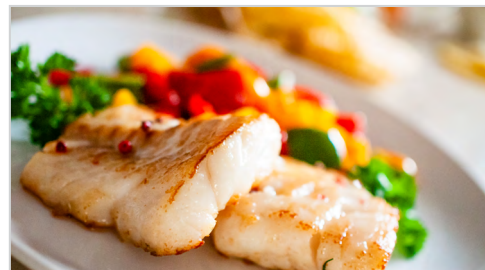
For Those Who Might Become or Are Pregnant or Breastfeeding and Children Ages 1 – 11 Years



The *Dietary Guidelines for Americans* recommends eating fish as part of a healthy eating pattern.

The [Dietary Guidelines for Americans](#) recommends:

- At least 8 ounces of seafood (less for children§) per week based on a 2,000 calorie diet.
- Those who are pregnant or breastfeeding consume between **8 and 12 ounces per week** of a variety of seafood from choices that are **lower in mercury**.



Eating fish can provide other health benefits too.

Fish intake during pregnancy is recommended because moderate scientific evidence shows it can help your baby's cognitive development.

Strong evidence shows that eating fish, as part of a healthy eating pattern, **may have heart health benefits**. [Healthy eating patterns](#) that include fish may have other benefits too. Moderate scientific evidence shows that eating patterns relatively higher in fish but also in other foods, including vegetables, fruits, legumes, whole grains, low- or non-fat dairy, lean meats and poultry, nuts, and unsaturated vegetable oils, and lower in red and processed meats, sugar-sweetened foods and beverages, and refined grains are associated with:



Promotion of bone health – decreases the risk for hip fractures*



Decreases in the risk of becoming overweight or obese*



Decreases in the risk for colon and rectal cancers*

A **healthy eating pattern** consists of choices across all food groups (vegetables, fruits, grains, dairy, and protein foods, which includes fish), eaten in recommended amounts, and within calorie needs. Healthy eating patterns include foods that provide vitamins, minerals, and other health-promoting components and have no or little added sugars, saturated fat, and sodium.

This advice supports the recommendations of the [Dietary Guidelines for Americans](#), which reflects current science on nutrition to improve public health. The *Dietary Guidelines for Americans* focuses on dietary patterns and the effects of food and nutrient characteristics on health.

§ For some children, the amounts of fish in the *Dietary Guidelines for Americans* are higher than in this FDA/EPA advice. The *Dietary Guidelines for Americans* states that to consume those higher amounts, children should only be fed fish from the “Best Choices” list that are even lower in mercury – these fish are anchovies, Atlantic mackerel, catfish, clams, crab, crawfish, flounder, haddock, mullet, oysters, plaice, pollock, salmon, sardines, scallops, shad, shrimp, sole, squid, tilapia, trout, and whiting.

* There is [moderate scientific evidence of a relationship](#) between the eating pattern as a whole and the potential health benefit.

‡ This advice refers to fish and shellfish collectively as “fish” / Advice revised October 2021



Pregnancy and Vaccination

[Pregnancy and Vaccination Home](#)

This page has content that may be inconsistent with new [CDC Respiratory Virus Guidance](#). The content of this page will be updated soon.

Vaccines and Pregnancy: Things to Know

1. You aren't just protecting yourself—vaccines during pregnancy give your baby some early protection too!

Did you know a baby can get some disease protection from their mom during pregnancy? Getting [flu](#), [Tdap \(tetanus, diphtheria, and pertussis\)](#), [respiratory syncytial virus \(RSV\)](#), and [COVID-19](#) vaccines while you're pregnant helps your body create [protective antibodies \(proteins produced by the body to fight off diseases\)](#), and you can pass on those antibodies to your baby. These antibodies can help protect your baby from those diseases during the first few months of life.



2. Flu, Tdap, RSV, and COVID-19 vaccination while pregnant can help keep you and your little one safe.

CDC and a panel of experts who make vaccine recommendations have concluded that flu, Tdap, RSV, and COVID-19 vaccines are safe for pregnant people and their babies. These experts carefully reviewed the available safety data before recommending any vaccines during pregnancy.

Vaccines, like medicine, can have side effects. But most people who get vaccinated have mild or no side effects. [CDC continually monitors vaccine safety](#), and the most common side effects of these vaccines include fever, tiredness, and body aches, as well as redness, swelling, and tenderness at the site where the shot was given.



3. The Tdap vaccine helps protect against whooping cough, which can be really dangerous for your baby.

You'll need a Tdap vaccine during your pregnancy, with optimal timing between the 27th through 36th week of each pregnancy, preferably during the earlier part of this time period. Tdap helps protect against [whooping cough \(pertussis\)](#), which [can be life-threatening for newborns](#).

About half of babies younger than 1 year old who get whooping cough need treatment in the hospital. The younger a baby is when they get whooping cough, the more likely the baby will need to be treated in a hospital. While some babies cough a lot, other babies with whooping cough don't cough at all. Instead, it can cause them to stop breathing and turn blue. Siblings, parents, or caregivers who don't know they have whooping cough can infect babies since the disease often causes only mild symptoms in older children and adults.



4. Getting a flu vaccine while pregnant can help protect you and your baby against flu.

Changes in your immune, heart, and lung functions during pregnancy make you more likely to get seriously ill from flu. Pregnancy increases the risk of being hospitalized with the flu and having flu-related complications if you get sick with the flu. Flu may also be dangerous for your pregnancy. Fever during pregnancy, for any reason, has been associated with adverse pregnancy outcomes.

Additionally, babies are more likely to get very sick from flu. Flu vaccination is recommended for everyone 6 months of age and older. When you get a flu vaccine during pregnancy, you pass antibodies along to your baby that can help protect them from flu in the first few months after they're born, when they are too young to be vaccinated themselves.

Get a flu shot if you are pregnant during flu season—it's the best way to protect yourself and your baby from flu. Flu vaccine is safe during pregnancy and can be given during any trimester.



5. Getting an RSV vaccine during your pregnancy or getting your baby an RSV immunization can help protect your baby

[RSV](#) is a common cause of severe respiratory illness in infants. Babies infected with RSV can have difficulty breathing and eating and sometimes may need respiratory support or hydration in the hospital. There are two ways to protect your baby from getting very sick with RSV. You can choose to get RSV vaccine during weeks 32 through 36 of your pregnancy during September to January, or your baby aged 8 months or younger can get RSV immunization during their first RSV season.



6. Getting a COVID-19 vaccine while pregnant can help protect you and your baby from getting very sick from COVID-19.

If you are pregnant or were recently pregnant, you are more likely to get very sick from COVID-19 than people who are not pregnant. Additionally, if you have COVID-19 during pregnancy, you are more likely to have complications that can affect your pregnancy and developing baby.

COVID-19 vaccination is recommended for everyone ages 6 months and older, including people who are pregnant, breastfeeding, trying to get pregnant now, or who might become pregnant in the future. Evidence shows that COVID-19 vaccination before and during pregnancy is safe and effective and suggests that the benefits of vaccination outweigh any known or potential risks. New data show that vaccination during pregnancy can help protect babies younger than 6 months old, when they are too young to be vaccinated themselves, from hospitalization due to COVID-19.

Everyone, including people who are pregnant, should stay up to date with their COVID-19 vaccines, including getting an updated vaccine when it’s time to get one.



7. Timing of vaccinations is everything!

You know all about timing. Week after week, you are tracking your baby’s growth and development and counting down the days until you meet your little one! When it comes to vaccines, timing is also important.

- Flu seasons vary in their timing from season to season. For most people, CDC recommends getting the flu vaccine in September or October to ensure that they are protected before flu activity begins to increase. Early vaccination during July and August also can be considered for people who are in the third trimester of pregnancy during those months.
- Instead of during a specific time of year, CDC recommends you get your Tdap vaccine in each pregnancy, ideally between the 27th and 36th week. Getting Tdap during this period preferably during the earlier part, helps pass the greatest amount of protective antibodies to your baby before birth. This will help protect your baby during their first few months of life when they are most vulnerable to serious disease and complications.
- You can get your RSV vaccine during weeks 32 through 36 of pregnancy during September to January, or your baby aged 8 months or younger can get RSV immunization during their first RSV season.
- You can get your updated COVID-19 vaccine at any point in pregnancy.



8. Anyone who is around your baby needs vaccines too.

Newborns do not yet have fully developed immune systems, making them particularly vulnerable to infections. Older kids and adults can spread viruses to babies, even if they don’t feel very sick. Because of this, anyone who is around babies should be up to date on all recommended vaccines. This includes parents, siblings, and any other caregivers, like grandparents, or babysitters. Anyone who needs vaccines should get them at least two weeks before meeting the baby because it takes about two weeks to develop antibodies after vaccination.



9. If you get pregnant again, you’ll need a Tdap vaccine with each pregnancy.

The amount of antibodies you have in your body after getting vaccinated decreases over time. When you get a vaccine during one pregnancy, your antibody levels may not stay high enough to provide enough protection during future pregnancies, even if your babies are close in age. So, make sure you give baby number 2 (and 3 and 4...) the greatest amount of protective antibodies and the best disease protection possible by getting your Tdap vaccine each time you are pregnant. You should also get a flu shot every flu season, and stay up to date on your COVID-19 vaccines.



More about Vaccines and Pregnancy

For more information on vaccines you may need before pregnancy, go [here](#)

[Pregnancy and Whooping Cough](#)

[Vaccines During and After Pregnancy](#)

[Pregnant Women & Influenza \(Flu\)](#)

[Protect yourself from COVID-19, Flu, and RSV](#)

[COVID-19 Vaccines While Pregnant or Breastfeeding](#)

Last Reviewed: September 29, 2023

[Influenza \(Flu\)](#)

Influenza (Flu)

[Influenza \(Flu\) Home](#)

Flu & Pregnancy

[Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023-2024 Influenza Season](#) has been published.



Influenza (flu) is more likely to cause illness that results in hospitalization in pregnant people than in people of reproductive age who are not pregnant. Flu also may be harmful for a pregnant person's developing baby. (A common flu symptom is fever, which has been associated in some studies with neural tube defects and other adverse outcomes for a developing baby.)

Getting the flu vaccine during pregnancy can protect the pregnant person from flu and flu related hospitalizations. Flu vaccination during pregnancy also can protect babies for several months after birth against flu and flu-related hospitalizations because the pregnant parent passes antibodies on to the developing baby during pregnancy. People who get a flu vaccine while pregnant or breastfeeding also develop antibodies against flu that they can share with their infants through their breast milk.

A Flu Vaccine is the Best Way to Protect Pregnant People and Their Babies at <6 Months of Age from Flu

Getting a [flu vaccine](#) is the first and most important action a person can take to protect against flu and its potentially serious complications. Pregnant people should get a flu shot and not the nasal spray flu vaccine.

- A [2013 study](#)  showed that during the 2010–2011 and 2011–2012 flu seasons vaccination reduced the risk of flu in pregnant people by up to one-half. These results are consistent with the general range of estimated flu vaccine effectiveness among adults 18-64 years.
- A [2018 study](#)  showed that getting a flu shot reduced a pregnant person's risk of being hospitalized with flu by an average of 40%. Pregnant people who get a flu shot also are helping to protect their babies from flu illness and flu related hospitalizations for the first several months after their birth, when they are too young to get vaccinated.
- [A list of recent studies is available.](#)

When to Get a Flu Vaccine

For most adults, September and October are generally good times to be vaccinated each year. Vaccination during July and August also can be considered for people who are in the third trimester of pregnancy during those months, because this can help protect their infants from flu for several months after birth (when they are too young to be vaccinated).

Pregnant? Here's what you need to know about:

- [Flu Vaccines](#)
- [When to Get a Flu Vaccine](#)
- [Flu Vaccine Safety](#)
- [Flu Symptoms](#)
- [Antiviral Treatment](#)
- [When to Seek Emergency Medical Care](#)



Vaccinating Pregnant People Protects Pregnant Parents and Their Babies

A Long Record of Safety for Flu Shots during Pregnancy

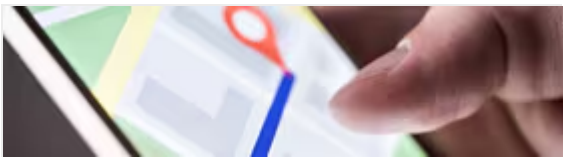
Seasonal Flu Vaccine Safety and Pregnancy



Flu shots have been given to millions of pregnant people over more than 50 years with an excellent safety record. There is substantial evidence that flu shots are safe during pregnancy for mom and baby. CDC and ACIP recommend that pregnant people get vaccinated during any trimester of their pregnancy.

Pre-Existing Conditions

Note: There is no recommendation that pregnant people or people with pre-existing medical conditions need to get special permission or written consent from their doctor or health care professional for influenza (flu) vaccination if they get vaccinated at a worksite clinic, pharmacy or other location outside of their physician’s office. Pregnant people should not get nasal spray flu vaccine. More information is available at [Misconceptions about Seasonal Flu and Flu Vaccines](#).



Find flu vaccines in your area.
Everyone 6 months of age and older
needs a flu vaccine.

FIND VACCINES

Other Preventive Actions

In addition to getting a flu vaccine, pregnant people should take the same [everyday preventive actions](#) CDC recommends for everyone, including avoiding people who are sick, covering coughs and sneezes, and washing hands often. This also can include [taking steps for cleaner air](#) and [hygiene practices](#) like cleaning frequently touched surfaces. More information is available about [core and additional prevention strategies](#).

Symptoms and Treatment

If you get flu symptoms call your health care provider right away. There are prescription flu antiviral drugs that can treat flu illness and prevent serious flu complications. CDC recommends prompt flu antiviral treatment for people who have confirmed or suspected flu infection and who are at higher risk of serious flu complications, such as pregnant people. Early treatment of flu in hospitalized pregnant people has been shown to reduce the length of the hospital stay.

Symptoms

Flu symptoms include fever, cough, sore throat, runny or stuffy nose, body aches, headache, chills, and fatigue. Some people may also have vomiting and diarrhea, though this is more common in children than in adults. People may be infected with flu and have respiratory symptoms without a fever.

Antiviral Treatment

- Influenza antiviral drugs are medicines that fight against flu by keeping flu viruses from making more viruses in your body.
- Antiviral drugs can make your flu illness less severe and make you feel better faster. They may also prevent serious health problems that can result from flu illness..
- Treatment with an influenza antiviral drug should begin as soon as possible because these medications work best when started early (within 48 hours after symptoms start).
- You need a prescription from a health care provider for an influenza antiviral medication.

When to Seek Emergency Medical Care

If you are pregnant and have any of these signs, call 911 right away:

- Difficulty breathing or shortness of breath
- Persistent pain or pressure in the chest or abdomen
- Persistent dizziness, confusion, inability to arouse
- Seizures
- Not urinating
- Severe muscle pain
- Severe weakness or unsteadiness
- Fever or cough that improve but then return or worsen
- High fever that is not responding to Tylenol® (or store brand equivalent)
- Decreased or no movement of your baby

This list is not all inclusive and only refers to warning signs related to respiratory illness. Please consult your medical provider for any other symptom that is severe or concerning.

Additional Resources

Infographics

Less than half of pregnant people protect themselves and their babies against flu. Time to bump it up!

#FIGHT FLU

During the 2022-2023 flu season, an estimated 49% of pregnant people in the U.S. protected themselves and their babies from flu by getting a flu shot. **This leaves more than half of pregnant people and their babies, unprotected from flu.**

Influenza Vaccination Coverage Among Pregnant Persons in U.S., Overall

Month	2019-2020	2020-2021	2021-2022	2022-2023
Aug	5	5	5	5
Sept	35	35	35	35
Oct	55	55	55	55
Nov	60	60	60	60
Dec	60	60	60	60
Jan	60	60	60	60
Feb	60	60	60	60
Mar	60	60	60	60

If you're pregnant, a flu shot:

- is recommended at any time during your pregnancy.
- can reduce your risk of getting sick or being hospitalized with flu
- can protect your baby from flu for several months after birth

Get vaccinated to protect yourself and your baby.

www.cdc.gov/flu/fluview/dashboard/vaccination-coverage-pregnant

Source: Influenza Vaccination Coverage Among Pregnant Persons, United States (cdc.gov)

CS 342299-A

Fact Sheet

Pregnant? You Need a Flu Shot!

Information for pregnant people

Flu can be a serious illness, especially when you are pregnant.

Getting flu can cause serious problems when you are pregnant. Even if you are generally healthy, a change in immune system, and lung function during pregnancy make you more likely to get seriously ill from flu. Pregnant people (and people up to two weeks postpartum) who get flu are at higher risk of developing serious illness, including being hospitalized.

Flu shots are the best available protection for you - and your baby.

When you get your flu shot, your body starts to make antibodies that help protect you against flu. Antibodies are also passed on to your developing baby, and help protect them for several months after birth. This is important because babies younger than 6 months old are not yet able to get a flu vaccine. If you breastfeed your infant, antibodies also can be passed through breast milk. It takes about two weeks for your body to make antibodies after getting a flu shot. Talk to your doctor, nurse, or clinic about getting vaccinated by the end of October.

Flu shots are safe for people who are pregnant or breastfeeding.

You can get a flu shot at any time during any trimester, while you are pregnant. Millions of pregnant people have gotten flu shots. Flu shots have an excellent safety record. There is a lot of evidence that flu vaccines can be given safely during pregnancy, though these data are limited for the first trimester.

If you deliver your baby before getting your flu shot, you should still get vaccinated. Flu is spread from person to person. You or others who care for your baby may get sick with flu, and spread it to your baby. It is important that everyone who cares for your baby get a flu vaccine, including other household members, relatives, and babysitters.

Common side effects of a flu vaccine are mild.

After getting your flu shot, you may experience some mild side effects. The most common side effects include soreness, tenderness, redness, and/or swelling where the shot was given. Sometimes you might have a headache, muscle aches, fever, and nausea or feel tired. The flu is a serious illness, especially when you are pregnant.

Because you are pregnant, CDC and your ob-gyn or midwife recommend you get a flu shot to protect yourself and your baby from flu.

You should get vaccinated by the end of October, if possible. Early vaccination can also be considered for people who are in the third trimester of pregnancy, because this can help protect their infants during the first months of life. Talk to your ob-gyn or midwife about getting a flu shot.

Fact Sheet [PDF - 714 KB]

Vaccines help protect you and your baby. Find out how.

TAKE THE QUIZ

Pregnant People & Flu Vaccine Studies

- Study: [Effectiveness of Influenza Vaccination of Pregnant Women for Prevention of Maternal and Early Infant Influenza-Associated Hospitalizations in South Africa: A Prospective Test-Negative Study](#). [↗](#) Infectious Disease Society of America. 2022
- Meta-analysis: [Influenza vaccination during pregnancy for prevention of influenza confirmed illness in the infants: A systematic review and meta-analysis](#). [↗](#) Human Vaccines & Immunotherapeutics. 2017
- Study: [Influenza Vaccine Effectiveness in Preventing Influenza-Associated Hospitalizations during Pregnancy: A Multi-Country Retrospective Test Negative Design Study, 2010-2016](#). [↗](#) Clinical Infectious Diseases . 2018
- Study: [Influenza Vaccination of Pregnant Women and Protection of Their Infants](#) [↗](#) The New England Journal of Medicine. 2014
- Study: [Maternal immunisation with trivalent inactivated influenza vaccine for prevention of influenza in infants in Mali: a prospective, active-controlled, observer-blind, randomised phase 4 trial](#). [↗](#) The Lancet Infectious Diseases. 2016
- Study: [Effectiveness of seasonal trivalent influenza vaccine for preventing influenza virus illness among pregnant women: a population-based case-control study during the 2010-2011 and 2011-2012 influenza seasons](#). [↗](#) Clinical Infectious Diseases . 2014
- Study: [Effectiveness of maternal influenza immunization in mothers and infants](#). [↗](#) The New England Journal of Medicine. 2009
- Study: [Year-round influenza immunisation during pregnancy in Nepal: a phase 4, randomised, placebo-controlled trial](#). [↗](#) The Lancet Infectious Diseases. 2017
- Study: [Benefit of Early Initiation of Influenza Antiviral Treatment to Pregnant Women Hospitalized with Laboratory-Confirmed Influenza](#) The Journal of Infectious Diseases. 2016

Last Reviewed: March 22, 2024

[HOME COVID-19](#)

COVID-19

[COVID-19 Home](#)

COVID-19 Vaccines While Pregnant or Breastfeeding

Updated Mar. 8, 2024

What You Need to Know

- Everyone ages 6 months and older is recommended to get the updated COVID-19 vaccine, including people who are pregnant, breastfeeding a baby, trying to get pregnant now, or who might become pregnant in the future.
- **COVID-19 vaccination during pregnancy is safe and effective.**
- COVID-19 vaccines are not associated with fertility problems in women or men.
- Infants ages 6 months and older are recommended to get the updated COVID-19 vaccine even if born to people who were vaccinated or had COVID-19 before or during pregnancy.
- If you are pregnant or were recently pregnant, you are more likely to get very sick from COVID-19, compared to those who are not pregnant. Additionally, if you have COVID-19 during pregnancy, you are at increased risk of complications that can affect your pregnancy and your baby from serious illness from COVID-19.

People Who Are Pregnant

If you are pregnant or were recently pregnant, you are:

- More likely to get very sick from COVID-19 compared to those who are not pregnant.
- More likely to need hospitalization, intensive care, or the use of a ventilator or special equipment to breathe if you do get sick from COVID-19. Severe COVID-19 illness can lead to death.
- At increased risk of complications that can affect your pregnancy and baby including, preterm birth or stillbirth.



[COVID-19 vaccination](#) remains the best protection against COVID-19-related hospitalization and death [for you and your baby](#). CDC recommendations align with those from professional medical organizations including the [American College of Obstetricians and Gynecologists](#) [↗](#), [Society for Maternal Fetal Medicine](#), [↗](#) and [American Society for Reproductive Medicine](#) [↗](#).

Safety and Effectiveness of COVID-19 Vaccination during Pregnancy

Studies including hundreds of thousands of people around the world show that COVID-19 vaccination before and during pregnancy is safe, effective, and beneficial to both the pregnant person and the baby. The benefits of receiving a COVID-19 vaccine outweigh any potential risks of vaccination during pregnancy. Data show:

- **COVID-19 vaccines do not cause COVID-19, including in people who are pregnant or their babies.** None of the [COVID-19 vaccines](#) contain live virus. They cannot make anyone sick with COVID-19, including people who are pregnant or their babies. Learn more about [how vaccines work](#).
- **It is safe to receive an mRNA COVID-19 vaccine (Moderna or Pfizer-BioNTech), before and during pregnancy.** Both vaccines show **no increased risk** for complications like miscarriage, preterm delivery, stillbirth, or birth defects.^{1,2}
- **mRNA COVID-19 vaccines during pregnancy are effective.** They reduce the risk of severe illness and other health effects from COVID-19 for people who are pregnant. COVID-19 vaccination might help prevent stillbirths and preterm delivery.¹⁻⁴
- **COVID-19 vaccination during pregnancy builds antibodies that can help protect the baby.**^{4,5}
- **Receiving mRNA COVID-19 vaccines during pregnancy can help protect babies younger than age 6 months from hospitalization due to COVID-19.**
- **Most babies hospitalized with COVID-19 were born to pregnant people who were not vaccinated during pregnancy.**⁶⁻⁸



Common Questions about Vaccination during Pregnancy

What are the long-term effects on the baby when a person gets a COVID-19 vaccine during pregnancy? ✓

Scientific studies to date have shown no safety concerns for babies born to people who were vaccinated against COVID-19 during pregnancy. Based on how these vaccines work in the body, experts believe they are unlikely to pose a risk for long-term health effects. CDC continues to monitor, analyze, and disseminate information from people vaccinated during all trimesters of pregnancy to better understand effects on pregnancy and babies.

When during pregnancy should a person get the updated COVID-19 vaccine? ✓

CDC and professional medical organizations, including the American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine, recommend COVID-19 vaccination **at any point in pregnancy**. COVID-19 vaccination can protect you from getting very sick from COVID-19. Keeping yourself as healthy as possible during pregnancy is important for the health of your baby.

Which COVID-19 vaccine should pregnant people receive? ✓

Pregnant people can choose which [updated COVID-19 vaccine](#) to get.

Can pregnant people get a COVID-19 vaccine at the same time as other vaccines? ✓

Children, teens, and adults, including pregnant people, may get a COVID-19 vaccine and other vaccines, including a flu vaccine, at the same time.

IF YOU ARE PREGNANT AND HAVE QUESTIONS ABOUT COVID-19 VACCINE

If you would like to speak to someone about the COVID-19 vaccination during pregnancy, you can talk to your healthcare provider. You can also contact MotherToBaby, whose experts are available to answer questions in English or Spanish by phone or chat. This service is free and confidential. To reach MotherToBaby:

- **Call** 1-866-626-6847
- **Text** 855-999-3525
- **Chat** Click the [MotherToBaby](#)  Live Chat window

People Who Are Breastfeeding a Baby

CDC recommends that people who are breastfeeding a baby, and infants 6 months of age and older, get vaccinated and stay up to date with their [COVID-19 vaccines](#).

Vaccines are safe and effective at preventing COVID-19 in people who are breastfeeding a baby. Available data on the safety of COVID-19 vaccination while breastfeeding indicate no severe reactions after vaccination in the breastfeeding person or the breastfed child.⁹ There has been no evidence to suggest that COVID-19 vaccines are harmful to either people who have received a vaccine and are breastfeeding or to their babies.¹⁰

Studies have shown that people who are breastfeeding a baby and have received mRNA COVID-19 vaccines have antibodies in their breast milk, which could help protect their babies.^{9,10}

[CDC also recommends COVID-19 vaccines for children aged 6 months and older.](#)

People Who Would Like to Have a Baby

CDC recommends that people who are [trying to get pregnant now or might become pregnant in the future](#), as well as their partners, stay [up to date](#) and get the updated COVID-19 vaccine. COVID-19 vaccines are not associated with fertility problems in women or men. [COVID-19 vaccines are not associated with fertility problems in women or men](#) .

Vaccine Side Effects

People who are pregnant have not reported different side effects from people who are not pregnant after vaccination with mRNA COVID-19 vaccines (Moderna and Pfizer-BioNTech vaccines).^{1,2}

- Fever during pregnancy, for any reason, has been associated with adverse pregnancy outcomes.
- Fever in pregnancy may be treated with acetaminophen as needed, in moderation, and in consultation with a healthcare provider.
- Learn more about [possible side effects](#) and [rare severe allergic reactions after receiving a COVID-19 vaccine](#).

To find COVID-19 vaccine locations near you: Search [vaccines.gov](#), text your ZIP code to 438829, or call 1-800-232-0233.

Related Pages

- › [Allergic Reactions](#)

For Healthcare and Public Health

- [Considerations for the Use of COVID-19 Vaccines in the United States](#)
- [COVID-19 Vaccination among Pregnant People](#)
- [Management of Anaphylaxis after COVID-19 Vaccination](#)
- [ACOG Vaccine Confidence Training](#) 
- [ACOG Recommendations for Vaccinating Pregnant People](#) 
- [ACOG Practice Advisory: COVID-19 Vaccination Considerations for Obstetric-Gynecologic Care](#) 
 - [ACOG video about COVID-19 vaccines for people who are pregnant](#) 
- [COVID-19 Clinical and Professional Resources](#)
- [Clinic Poster: Protect yourself and your baby from COVID-19](#)
- [Clinic Poster: Protect yourself and your baby from COVID-19 \(Español\)](#) 

More Information

[Mother-To-Baby: Information for people who are pregnant or breastfeeding a baby](#) 

[Pregnant and Protected from COVID-19 | CDC Foundation](#) 

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Parvovirus B19 and Fifth Disease



CDC is monitoring increased parvovirus B19 activity in the U.S.

Certain groups, including pregnant women, people with a weakened immune system, or people with certain blood disorders, can face serious complications from infection. [Read the Health Alert Network \(HAN\) advisory](#) for recommendations and prevention information.

NOVEMBER 26, 2024

About Parvovirus B19

AT A GLANCE

- Parvovirus B19 infection is usually mild in people who are otherwise healthy.
- Common symptoms include "slapped cheek" rash in children, and joint pains in adults.
- Complications can occur among people with underlying blood disorders or weakened immune system.
- Infection early during pregnancy can cause a slight increase in the risk of a miscarriage.



Overview

Parvovirus B19 infection usually causes no symptoms or mild illness, such as flu-like symptoms, rashes and joint pains. In individuals with blood disorders or a weakened immune system, infection can cause a low blood count. Infection during pregnancy can sometimes lead to additional complications.

Symptoms

Some people who get infected with this virus will have no symptoms.

When symptoms of parvovirus B19 infection occur, they are usually mild and may include the following:

- Fever
- Headache
- Cough
- Sore throat
- Rashes
- Joint pain

Rashes

The clinical presentation most often associated with parvovirus B19 infection is a red rash on the face, also called a "slapped cheek" rash. This is also known as Fifth Disease (or Erythema Infectiosum). This rash typically appears a few days after the fever or flu-like symptoms. It is more common in children than adults.

Parvovirus B19 infection can also cause a general rash on the chest, back, buttocks, or arms and legs. The rash may be itchy. It usually goes away in 7 to 10 days but can come and go for several weeks. As it starts to go away, it may look lacy.

Joint Pain

Infection with parvovirus B19 can lead to pain and swelling in the joints, called polyarthropathy syndrome. This is more common in adults than children and is most common in women.

Adults may experience joint pain without other symptoms. Joints are affected on both sides, usually in the hands, feet and knees. The joint pain usually lasts 1 to 3 weeks but can last for months or longer. It usually goes away without any long-term problems.

Keep Reading:

Preventing Parvovirus B19

Complications

Parvovirus B19 infection is usually mild for children and adults who are otherwise healthy. However, for some people, it can cause serious health complications affecting the nerves, joints, or blood system.

Parvovirus B19 has been shown to cause a severe drop in blood count (anemia) in some patients with certain [blood disorders](#) or with a weakened immune system.

You may be at **increased risk for complications** from a parvovirus B19 infection if you have one or more of these health conditions:

- Leukemia or other cancers
- Organ transplant
- HIV infection
- Blood disorders such as sickle cell disease and thalassemia

Parvovirus B19 in pregnancy

If you get a parvovirus B19 infection during pregnancy, the virus could spread to the baby. This is not common but could cause a miscarriage. See 'Parvovirus B19 in Pregnancy' for further information.

Keep Reading:

Parvovirus B19 in Pregnancy

Recent data on parvovirus B19 activity in the U.S.

Parvovirus B19 has become more prevalent this year with an increased number of cases in 2024, compared to previous years. Recent MMWR articles demonstrate how certain groups at increased risk from infection have been affected by severe health outcomes.

- [Detection of Increased Activity of Human Parvovirus B19 Using Commercial Laboratory Testing of Clinical Samples and Source Plasma Donor Pools](#) — United States, 2024
- [Notes from the Field: Human Parvovirus B19 Infections Among Pregnant Persons](#) — Minnesota, January–September 2024
- [Notes from the Field: Increase in Diagnoses of Human Parvovirus B19–Associated Aplastic Crises in Children and Adolescents with Sickle Cell Disease](#) — Atlanta, Georgia, December 14, 2023–September 30, 2024

Diagnosis

In special circumstances, your healthcare provider may test your blood for parvovirus antibodies. The test will determine if you are susceptible or possibly immune to parvovirus B19 infection or if you were recently infected.

Talk to your healthcare provider if you have any questions about whether you should get tested.

Treatment

Parvovirus B19 infections are usually mild and will go away on their own. Children and adults who are otherwise healthy usually recover completely.

Treatment usually involves relieving symptoms, such as fever, itching, and joint pain and swelling. For persons who develop a low blood count, treatment may include supportive care, blood products, and other specialized therapies.

See your healthcare provider if:

- You have complications from a parvovirus B19 infection, or
- You are infected while pregnant.

PRO-NOX™

Nitrous Oxide and Oxygen Analgesia System Labor & Delivery

Noted for its safety for both the mother and the baby, PRO-NOX is a great option to offer birthing mothers to help relieve their pain and anxiety while still allowing them to actively participate in the joyful birth of their child.

Patients love the PRO-NOX because they can control when to use the system, on a fully portable cart, allowing them to move freely about the room, while still getting the relief they need. The 50% N₂O/50% O₂ is an effective analgesic that provides quick pain relief, allows for quick recovery all while giving the patient a sense of control.

Studies have shown that it does not affect Apgar scores, is non-addictive for both the mother and baby, while delaying or decreasing the need for anesthesiologist/physician valuable resources prior to delivery.



- *Self-Administered by Patient*
- *Quick Onset*
- *Fixed 50% N₂O & 50% O₂*
- *Pain Management*
- *Short Duration of Effect*



Pro-Nox Nitrous Oxide System

PRO-NOX™

A Safe Mixture of 50% Nitrous Oxide and 50% Oxygen for Labor Pain

Benefits of PRO-NOX 50% O2/50% N2O Analgesia

- Proven effective and safe - used globally for decades.
- Patient administered - empowers the patient to respond to their pain and anxiety when they need it.
- Quick onset - takes effect in seconds for immediate relief.
- Short duration of effect - clear from body within minutes.
- Can be used for the duration of labor, including epidural insertion and during episiotomy repair.
- Speeds patient recovery and allows for active participation during labor and delivery.



***Patient using
Pro-Nox in the
Birthing Tub***

Patients love the PRO-NOX™ System and are happy to share their experiences:

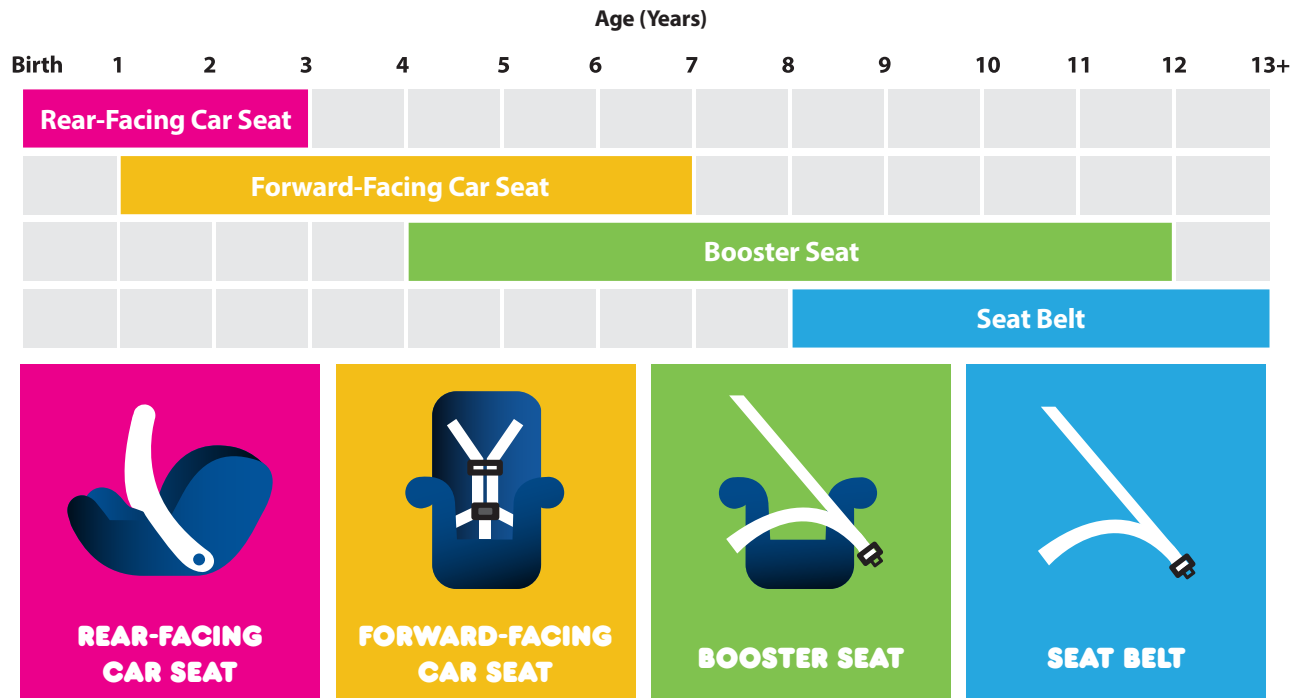
"I liked the ability to control my pain relief when I needed it with no needles and no narcotics. It was wonderful! I remember everything about my daughters birth a lot better."

"Because it is safe for me and my baby, it was great. There is a lot of pressure in society to have a natural childbirth, and I found the nitrous mixture to be the happy medium that allowed me relief when I needed it. It allowed me to be present in my delivery."

"Medication last time made me feel like I had a bottle of wine. For this birth, I used the Pro-Nox the entire time and it was magical. It helped me relax and enjoy the birth of my second child much better."

Car Seat Recommendations for Children

There are many car seat choices on the market. Use the information below to help you choose the type of car seat that best meets your child's needs.



- Select a car seat based on your child's age and size, choose a seat that fits in your vehicle, and use it every time.
- Always refer to your specific car seat manufacturer's instructions (check height and weight limits) and read the vehicle owner's manual on how to install the car seat using the seat belt or lower anchors and a tether, if available.
- To maximize safety, keep your child in the car seat for as long as possible, as long as the child fits within the manufacturer's height and weight requirements.
- Keep your child in the back seat at least through age 12.

Rear-Facing Car Seat



Birth – 12 Months

Your child under age 1 should always ride in a rear-facing car seat. There are different types of rear-facing car seats:

- Infant-only seats can only be used rear-facing.
- Convertible and All-in-One car seats typically have higher height and weight limits for the rear-facing position, allowing you to keep your child rear-facing for a longer period of time.



1 – 3 Years

Keep your child rear-facing as long as possible. It's the best way to keep him or her safe. Your child should remain in a rear-facing car seat until he or she reaches the top height or weight limit allowed by your car seat's manufacturer. Once your child outgrows the rear-facing car seat, your child is ready to travel in a forward-facing car seat with a harness and tether.

Forward-Facing Car Seat



1 - 3 Years

Keep your child rear-facing as long as possible. It's the best way to keep him or her safe. Your child should remain in a rear-facing car seat until he or she reaches the top height or weight limit allowed by your car seat's manufacturer. Once your child outgrows the rear-facing car seat, your child is ready to travel in a forward-facing car seat with a harness and tether.



4 - 7 Years

Keep your child in a forward-facing car seat with a harness and tether until he or she reaches the top height or weight limit allowed by your car seat's manufacturer. Once your child outgrows the forward-facing car seat with a harness, it's time to travel in a booster seat, but still in the back seat.

Booster Seat



4 - 7 Years

Keep your child in a forward-facing car seat with a harness and tether until he or she reaches the top height or weight limit allowed by your car seat's manufacturer. Once your child outgrows the forward-facing car seat with a harness, it's time to travel in a booster seat, but still in the back seat.



8 - 12 Years

Keep your child in a booster seat until he or she is big enough to fit in a seat belt properly. For a seat belt to fit properly the lap belt must lie snugly across the upper thighs, not the stomach. The shoulder belt should lie snug across the shoulder and chest and not cross the neck or face. Remember: your child should still ride in the back seat because it's safer there.

Seat Belt



8 - 12 Years

Keep your child in a booster seat until he or she is big enough to fit in a seat belt properly. For a seat belt to fit properly the lap belt must lie snugly across the upper thighs, not the stomach. The shoulder belt should lie snug across the shoulder and chest and not cross the neck or face. Remember: your child should still ride in the back seat because it's safer there.

NHTSA.gov/TheRightSeat



U.S. Department of Transportation
National Highway Traffic Safety Administration



The Pregnant Woman's Guide to Buckling Up

Your Top 5 Seat Belt Questions Answered

Plus a quick guide to child safety seats

1 "I'm pregnant. Should I wear a seat belt?"

Yes. Doctors recommend it. In a crash, a seat belt is the best protection for both you *and* your unborn child.

2 "Should I adjust my seat?"

Yes. You should move the front seat back as far as possible. If you're driving, make sure that you can still comfortably reach the pedals. But always keep at least 10 inches between the center of your chest and the steering wheel cover or dashboard. As your abdomen grows during pregnancy, adjust your seat to maintain this 10-inch minimum.

3 "What if my car or truck has air bags?"

You still need to buckle up. Air bags are designed to work with seat belts, not replace them. Without a seat belt, you could be thrown into a rapidly opening frontal air bag, which could injure or even kill you and your unborn child. Also, if you're not buckled up, you could collide with other passengers or be ejected from the vehicle.

4 "Should I turn the air bag off if my vehicle has an ON-OFF air-bag-disabling switch?"

No. Doctors recommend that pregnant women wear seat belts and leave air bags turned on. Seat belts and air bags work together to provide the best protection for you and your unborn child.

5 "What's the right way to wear my seat belt?"

The shoulder belt should lay across your chest (between your breasts) and away from your neck.

Place the shoulder belt across your chest (between your breasts) and away from your neck.

Secure the lap belt *below* your belly so that it fits snugly across your hips and pelvic bone

Never place the shoulder belt behind your back or under your arm.



Child Safety Seat Preview



Once your baby is born, follow these four easy steps to keep your little passenger safe on the road.

- 1** For the best possible protection keep infants in the back seat, in rear-facing child safety seats, as long as possible up to the height or weight limit of the particular seat. At a minimum, keep infants rear-facing until a minimum of age 1 and at least 20 pounds.
- 2** When children outgrow their rear-facing seats (at a minimum age 1 and at least 20 pounds) they should ride in forward-facing child safety seats, in the back seat, until they reach the upper weight or height limit of the particular seat (usually around age 4 and 40 pounds).
- 3** Once children outgrow their forward-facing seats (usually around age 4 and 40 pounds), they should ride in booster seats, in the back seat, until the vehicle seat belts fit properly. Seat belts fit properly when the lap belt lays across the upper thighs and the shoulder belt fits across the chest (usually at age 8 or when they are 4'9" tall).
- 4** When children outgrow their booster seats, (usually at age 8 or when they are 4'9" tall) they can use the adult seat belts in the back seat, if they fit properly (lap belts lay across the thighs and the should belts fit across the chest).

For more information: www.nhtsa.gov

Need more help?

Contact us

To learn more about seat belts, air bags, child safety seats (including where to find a free child seat inspection station near you), as well as other highway safety topics, call the DOT Vehicle Safety Hotline at 888-327-4236 or visit the NHTSA Web site at www.nhtsa.gov.

Thanks to the National Healthy Mothers, Healthy Babies Coalition and the American College of Obstetricians and Gynecologists for their review and input for this brochure.





Horizon™
Advanced carrier screening

Panorama™
Next-generation NIPT

Discover more about your growing family



Two types of genetic tests
are commonly offered

1 Carrier screening is a blood or saliva test performed before or during pregnancy that determines the chances of **passing on an inherited genetic condition** to your child.

Why get carrier screening?

- All of us are carriers of at least one genetic condition.¹ Most carriers are healthy, with no family history, but they are at risk of passing on a genetic condition to their child.
- Carrier screening can help you make informed decisions that could impact your child's health. It tests for genetic conditions that can benefit from early medical care and treatment.

2 Noninvasive prenatal testing (NIPT) is a blood test performed during pregnancy that identifies whether **your baby has a higher chance of having certain chromosomal conditions**, such as Down syndrome.

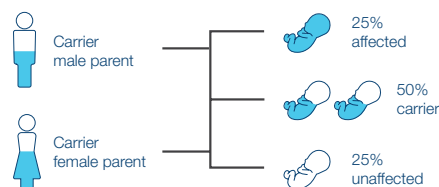
Why choose NIPT?

- NIPT is a safe, noninvasive way to screen your baby for chromosomal conditions as early as nine weeks into your pregnancy.
- NIPT provides substantially fewer incorrect results than maternal serum screening.²⁻¹⁵

What does Horizon™ screen for?

Autosomal Recessive Conditions

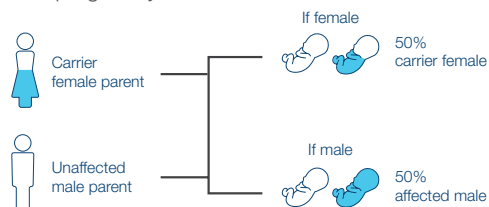
- We carry two copies of most of our genes, one inherited from each of our biological parents. Autosomal recessive conditions occur when both copies of the gene pair have a change. A person is a carrier if only one copy of the gene has a change.
- Couples who are carriers of the same genetic condition have a **25% (1 in 4)** chance of having an affected child with each pregnancy.



Examples: Cystic fibrosis and spinal muscular atrophy

X-Linked Conditions

- X-linked conditions occur when the female parent is a carrier.
- A carrier female parent has a **50% (1 in 2)** chance of having an affected male child or carrier female child with each pregnancy.



Example: Duchenne muscular dystrophy

What does Panorama™ screen for?

Condition	PPV*
Trisomy 21 (Down syndrome)	95% ¹⁷
Trisomy 18 (Edwards syndrome)	91% ¹⁷
Trisomy 13 (Patau syndrome)	68% ¹⁷
Monosomy X (Turner syndrome)**	78% ¹⁷
Sex chromosome trisomies**	86.4% ¹⁸
22q11.2 deletion syndrome (optional)**	53% ¹⁹
Four additional microdeletions (optional)†	5–17% ²⁰
Triploidy†	11% ²¹

*Positive Predictive Value (PPV) is the chance that a high risk result means your baby actually has a genetic condition. PPVs apply to singleton, egg donor, gestational carrier, and identical twin pregnancies. For performance for nonidentical twin pregnancies, go to natera.com/panorama-tests/test-specs

**Not available for egg donor, gestational carrier, and nonidentical twin pregnancies.

†For singleton pregnancies only.

Panorama™ NIPT can also identify your baby's sex (optional). To learn more about these conditions, go to natera.com/panorama-conditions

Why choose Horizon™ and Panorama™?

Unmatched support

- Complimentary genetic information sessions before and after testing are available with Natera's board-certified genetic counselors.
- NEVA, Natera's Educational Virtual Assistant, provides easy, 24–7 access to results, education, and guidance on next steps.



What if I get a positive screen or high risk result?

Horizon™ carrier screen and Panorama™ NIPT are **screening tests**, which means that these tests do not make a final diagnosis. A positive screen or a high risk result means that your pregnancy could have a greater chance of having a specific genetic condition. However, you cannot know for sure if your baby has that condition based on screening results alone.

All medical decisions should be made after discussion with your healthcare provider (HCP) regarding diagnostic testing during the pregnancy, like chorionic villus sampling (CVS) or amniocentesis, or testing the baby after birth.

If you receive a positive Horizon™ carrier screen result, speak with your HCP about whether your partner should also be tested before planning next steps. If you receive a positive Horizon™ carrier screen result or high risk Panorama™ NIPT result, speak with your HCP to determine next steps, such as genetic counseling, detailed ultrasound, and the option of diagnostic testing.

Advanced technology



- Horizon™ and Panorama™ are the most widely used carrier screen and NIPT.²² Just one blood draw is required for both tests. Horizon™ provides comprehensive carrier screening using the latest technology, including next-generation sequencing. Panorama™ is the only NIPT that can tell the difference between your and your baby's DNA.²⁻¹⁵ This helps avoid some sources of incorrect results.²³ Panorama™ NIPT also has zero fetal sex errors in published clinical validations.²⁻¹⁵

Lola's story

Lola was born with spinal muscular atrophy, a rare hereditary condition that occurs when both parents are carriers of a changed or missing gene.



Scan to learn how carrier screening can make a difference.



Affordable testing



- Natera is an in-network provider with most major health plans. The cost of our tests varies according to the tests selected and your specific insurance coverage. Most patients receiving reproductive care meet their deductible.
- If you haven't met your deductible, what you pay will go towards that amount, after which insurance begins to contribute to your care.
- If your insurance plan denies the claim, you will be eligible for a discounted self pay price.
- Horizon™ and Panorama™ are typically billed as separate tests, and they can be ordered separately.
- Visit my.natera.com/billing to learn more.

What can Horizon™ tell me?

Horizon™ Advanced Carrier Screen looks at **your DNA** to screen for inherited genetic conditions, such as cystic fibrosis, spinal muscular atrophy, and fragile X syndrome.¹⁶ The test determines **your chance of having a child with these or other conditions**. Results are typically available in two weeks.

Scan to view the conditions screened by Horizon™.



What can Panorama™ tell me?

Unlike the conditions screened for by Horizon™ carrier screen, Panorama™ Noninvasive Prenatal Test (NIPT) screens for **genetic changes that happen by chance and are not typically inherited**.

During your pregnancy, your blood contains DNA from both you and your baby's placenta. Panorama™ NIPT looks at the **placental DNA** to see if there is evidence of certain chromosomal conditions, such as Down syndrome, that could affect your baby's health.

Results are typically available in one week. You will receive a personalized risk report that indicates if your pregnancy is at high or low risk for the screened conditions.

Scan for detailed test performance information on Panorama™.



Want to learn more? Text the following keywords to **636363**

COMBO to learn more about the tests



Watch a short informational video about Horizon™ carrier screen and Panorama™ NIPT.

SESSION for genetic information sessions



Schedule a complimentary phone call with a board-certified genetic counselor before or after your tests.

COVERAGE for information on coverage & pricing



Natera is an in-network provider with most health plans. Check your coverage, receive a pretest estimate, and learn if you qualify for our Compassionate Care Program.

DRAW for blood draw services



Once you have your test kit, find a local blood draw site or find other blood draw solutions.

If you have any questions on the Horizon™ and Panorama™ tests or how to get tested, call us at **844.778.4700**

Texting 636363 will provide you with a single text in response to each keyword from our Patient Ed program. Msg&Data Rates May Apply. You can get additional information by texting HELP to 636363 and unsubscribe by texting STOP to 636363. For terms & conditions, please go to: natera.com/terms/. For Natera's privacy policy, please go to: natera.com/privacy/

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The tests described have been developed and their performance characteristics determined by the CLIA-certified laboratory performing the test. The tests have not been cleared or approved by the US Food and Drug Administration (FDA). Although FDA is exercising enforcement discretion of premarket review and other regulations for laboratory-developed tests in the US, certification of the laboratory is required under CLIA to ensure the quality and validity of the tests. CAP accredited, ISO 13485 certified, and CLIA certified. © 2022 Natera, Inc. All Rights Reserved PAN_HOR_PT_BR_20221202_NAT-801864



Kick Counts

Counting fetal kicks (or movements) can be a helpful way to monitor your pregnancy. Kick counting means tracking how many movements you feel during a set time. A change from what's normal for you can sometimes be a sign that something needs attention.

What is kick counting in pregnancy?

Counting kicks (fetal movement counting) is a way to monitor your pregnancy. It involves tracking fetal kicks and movements. Changes in movement patterns can sometimes be a sign of a problem. Knowing what feels normal for you can help you sense when something seems off.

The two main ways to track fetal kicks are:

- Count the number of kicks you feel in one hour.
- Measure the amount of time it takes to feel 10 kicks.

During pregnancy, you'll most likely begin feeling kicks at 20 weeks. If it's your first pregnancy, it might be later. If you've been pregnant before, you might feel movement a little sooner.

Movement can happen at different times and in different ways. By the **third trimester** (around 28 weeks), you'll usually start to notice a regular pattern.

Your pregnancy care provider will probably ask you if you feel regular kicks and movement, especially later in pregnancy.

What do kicks feel like?

Kicks from inside your uterus feel soft and may be difficult to notice (especially the **first movements**). They'll feel gentle. Some people describe kicks as flutters, swishes, rolls, jabs or butterflies. These movements usually become stronger and more noticeable during the third trimester (28 to 40 weeks).



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Why should I count kicks?

Kick counting helps you become more aware of movement patterns during pregnancy. Once you know what feels normal for you, it's easier to notice changes. Regular movement is usually a good sign, but decreased fetal movement can sometimes be a sign that something needs attention. If movement slows down or feels very different, let your healthcare provider know.

When do you start kick counts in pregnancy?

Kick counting becomes more important in the third trimester, when changes in movement can sometimes signal a problem. Talk with your healthcare provider about when to start and what's normal for you. Everyone's pregnancy is different, so your provider can help guide you.

How do I count kicks?

There are a few ways to count kicks. Using a kick tracking app on your phone may help, or you can use a timer and a piece of paper.

Ten movements (kicks, flutters or rolls) in one or two hours is considered typical fetal movement. Don't panic if you don't feel 10 movements in one hour. Feeling fewer than 10 kicks doesn't mean something is wrong. It may also take a little longer. This is usually OK and not a reason to worry.

Here are the steps:

1. Choose a time when you're least distracted or when you typically feel movement.
2. A good time to feel movement may be when you sit down for a meal.
3. Get comfortable. Lie on your left side or sit with your feet propped up.
4. Place your hands on your belly.
5. Start a timer.
6. Count each kick. Keep counting until you get to 10 kicks.
7. Once you reach 10 kicks, jot down how many minutes it took.

Another way is to set a timer for one hour and grab a piece of paper. Once the timer starts, make a mark on the paper each time you feel a kick. Finally, tally up the number of marks you've made.

After a few days of kick counting, you'll notice patterns and what's normal. Once you know that, you can call your healthcare provider if you notice significant shifts in fetal movement patterns.

How many kick counts are normal?

Healthcare providers have different opinions on how many movements you're looking for within a set amount of time. For example, the American College of Obstetricians and Gynecologists (ACOG) recommends that you see if you feel 10 kicks, flutters, swishes or rolls within two hours.

If you don't feel 10 movements in two hours, it's OK. You can try again later. If you still can't feel movement, contact your healthcare provider for advice.

When should I feel the kicks the most?

Movement patterns during pregnancy can be different for everyone. You may notice more movement at certain times of day, like after eating a meal or when you're in bed at night. Some people feel less movement during the day because they're busy and more aware of it at night.

How do I get the baby to move?

Sometimes, it can take a while to feel a kick, flutter or jab. If you haven't felt movement, you can try:

- Taking a walk or moving your body
- Drinking juice or another sweet beverage
- Eating a meal
- Lying down on your left side (this maximizes blood flow)
- Playing loud music

When should I worry about kick counts?

Try not to worry if you haven't felt a kick for several hours. It's normal for there to be periods of rest, sleep and activity — just like your own daily movements.

In some cases, you may just need to increase the time to two hours instead of one hour. If after two hours you haven't felt 10 movements, it might be time to let your healthcare provider know. They can decide if more monitoring is necessary.

Remember, kick counting shouldn't make you stressed. Talk to your **obstetrician** or **midwife** to see how many kicks you can expect to feel each day and what to watch for. If your pregnancy is healthy, monitoring fetal movement shouldn't be something to worry about.

When should I contact my doctor?

There isn't a single rule for how long is too long without feeling movement. What matters most is what feels normal for you. If movement slows down or feels very different, it's a good idea to call your pregnancy care provider. Most of the time, changes in movement aren't a sign of a serious problem — but checking can help give you peace of mind.

A note from Cleveland Clinic

Kick counts are a helpful way to monitor the well-being of your pregnancy. Decreased movement can sometimes be an early sign that something needs attention, but this isn't always the case. When you know your baby's usual movement pattern and what feels normal for you, it's easier to notice changes. If you have concerns about your baby's kicks, talk with your healthcare provider. They may want to check on you to make sure everything is OK.

Experts You Can Trust

✔ **Medically Reviewed.** Last updated on 05/08/2026.

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Cleveland Clinic's health articles are based on evidence-backed information and review by medical professionals to ensure accuracy, reliability and up-to-date clinical standards.

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