



Welcome

Thank you for visiting our clinic and taking the time to meet us. We've had the privilege of providing health care to children for generations and enjoy building strong, trusting relationships with the families we serve.

Why should I choose a pediatrician to care for my child?

The medical care of young people is different than that of adults. Pediatricians are Medical Doctors (MD) with an additional three or more years of specialized training in the care of babies, children, and adolescents. Meeting our patients at a young age allows us to form relationships which are very valuable, especially in the teen years.

How often will my child visit the pediatrician?

- Before your baby is born (for first time parents)
- Within 2-3 days after birth
- During the first year of life: 1 month, 2 months, 4 months, 6 months, 9 months and 12 months.
- In early childhood: 15 months, 18 months, 24 months, 30 months, 3 years, 4 years, 5 years
- In middle childhood, adolescence and early adulthood: yearly visits.

What will happen during an office visit?

At each visit, your child will be measured. Height, weight and head circumference for babies will be recorded on a growth chart. Age appropriate screenings such as health and safety, autism, mental health, cholesterol, and anemia may be offered. The pediatrician will examine your child, discuss important health issues such as sleep, nutrition, elimination, and behaviors as well as talk about developmental milestones. Immunizations are an important way to keep your child healthy. We'll explain which ones are needed at each visit. This is a great time for us to get to know your family. We are happy to guide you through any questions you may have.

What do I need to know about calling the clinic?

Our phones are answered 24 hours a day. During clinic hours, our phones are answered by our clinical assistants. During the hours we are not open, your call will go to the Children's Triage Service which is staffed by RNs. Be sure to have a pen and paper ready to write down any instructions and questions. It's easy to forget things, especially when you are worried about your child.

If you think your child has a fever, take your child's temperature before you call. Be prepared to provide information such as temperature, medical problems, medicines, immunization history and the phone number for your pharmacy. If a doctor needs to call you back, be sure you are available for the call.

Woodbury 651-738-0470
St. Paul 651-645-4693



Illustration by
Billy Nuñez, age 16

WELCOME TO THE WORLD OF PARENTING!

NEWBORNS ARE DELIGHTFUL—AND TIRING

- Newborns may sleep only a few hours at a time.
- A newborn's ability to hear, see, smell, and feel grows every day.
- Parents can help crying babies calm down by making them feel warm, close, and comfortable—just like it was in the womb.
- Since all parents can get upset from crying babies, it's important to know when and how to ask for help.
- Friends and family can share the delight and the work of caring for newborns.

Your baby is finally here.
Congratulations!

BABY'S SLEEP AND MOTHER'S REST

Newborns usually sleep 16 to 17 hours a day, but they may sleep for only a couple of hours at a time.

- Many babies wake up every 2 to 4 hours, day or night.
- New mothers need plenty of rest after childbirth to get their strength and energy back.
- Mother and baby can take a nap at the same time.
- As the new father supports mom during her recovery, he can enjoy getting to know this new addition to the family!

INFORMATION FOR DADS

It's a new life for you.

Your role as a father will bring about some big changes in your life. The physical, emotional, and financial demands of being a dad can cause stress. You also may feel a little left out during the first few weeks, since much of the attention is on your new baby and the mom. By becoming actively involved with your new baby, feelings of stress and being left out will decrease. You will begin to:

- Enjoy the pleasure of being a dad.
- Strengthen your relationship with your baby's mother.
- Contribute to the well-being of your baby.

Ways for you to be involved.

Your baby already knows who you are from hearing your voice before birth.

- As you hold your baby in your arms, enjoy the feeling of your baby cuddling up to you.
- Have fun as you spend time talking to your new baby.
- If you have older children, they will need your support now while their mother is tired and focused on the new baby.

WHEN YOUR BABY CRIES A LOT

Sometimes, we just don't know why babies are crying! So, what can you do? Think about what it was like when your baby was in the womb, and try to create a similar experience.

- **Calmly hold** your baby close to your shoulder or chest—inside the womb, it was warm and close.
- **Swaddle** (wrap) your baby in a blanket—toward the end of pregnancy, it was very crowded.



- Quietly sing or talk to your baby, softly play calm music—voices heard through the womb were very comforting.
- Gently rock your baby or go for a quiet walk—before birth, your baby was used to quietly floating.

There will be a few times when babies will continue to cry until either sleep finally arrives or they become quiet yet alert.

Comforting babies when they cry does not spoil them. In fact, many babies learn how to calm themselves just by knowing that someone will calm them.

Sometimes, babies will continue to fuss after parents have tried everything! They are crying because they have had all the excitement that they can handle for now. This is when it's best to quietly hold your baby, or put your baby in a safe place, like the crib, and wait until all is calm.

CRYING BABIES UPSET PARENTS

All parents get upset when their baby cries. With all this crying, try to stay patient. Your baby can sense when you are upset or tense.

After trying all the ways that usually calm your baby, it's OK to let your baby cry. It's OK to place your baby, face up, in the crib to calm down. It's OK to let your baby cry sometimes and give yourself time to calm down. Do something that you enjoy and find calming—have a cup of tea or coffee, listen to music, call a friend or spouse, read, or meditate. These feelings of stress are natural and will pass.

If your baby's crying is getting to be too much—and it does get to this point for many parents—reach out for help. Talk with a friend or relative who has been through this, or call your pediatrician.

Never yell at, hit, or shake your baby!

INFORMATION FOR MOMS

Becoming a parent brings big changes to your life—more than you might have imagined!

You may feel tired much of the time.

Your body is recovering from pregnancy and childbirth. At times, you may wonder if you will be able to make it through the first month. This is common and normal. Let family and friends help out with meals, shopping, cleaning, and if you have other children, taking care of them. Don't feel that you need to entertain visitors as well!

You may have wild mood swings.

As your body begins to adjust, you may go from great highs to hopeless lows. This is common during the first weeks after giving birth, but please let people know if you feel down or overwhelmed. Your feelings deserve attention and support from your family and friends, and from your doctors. If you think you need help, ask for it. Taking care of your emotional and physical health also helps your baby.

You may feel lonely.

Some of your links to family and friends will get stronger, while others may get weaker. Some people will understand what you are going through, and others won't. Your baby needs and will demand much of your attention, time, and energy. If you are a mom who also works outside of the home, chances are you are not seeing friends from work at this time. Try reaching out to family and friends, or find other new mothers who live near you.



BABY BEHAVIOR

Most babies are born able to hear, see, smell, and feel the people and objects that are near them. When your baby is awake, you will notice how the ability to follow people and sounds grows every day.

After a few weeks, babies can stay awake longer. They begin to do everything longer, including fussing and crying. By the time babies are 1 month old, many will cry for 2 or more hours every day. This is completely normal. Between ages 2 and 4 months, most babies will start to cry a lot less—as little as 1 hour for the whole day.

Babies cry the most from ages 2 to 10 weeks.

Babies love the people who care for them. Don't take your baby's crying personally. Babies may cry because they are:

- Tired
- Hungry
- Hot or cold
- In need of a diaper change
- Overstimulated



Connected Kids are Safe, Strong, and Secure

The information contained in this publication should not be used as a substitute for the medical care and advice of your pediatrician. There may be variations in treatment that your pediatrician may recommend based on individual facts and circumstances.

The American Academy of Pediatrics is an organization of 60,000 primary care pediatricians, pediatric medical subspecialists, and pediatric surgical specialists dedicated to the health, safety, and well-being of infants, children, adolescents, and young adults.

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American Academy of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN™

Back to sleep, tummy to play

Why should babies sleep on their backs?

The American Academy of Pediatrics has recommended the following to help reduce the risk of Sudden Infant Death Syndrome (SIDS) and other sleep related infant deaths, such as suffocation.

- All healthy babies should sleep on their backs, in a safety approved crib bassinet or play yard on a firm mattress covered by a fitted sheet.
- Keep the head of the crib flat, unless the doctor gives other instructions because of your child's medical condition.
- Keep loose bedding (pillows, blankets, bumpers) and soft toys out of the crib.
- Consider using a wearable blanket to keep baby warm for sleep rather than a loose blanket
- Keep baby in the same room-not the same bed. Babies and children younger than 2 years should not sleep in the same bed with anyone else, due to the risk of suffocation. If you bring baby to bed to breastfeed place him back in his own crib, bassinet or pack and play when you are finished.
- A pacifier is okay when settling to sleep. When it falls out after your baby is asleep, leave it out.
- Babies who can roll over should be put to bed on their backs, but allowed to change positions as they like. You don't need to roll them back.

How does sleeping on the back affect my baby?

As a result of these recommendations, the SIDS rate has dropped almost 50 percent. During this same time, however, plagiocephaly (head flattening) and torticollis (a one-sided tightness in neck muscles) have increased.

Some babies tend to keep their heads in a favorite position while on their backs. This can affect their development. It makes it hard for them to strengthen their neck muscles evenly, and hard to learn to use both sides of their body.

How can I prevent these problems?

Sleeping

Place your baby on the back to sleep, alternating head position so not always lying on the same side of the head. Or alternate positions in the crib (feet toward one end, then the other end) so your baby needs to turn the head to look toward activity in the room.

If your baby always lies on one side of the head, try changing the direction of the crib or move things in the room that your baby likes to look at.

Some products claim to be designed to keep a baby in one position. These products have not been tested for safety and are **not** recommended.

Equipment

Limit the use of toys such as swings, infant seats, and exercise saucers. **Always** use a car seat for travel, but take your baby out of it as soon as the trip is over. When awake, babies need to be held, or on the floor exploring and developing motor skills as much as possible.

Tummy time

When baby is awake and you are watching her, your baby should spend plenty of time on the tummy. Tummy time strengthens the back, neck, and arm muscles, which are needed for holding the head upright, rolling, sitting, and crawling. Tummy time is also good for visual and mental stimulation because your baby is encouraged to look around to explore the surroundings.

The sooner you start tummy time, the sooner your baby will get used to it, benefit from it, and come to enjoy it. Babies who have not spent much time on their tummies may need extra encouragement and practice to get used to it. Here are some ideas to help your baby learn to enjoy tummy time. **Remember, tummy time should always be supervised – never leave baby alone on her tummy or on these positioning products.**

- It works best if your baby is well rested and happy before trying tummy time.
- Start with 5 minutes of tummy time every time your baby is awake and slowly work up to 20 minutes.
- Put your baby's favorite toys within reach. Play some favorite music.
- Put a mirror in front of your baby.
- Your baby will need to first develop the strength and experience to lift the head and play. If playing on the floor is challenging, propping your baby at an angle can make it easier to lift the head. You can use:
 - a small pillow (such as a Boppy® pillow).
 - a towel roll under the arms and chest.
 - a foam wedge.
 - yourself. Baby can lie across your legs while you're sitting, or on your chest while you're leaning against the couch or lying on your back against a pillow. Your baby will love feeling the warmth of your body and your heartbeat.

- Get down on the floor in front of your baby and sing or talk face to face.
- If getting tired, you can roll your baby onto the back to rest for a moment, or carry for a while, and then try tummy time again.

Be patient. Your baby may be challenged a bit at first, but it is important to keep trying. As your child gets stronger, tummy time will be more fun. The benefits are worth it.

What else do I need to know?

Talk with grandparents, child-care providers, and babysitters. Make sure everyone who cares for your baby knows about safe sleep:

- Every sleep time counts! Put baby on his or her back for sleep in a safety approved crib.
- Keep soft items out of the bed:
 - No pillows
 - No blankets
 - No bumper pads
 - No toys
- Put your baby on the tummy to play during supervised awake time.

Questions?

This sheet is not specific to your baby, but provides general information. For more information about sleep positions or SIDS, please call the Minnesota SID Center at Children's of Minnesota, 612-813-6285 or toll-free at 800-732-3812.

Children's Hospitals and Clinics of Minnesota
Minneapolis, MN 55404
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Information About Newborn Circumcision

The skin that covers the head of the penis is called foreskin. Circumcision is surgery to remove that skin. Some insurance will not pay for it. Be sure to call your insurance and ask.

This information may help you make a decision.

Parents' Choice

Circumcision is your choice.

Current evidence indicates that the health benefits of newborn male circumcision outweigh the risks. Studies indicate that there are medical benefits, including a lower risk of:

- Urinary tract and foreskin infections.
- Cancer of the penis.
- Sexually transmitted diseases (STDs) including HIV

Some reasons you may not choose circumcision:

- Other men in the family are not circumcised.
- Baby may feel pain.
- Risks of surgery.
- Though the following have not been proven by any medical study, some think:
 - The foreskin is needed to protect the tip of the penis; removing the foreskin may make the penis less sensitive.
 - There will be a decrease in sexual pleasure later in life.

Pain control during and after circumcision:

- Penile block – numbing medicine is injected around the penis before the procedure.
- Sucrose and pacifier – a pacifier is dipped in a concentrated sugar solution; the combination of sugar and sucking provides some pain relief.
- Acetaminophen (Tylenol) is given by mouth for pain control.
- Breastfeeding babies may be comforted at mother's breast after the procedure is complete.

If you have questions, please talk with your doctor.



Vitamin D

What is vitamin D?

Vitamin D is essential for the absorption and use of calcium in our bodies. It supports the growth and maintenance of strong bones. In addition, recent studies support the importance of vitamin D in maintaining a healthy, strong immune system. Healthy levels of vitamin D in the body may also lessen the risk of infection, autoimmune diseases, certain types of cancers, and type 2 diabetes.

How do we get vitamin D?

Our bodies make vitamin D when sunshine hits our skin. However, too much sun can damage the skin. Therefore, we recommend avoiding too much sun exposure and using sunscreen. Also, many things such as sunscreen, sun protective clothing, cloudy northern climates, and window glass lessen the body's ability to make vitamin D.

Therefore, all infants, children, and adolescents should get vitamin D, through diet and vitamin supplements.

In 2008, the American Academy of Pediatrics recommended a daily intake of vitamin D of at least 400 IU per day for all infants.

Infants who are exclusively or partially breast-fed: We recommend that all infants who are breast-fed be given a vitamin D supplement of *400 IU daily* (even if mother is taking a vitamin D supplement).

1. **Infant vitamin D supplement** (Enfamil D-Vi-Sol, Enfamil Tri-vi-sol or store brand). The dose is one dropper full or one milliliter once daily. This is available at most drugstores.
2. **Infant concentrated vitamin D drops** ("D Drops"): The dose is a single drop (not a dropper full) once daily. You can put this drop on a pacifier or mother's breast. Due to the concentration of these drops, you should follow the directions carefully and store them out of children's reach, to avoid overdosing.

These drops are available at the pharmacy counter at Walgreens on Queens and Donegal Drive in Woodbury. You can also get them at natural care centers, natural food markets or online at drugstore.com and amazon.com.

Infants who are bottle-fed or who are on both breast milk and formula: Formula does have added vitamin D. A baby must consume approximately 27-32 ounces of formula daily to receive 400 IU each day. Your physician can discuss with you if extra vitamin D is necessary.

Your Child's First Vaccines

What You Need to Know

Many Vaccine Information Statements are available in Spanish and other languages. See www.immunize.org/vis

Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite www.immunize.org/vis

The vaccines covered on this statement are those most likely to be given during the same visits during infancy and early childhood. Other vaccines (including measles, mumps, and rubella; varicella; rotavirus; influenza; and hepatitis A) are also routinely recommended during the first five years of life.

Your child will get these vaccines today:

☐ DTaP ☐ Hib ☐ Hepatitis B ☐ Polio ☐ PCV13

(Provider: Check appropriate boxes.)

1 Why get vaccinated?

Vaccine-preventable diseases are much less common than they used to be, thanks to vaccination. But they have not gone away. Outbreaks of some of these diseases still occur across the United States. **When fewer babies get vaccinated, more babies get sick.**

7 childhood diseases that can be prevented by vaccines:

1. Diphtheria (the 'D' in DTaP vaccine)

- **Signs and symptoms** include a thick coating in the back of the throat that can make it hard to breathe.
- **Diphtheria can lead to** breathing problems, paralysis and heart failure.
 - About 15,000 people died each year in the U.S. from diphtheria before there was a vaccine.

2. Tetanus (the 'T' in DTaP vaccine; also known as Lockjaw)

- **Signs and symptoms** include painful tightening of the muscles, usually all over the body.
- **Tetanus can lead to** stiffness of the jaw that can make it difficult to open the mouth or swallow.
 - Tetanus kills about 1 person out of every 10 who get it.

3. Pertussis (the 'P' in DTaP vaccine, also known as Whooping Cough)

- **Signs and symptoms** include violent coughing spells that can make it hard for a baby to eat, drink, or breathe. These spells can last for several weeks.
- **Pertussis can lead to** pneumonia, seizures, brain damage, or death. Pertussis can be very dangerous in infants.
 - Most pertussis deaths are in babies younger than 3 months of age.

4. Hib (*Haemophilus influenzae* type b)

- **Signs and symptoms** can include fever, headache, stiff neck, cough, and shortness of breath. There might not be any signs or symptoms in mild cases.
- **Hib can lead to** meningitis (infection of the brain and spinal cord coverings); pneumonia; infections of the ears, sinuses, blood, joints, bones, and covering of the heart; brain damage; severe swelling of the throat, making it hard to breathe; and deafness.
 - Children younger than 5 years of age are at greatest risk for Hib disease.

5. Hepatitis B

- **Signs and symptoms** include tiredness, diarrhea and vomiting, jaundice (yellow skin or eyes), and pain in muscles, joints and stomach. But usually there are no signs or symptoms at all.
- **Hepatitis B can lead to** liver damage, and liver cancer. Some people develop chronic (long term) hepatitis B infection. These people might not look or feel sick, but they can infect others.
 - Hepatitis B can cause liver damage and cancer in 1 child out of 4 who are chronically infected.

6. Polio

- **Signs and symptoms** can include flu-like illness, or there may be no signs or symptoms at all.
- **Polio can lead to** permanent paralysis (can't move an arm or leg, or sometimes can't breathe) and death.
 - In the 1950s, polio paralyzed more than 15,000 people every year in the U.S.



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

7. Pneumococcal Disease

- **Signs and symptoms** include fever, chills, cough, and chest pain. In infants, symptoms can also include meningitis, seizures, and sometimes rash.
- **Pneumococcal disease can lead to** meningitis (infection of the brain and spinal cord coverings); infections of the ears, sinuses and blood; pneumonia; deafness; and brain damage.
 - About 1 out of 15 children who get pneumococcal meningitis will die from the infection.

Children usually catch these diseases from other children or adults, who might not even know they are infected. A mother infected with hepatitis B can infect her baby at birth. Tetanus enters the body through a cut or wound; it is not spread from person to person.

Vaccines that protect your baby from these seven diseases:

Vaccine	Number of doses	Recommended ages	Other information
DTaP (Diphtheria, Tetanus, Pertussis)	5	2 months, 4 months, 6 months, 15-18 months, 4-6 years	Some children get a vaccine called DT (Diphtheria & Tetanus) instead of DTaP.
Hepatitis B	3	Birth, 1-2 months, 6-18 months	
Polio	4	2 months, 4 months, 6-18 months, 4-6 years	An additional dose of polio vaccine may be recommended for travel to certain countries.
Hib (<i>Haemophilus influenzae</i> type b)	3 or 4	2 months, 4 months, (6 months), 12-15 months	There are several Hib vaccines. With one of them the 6-month dose is not needed.
Pneumococcal (PCV13)	4	2 months, 4 months, 6 months, 12-15 months	Older children with certain health conditions also need this vaccine.

Your healthcare provider might offer some of these vaccines as **combination vaccines**—several vaccines given in the same shot. Combination vaccines are as safe and effective as the individual vaccines, and can mean fewer shots for your baby.

2 Some children should not get certain vaccines

Most children can safely get all of these vaccines. But there are some exceptions:

- A child who has a mild cold or other illness on the day vaccinations are scheduled may be vaccinated. A child who is moderately or severely ill on the day of vaccinations might be asked to come back for them at a later date.
- Any child who had a life-threatening allergic reaction after getting a vaccine should not get another dose of that vaccine. ***Tell the person giving the vaccines if your child has ever had a severe reaction after any vaccination.***
- A child who has a severe (life-threatening) allergy to a substance should not get a vaccine that contains that substance. ***Tell the person giving your child the vaccines if your child has any severe allergies that you are aware of.***

Talk to your doctor before your child gets:

- **DTaP vaccine**, if your child ever had any of these reactions after a previous dose of DTaP:
 - A brain or nervous system disease within 7 days,
 - Non-stop crying for 3 hours or more,
 - A seizure or collapse,
 - A fever of over 105°F.
- **PCV13 vaccine**, if your child ever had a severe reaction after a dose of DTaP (or other vaccine containing diphtheria toxoid), or after a dose of PCV7, an earlier pneumococcal vaccine.

3 Risks of a Vaccine Reaction

With any medicine, including vaccines, there is a chance of side effects. These are usually mild and go away on their own. Most vaccine reactions are not serious: tenderness, redness, or swelling where the shot was given; or a mild fever. These happen soon after the shot is given and go away within a day or two. They happen with up to about half of vaccinations, depending on the vaccine.

Serious reactions are also possible but are rare.

Polio, Hepatitis B and Hib Vaccines have been associated only with mild reactions.

DTaP and Pneumococcal vaccines have also been associated with other problems:

DTaP Vaccine

- **Mild Problems:** Fussiness (up to 1 child in 3); tiredness or loss of appetite (up to 1 child in 10); vomiting (up to 1 child in 50); swelling of the entire arm or leg for 1-7 days (up to 1 child in 30)—usually after the 4th or 5th dose.
- **Moderate Problems:** Seizure (1 child in 14,000); non-stop crying for 3 hours or longer (up to 1 child in 1,000); fever over 105°F (1 child in 16,000).
- **Serious problems:** Long term seizures, coma, lowered consciousness, and permanent brain damage have been reported following DTaP vaccination. These reports are extremely rare.

Pneumococcal Vaccine

- **Mild Problems:** Drowsiness or temporary loss of appetite (about 1 child in 2 or 3); fussiness (about 8 children in 10).
- **Moderate Problems:** Fever over 102.2°F (about 1 child in 20).

After any vaccine:

Any medication can cause a severe allergic reaction. Such reactions from a vaccine are very rare, estimated at about 1 in a million doses, and would happen within a few minutes to a few hours after the vaccination.

As with any medicine, there is a very remote chance of a vaccine causing a serious injury or death.

The safety of vaccines is always being monitored. For more information, visit: www.cdc.gov/vaccinesafety/

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What if there is a serious reaction?

What should I look for?

- Look for anything that concerns you, such as signs of a severe allergic reaction, very high fever, or unusual behavior.

Signs of a severe allergic reaction can include hives, swelling of the face and throat, and difficulty breathing. In infants, signs of an allergic reaction might also include fever, sleepiness, and disinterest in eating. In older children signs might include a fast heartbeat, dizziness, and weakness. These would usually start a few minutes to a few hours after the vaccination.

What should I do?

- If you think it is a severe allergic reaction or other emergency that can't wait, call 9-1-1 or get the person to the nearest hospital. Otherwise, call your doctor.

Afterward, the reaction should be reported to the Vaccine Adverse Event Reporting System (VAERS). Your doctor should file this report, or you can do it yourself through the VAERS web site at www.vaers.hhs.gov, or by calling **1-800-822-7967**.

VAERS does not give medical advice.

5

The National Vaccine Injury Compensation Program

The National Vaccine Injury Compensation Program (VICP) is a federal program that was created to compensate people who may have been injured by certain vaccines.

Persons who believe they may have been injured by a vaccine can learn about the program and about filing a claim by calling **1-800-338-2382** or visiting the VICP website at www.hrsa.gov/vaccinecompensation. There is a time limit to file a claim for compensation.

6

How can I learn more?

- Ask your healthcare provider. He or she can give you the vaccine package insert or suggest other sources of information.
- Call your local or state health department.
- Contact the Centers for Disease Control and Prevention (CDC):
 - Call **1-800-232-4636 (1-800-CDC-INFO)**
 - Visit CDC's website at www.cdc.gov/vaccines or www.cdc.gov/hepatitis

Vaccine Information Statement Multi Pediatric Vaccines

11/05/2015

42 U.S.C. § 300aa-26

Office Use Only



Clear Answers & Smart Advice About Your Baby's Shots

By Ari Brown, MD, FAAP

Dr. Brown received her medical degree from Baylor College of Medicine in Houston, Texas; she did her pediatric residency at Harvard Medical School/Boston Children's Hospital. In private practice since 1995, Dr. Brown is perhaps best known as the coauthor of the 411 parenting book series — *Expecting 411: Clear Answers and Smart Advice for Your Pregnancy, Baby 411, and Toddler 411* (Windsor Peak Press).

In response to the recent media attention given to vaccines, autism, and other controversies concerning vaccines, the Immunization Action Coalition (IAC) has reprinted a special excerpt from *Baby 411* that answers these questions and more. IAC thanks Dr. Brown for this clearly written information, but mostly, we are grateful for her continued advocacy for safe and effective vaccines.



Vaccines. Autism. Controversy. As a new parent (or parent-to-be), it's hard not to hear the great debate in parenting circles these days—do vaccines cause autism? If not, what causes autism and why is it on the rise?

Let's start at the beginning—just what is autism?

Q: What is autism?

Autism Spectrum Disorder (ASD) is really a collection of several disorders that have three abnormal areas in common: social skills, communication skills, and repetitive or obsessive traits. Specialists use the terms ASD and Pervasive Developmental Disorders (PDD) interchangeably. To add even more confusion, Pervasive Developmental Disorder, not otherwise specified (PDD-NOS), and Asperger's Syndrome also are other categories that fall under the ASD umbrella.

There is a very broad range of severity within ASD. A child may have normal intelligence and language, but be socially awkward and have panic attacks if his sandwich is cut in triangles instead of squares. Or a child may appear out of touch with reality and spend his entire day rocking and flapping his hands. Both children have ASD. As you might suspect, children with severe problems as in classic autism are diagnosed much earlier than kids who can communicate but have trouble with social skills, as in Asperger's Syndrome.

Children are usually diagnosed by 18-24 months of age when language delays are obvious. Many children with Asperger's Syndrome may not be diagnosed until preschool (or sometimes even later).

However, clues to the diagnosis appear long before that time. Some early clues include: not smiling back at people, poor eye contact, not imitating, not gesturing (waving bye-bye), not responding to being called by name, and not trying to communicate/connect/engage with other people by 1 year of age.

There also are some unusual behaviors. Cuddling may not be soothing. In fact, an autistic child may get very upset by being touched. Bright lights and noises often bother them. Because they are bugged by the outside world, they may turn inward and find comfort in repetitive behaviors (rocking, head banging, spinning). Autistic chil-

dren may have little interest in playing with toys. Or they may play in an odd way—such as using a phone as a comfort object.

Bottom line: Children with autism have autism long before their first birthdays, even though their “official” diagnosis usually occurs in their second year of life.

Q: I have a friend whose child has autism. She said he was “perfectly normal” until he was about 18 months old. Does this happen?

A small minority of ASD children have completely normal milestones and then regress, which is known as “late onset autism.” These children most likely have a distinct genetic abnormality that turns on or off without any trigger.

However, for most kids with ASD, parents and doctors just miss (or dismiss) the early signs in the first year of life and the child's atypical development only becomes apparent at 18 months.

Doctors rely heavily on parents to point out concerns. And parents (especially first-timers) don't know what is normal and what isn't.

The mother of one of my ASD patients told me that she only realized how unusual her son's development was after she watched her second child, without ASD, breeze through her milestones. Even the most vocal ASD mom of all, Jenny McCarthy, agrees. Her son was 5 months old when he first smiled at her (that's abnormal), when all of her friends' babies smiled at 2 months of age (that's normal).

Some parents report that their ASD child spoke a few words and then “lost” the ability to say them. If you delve a bit deeper, the child may have randomly said a few things, but was not consistently using words like “juice” or “no” to communicate his needs.

There is growing research in language development that looks at brain anatomy. Primitive brain parts control early language development from birth to 18 months. At 18 to 24 months, the mature brain parts turn on and language takes off. With autistic children, mature language does not take off. But from a parent's perspective, it may look like a loss of skills.

And again, children with subtle atypical behaviors may be harder to diagnose early on. Reviewing home movies of a child once the diagnosis is made often shows that early signs are overlooked.¹

Q: OK, so what causes autism?

The million-dollar question.

In the 1980s, one in 10,000 kids was diagnosed with autism. Today, one in 150 American 8-year-olds has some form of autism. Boys outnumber girls four to one. The United States is not the only country seeing this trend. It is increasingly diagnosed worldwide.

For starters, is it really an epidemic? Or, are more people being diagnosed? Many children who were diagnosed with mental retardation 30 years ago are children who are diagnosed with classic autism today. And mildly disabled ASD kids today are children who never would have had a diagnosis 30 years ago. Those verbal, but socially awkward, children account for the majority of new ASD cases.

Here are the hottest areas of autism research today:

- **Genetics:** There is no question genetics plays a role. Autism runs in families. I have a family in my practice and all four children have a diagnosis on the autism spectrum.

Studying twins is an obvious way to detect genetic disorders. If one identical twin has autism, up to 90 percent of the time, so will the other twin. To date, studies suggest there is more than just one “autism gene”; there appear to be several.

ASD children have several different abnormalities with their DNA. However the X chromosome is one of interest because of the high prevalence of boys with ASDs.²

Fragile X Syndrome, which is a known genetic cause of autism, also points to a defective X chromosome in ASD.

And Rett Syndrome, which is a disorder causing developmental regression and autistic behaviors in girls, is caused by a defective MECP2 gene located on the X chromosome.³

We also know that kids with autism and defects on Chromosome 11 have dysfunctional “neurexin 1 protein.” Researchers are looking into how this defective protein affects fetal and infant brain growth.

Finding these specific genetic defects may help in genetic counseling, as well as therapies, in the future. Animal studies already are underway for targeted genetic therapy in both Fragile X and Rett Syndrome.

- **Abnormal brain growth:** ASD children have problems with brain growth. Babies are born with immature brains that grow rapidly and make nerve connections called synapses ... like an information superhighway. In the normally growing brain, some branches of this superhighway get “pruned.” In the autistic brain, this pruning process seems to be defective. This may explain why babies who are autistic have abnormally rapid head growth under 1 year of age. No one has yet figured out what causes that defective nerve growth. Of note, boys with ASD have higher levels of hormones (insulin-like growth factor) that may contribute to their larger head size, weight, and body mass index.⁴

- **Environmental triggers:** Is there some environmental exposure that sets off abnormal brain development in a genetically predisposed baby? Maybe. And that exposure may happen at or shortly after conception, before a mother even knows she is pregnant. The embryo has a critical period of brain development at 20–24 days after conception. That is when the developing brain is most sensitive to injury. Studies done by the Environmental Working Group have detected over 280 environmental toxins in umbilical cord blood, so clearly pregnant moms are exposed to a variety of toxins. Could one of these be the autism trigger? We don't know.

Viral infections during pregnancy also may be a key environmental trigger that causes abnormal genes in the fetus. Those infections include rubella, CMV (cytomegalovirus), and influenza (yes, “the flu”).⁵

What about vaccines as an environmental trigger? Researchers and scientists have taken a long, hard look at vaccines—and there is conclusive evidence that vaccine exposure is NOT the turn-on switch for autism.⁶

Bottom line: There's evidence that newborns who are later diagnosed with ASD already have abnormal levels of certain proteins in their brains. So, whatever the trigger is (if there is one), it has been fired before the baby even enters the world.

- **Prematurity:** A developing brain is quite vulnerable. Premature, very low birth-weight babies (under three pounds) have a 25 percent chance of developing an autism spectrum disorder.⁷
- **Older parents:** Another possible reason for the increase of autism: the trend of parents having babies at a later age. Moms who conceive after the age of 40 have a 30 percent increased risk of having a child with autism. Dads who conceive after the age of 40 have a 50 percent increased risk of having an autistic child.⁸ Scientists speculate that an older dad's sperm may have defective genetic material, possibly altered by environmental toxins.
- **Closely spaced pregnancies:** A 2011 study compared children who were conceived at least three years after their sibling was born to closer-spaced pregnancies and found that babies conceived less than 12 months after the birth of the first-born child were THREE times more likely to be diagnosed with autism spectrum disorder. Babies conceived from 12 to 23 months after the birth of the first-born child had almost two times the risk of ASD. And, even babies conceived 23 to 35 months after the first-born child had a slightly greater risk of ASD.

Unfortunately, the researchers have no idea why the odds are greater when the spacing between pregnancies is shorter. Perhaps it's because a woman's nutritional stores have not had enough time to be replenished. Or maybe women who have put off parenthood until later in life have more closely spaced babies—and parental age itself is a risk factor for having a child with an ASD.

This study alone should not necessarily influence your decision on how long to wait between pregnancies. However, the current recommendation from the Centers for Disease Control and Prevention is to wait at least 18 to 23 months between pregnancies for a mother's and baby's optimal health.⁹

Bottom line: Researchers don't know what causes autism, although the above factors provide clues. The goal is to find a way to prevent autism ... but we aren't there yet.

Vaccines

Q: Why do you care whether I vaccinate my child or not?

For starters, we want your baby to be protected.

But we also want you to realize that the decision to vaccinate your child impacts the health of other children in the community. Choosing NOT to vaccinate your child is choosing to put your child AND your community's children at risk. As a parent, you want to make the right choices to protect your child. I want you to ask questions. I want you to be informed. And I want you to get your child vaccinated. YOUR decision impacts ALL children. Why?

There are two critical points for vaccination to work:

1. You need to be vaccinated.
2. Your neighbor needs to be vaccinated.

This concept is called herd immunity. And yes, you are a member of a herd. When 90 to 95 percent of "the herd" is protected, it is nearly impossible for a germ to cause an epidemic. Think of germs as rain. Vaccination is a raincoat. Even with a raincoat on, you can still get wet. You need an umbrella, too. The umbrella is "herd immunity." Those who don't vaccinate expect someone to share their umbrella when it rains. But society can only buy umbrellas TOGETHER. And raincoats aren't made for newborns—they need umbrellas!

Some parenting decisions have little or no impact on the community at large. Deciding whether or not your child eats organic baby food, goes to preschool, or sleeps in a family bed is entirely up to you—your decision only affects your child.

However, your decision whether or not to vaccinate your child affects all our kids. If you are a parent who is considering delaying or skipping vaccinations altogether, please realize the impact of your decision.

If more than 10 percent of American parents choose to "opt out" of vaccines, there's no question that our entire country will see these horrible diseases of bygone days return. Fortunately, very few parents decide to do this. What is most concerning today is that there are pockets of under-vaccinated children. Birds of a feather flock together. Like-minded parents who don't vaccinate their kids tend to live in the same community and send their kids to the same schools. With lower immunization rates, there is no herd immunity. We have these "Ground Zero" areas to thank for recent measles and whooping cough outbreaks of 2008 and 2011.¹⁰

Q: I've heard that the MMR vaccine might cause autism. Is this true?

No. Parents also hear that vaccinations cause multiple sclerosis, diabetes, asthma, and Sudden Infant Death Syndrome (SIDS). None of these are caused by vaccination. The government operates a safety monitoring system (Vaccine Adverse Event Reporting System, Food and Drug Administration, CDC) watching for any possible adverse effects from vaccines. No one wants to increase autism rates.

One small case report of only eight patients in 1998 led a research group to feel that the combination measles, mumps, and rubella (MMR) vaccine might cause autism.¹¹ But, don't try to find the article online because the journal that published it later retracted it when a former member of the research lab revealed that the data reported in the study was fabricated!¹² Twelve years later, the lead author lost his license to practice medicine in England and was accused of fraud. The whole thing was a hoax.

Before this came to light, several reputable scientists tried to duplicate the findings of this now discredited researcher. No one ever could—and now we know why!

Unfortunately, frightened parents chose to skip the MMR vaccine and measles epidemics occurred in the United Kingdom and the United States as a result of these unfounded claims.

Bottom line: Don't base health decisions for your child on one research study or what the media says! Talk to your child's doctor about any vaccine safety concerns.

Q: If the MMR vaccine doesn't cause autism, why is the diagnosis made around the same time as the vaccination?

One of the criteria used to make a diagnosis of autism is a language delay. Because children do not have significant expressive language under a year of age, doctors have to wait until 15 to 18 months to confirm a language delay and make the diagnosis. That's about the same time as the MMR vaccination, which leads some parents to wonder about autism and vaccination.

Q: I've heard mercury preservative is in vaccines. Is this true?

Only a few remain. Preservatives and stabilizers are used in vaccines so the vaccinations remain potent and uncontaminated. A popular preservative used to be a chemical called thimerosal, which contained trace amounts of ethylmercury. Thimerosal use began in the 1940s.

Thimerosal was removed from all vaccines given to infants younger than age 6 months by 2001. This deserves repeating: YOUR young baby will not be getting vaccines that contain mercury (thimerosal) as a preservative. The one exception is the influenza vaccine that is found in multi-dose vials that need a preservative to prevent contamination. Influenza vaccine that is packaged in single dose vials does not need a preservative and many clinics choose to use these individual vials with the youngest patients. Remember, it's very important that children get vaccinated against influenza each fall or winter beginning when they are 6 months old.

Despite the fact that most vaccines are mercury preservative-free now, speculation persists about vaccines previously containing mercury and links to autism. This speculation continues even after the Institute of Medicine (IOM) published a conclusive report in 2004 negating any association between vaccines and autism. (The IOM spent four years studying both the mercury question and the MMR combo vaccine question and published a series of eight reports on the subject.)

A quick chemistry lesson: Certain compounds have completely different properties even though they may be related. For instance,

take the alcohol family. Methanol is anti-freeze; ethanol is a Bud Light. Keep this in mind when we discuss mercury. We are all exposed to small amounts of mercury. The type of mercury that has raised health concerns is called methylmercury. High concentrations of methylmercury can be found in tuna, swordfish and shark from contaminated waters. The information known about mercury poisoning comes from unfortunate communities that have experienced it. Example: There is a large amount of data from the Faroe Islands, near Iceland. The people there would eat whale blubber contaminated with toxic levels of methylmercury and polychlorinated biphenyls (PCBs). Children, especially those exposed as fetuses during their mother's pregnancy, seemed to have lower scores on memory, attention, and language tests than their unexposed peers. (They were not diagnosed with autism or Attention Deficit Disorder, however.)¹³

Chronic exposure to liquid methylmercury causes Mad Hatter's Disease, named for hat makers who used liquid mercury in the hat-making process. The disease consists of psychiatric problems, insomnia, poor memory, sweating, tremors, and red palms. Chronic mercury poisoning also impairs kidney function.

Methylmercury is a small molecule that can get into the brain—it takes almost two months to break down in the body. Ethylmercury (the type of mercury that was previously used as a vaccine preservative) is a large molecule that cannot enter the brain and is rapidly eliminated from the body within a week.

Because of the increased number of vaccinations that children get, the potential cumulative exposure to mercury became a concern in 1999.

There are three federal groups that set standards for acceptable daily mercury exposure (the Environmental Protection Agency [EPA], the Food and Drug Administration [FDA], and the Agency for Toxic Substances and Disease Registry). When the exposure was calculated, the cumulative dose was higher than acceptable levels set by the EPA only (the other groups' standards were higher). As a result of these findings, the Public Health Service (which includes the FDA) and the American Academy of Pediatrics issued a joint statement as a precautionary measure, urging vaccine manufacturers to reduce or eliminate thimerosal in vaccines as soon as possible.¹⁴ This was issued in 1999 before scientists had an opportunity to study the potential health effects of thimerosal-containing vaccines. Numerous studies have since shown that there is no relationship between vaccines, either with or without thimerosal, and the development of autism or other neurologic problems in children.

Q: I heard that I should still ask my doctor if the vaccines for my baby are thimerosal-free. What do you suggest?

We think you should ask as many questions as you need to feel comfortable. Remember that since 2001, most childhood vaccines given to infants and children went thimerosal (mercury) preservative-free. If your doctor has a 2001 vintage vaccine vial sitting on the shelf (which would be expired by now), he needs to re-stock. To give you some perspective, my practice buys its vaccine supply on a monthly basis.

Why does flu vaccine need thimerosal or any other preservative? First, understand the flu vaccine is reformulated every year to reflect

the anticipated flu strains. Since millions of doses of flu vaccine are needed every year, the most efficient way to produce the shot is in multi-dose vials, which require a preservative.

Hence, some flu shots (not the flu nasal spray) contain the preservative thimerosal. However, there are single-dose preparations of flu vaccine that are mercury preservative-free. These can be given to young children and pregnant women. Ask your doctor for a thimerosal-free flu vaccine if you are concerned.

Even though thimerosal is safe, it would be ideal for all flu vaccines to be thimerosal preservative-free—this would put any concerns to rest. However, the technology just isn't there yet.

The Institute for Vaccine Safety at Johns Hopkins University has a chart online that tracks any thimerosal content in vaccines: www.vaccinesafety.edu/thi-table.htm.

FYI: Many vaccines such as the combination measles, mumps, and rubella vaccine never used thimerosal in the production process or as a preservative.

Reality Check: Worried about the mercury preservative (thimerosal) in your child's flu vaccine? Consider this: A tuna fish sandwich has five times more mercury than a thimerosal-preserved flu vaccine.¹⁵ And the type of mercury (methylmercury) found in tuna is the one that has health concerns. Also, a baby who is exclusively breastfed for six months of life consumes about 0.36 mg of methylmercury from breast milk. That's 15 times the quantity of ethylmercury in one flu vaccine!

Bottom line: As a doc, I am much more concerned about your baby's mercury exposure from the environment than what's in a flu shot. Here's a look at the numbers:

Product	Amount of Mercury	Type of Mercury
Tuna, 5.6 oz can	0.115 mg	Methyl
Breast milk, 1 liter	0.015 mg	Methyl
Flu vaccine with thimerosal	0.025 mg	Ethyl

Q: Does thimerosal cause autism?

No. The Institute of Medicine reached this conclusion in 2004. What proof do we have?

Thimerosal has been removed from most vaccines since 2001, but the rates of autism are still skyrocketing. A 2008 survey of autism rates in California confirms that mercury is essentially out and autism rates are still going up. If thimerosal was the cause and it was removed from vaccines seven years ago, autism rates would be going down by now. Why? Because autism spectrum disorders are usually diagnosed by 3 years of age. By now, any reduction in autism should have been obvious if thimerosal caused the disorder.¹⁶

- Mercury preservatives were removed from vaccines in Denmark in 1992. Canada and the European Union followed suit shortly thereafter. However, their autism rates are going up too.
- Mad Hatter's Disease (mercury poisoning) and autism are very different disorders (see chart in next column).
- A study of 100,000 kids in England compared those receiving thimerosal-containing vaccines to those who did not. The ones who had the t-free shots had HIGHER rates of autism.¹⁷

- A 2007 study showed that children between 7 and 10 years of age who got those mercury-containing vaccines (before 2001) have no significant differences in tests of attention and processing information. Although the study did not look specifically at autism, it showed that mercury preservatives did not make much of an impact on brain functions in general. A follow-up study that specifically addresses autism is underway.¹⁸

Did thimerosal cause autism? Notice the differences between autism and mercury poisoning:

	Autism	Mercury Poisoning¹⁹
Motor	Repetitive movements	Wobbly, shaky gait
Vision	Normal	Impaired
Speech	Delay, repetitive sounds	Articulation problem
Sensory	Hyper-responsive	Loss of sensation
Psychiatric	Aloof, likes sameness	Psychosis, depression
Head size	Large	Small

Q: Are there other additives in the vaccines?

Yes. And you should know about them.

Vaccines contain the active ingredients that provide immunity. But there are inactive ingredients that improve potency and prevent contamination. Below is a list of additives and why they are there. These products are present in trace amounts and none have been proven harmful in animals or humans.²⁰

- **Preservatives:** Prevent vaccine contamination with germs (bacteria, fungus). Examples: 2-phenoxyethanol, phenol, and thimerosal (prior to 2001).
- **Adjuvants:** Improve potency/immune response. Example: aluminum salts.
- **Additives:** Prevent vaccine deterioration and sticking to the side of the vial. Examples: gelatin, albumin, sucrose, lactose, MSG, glycine.
- **Residuals:** Remains of vaccine production process. Examples: formaldehyde, antibiotics (Neomycin), egg protein, yeast protein.

See our website (www.Baby411.com, click on “Bonus Material”) for a list of ingredients for the routine childhood vaccination series.

Q: Why is aluminum in vaccines?

Now that the mercury (thimerosal) saga is coming to an end, anti-vaccine crusaders have come up with a new bad guy: aluminum. Yes, trace amounts of aluminum salts are used in some childhood vaccines. Here's all you need to know (and more) about aluminum.

Bottom line: We are not worried about it.

Aluminum is everywhere. It's the most common metal in our earth's crust. So it is naturally present in our water, soil, and even in the air. Fruits, vegetables, nuts, flour, cereal, dairy products, and yes, even baby formula and breast milk ... all contain some aluminum. Do you wear antiperspirant? It's in there, too. To avoid aluminum exposure, you'd have to quit wearing antiperspirant ... and basically leave the planet.

Why is aluminum used in vaccines? Aluminum enhances the immune system's response to the vaccine. It's been used safely for several decades. By using aluminum salts, some inactivated vaccines require fewer booster shots for the body to mount an adequate immune response.

Are there any health concerns with aluminum in vaccines? No. There is significantly less aluminum in vaccines than what babies are exposed to in the environment. Both the National Vaccine Program Office and the World Health Organization have determined that the aluminum content in the childhood vaccination series is safe.

Does aluminum poisoning cause autism? No. People with aluminum poisoning have bone problems (osteomalacia) and anemia, as well as neurologic issues. These include memory loss, fatigue, depression, behavioral changes, and learning impairment. Aluminum also has been proposed as the cause of Alzheimer's Disease. To date, however, there is little evidence that aluminum causes that disorder.²¹

How much aluminum is in vaccines? Very little. If your baby follows the standard immunization schedule, he is exposed to about four to six milligrams (mg) of aluminum at six months of life. By comparison, he's also exposed to 10 mg of aluminum if he is breastfed, 40 mg if he is fed cow's milk-based formula, or 120 mg if he is fed soy formula. None of these are very large amounts, by the way. To put things in perspective, there are about 200 mg of aluminum in a standard antacid tablet. In fact, the average adult ingests seven to nine milligrams of aluminum every day. Here's a look at how much aluminum is in breast milk/formula, compared with vaccines:

Amount of aluminum exposure (milligrams per liter)²²

Product	Amount of aluminum
Breast milk	0.01–0.05 mg/L
Cow's milk-based infant formula	0.06–0.15 mg/L
Soy-based infant formula	0.46–0.93 mg/L
Pprevnar vaccine	0.125 mg/dose
DTaP vaccine	0.17–0.625 mg/dose
HIB vaccine	0.225 mg/dose
Hep A vaccine	0.225–0.25 mg/dose
Hep B vaccine	0.25–0.5 mg/dose
DTaP/IPV/HIB vaccine	1.5 mg/dose

Is it a good idea to space out vaccinations that contain aluminum salts? No. Since aluminum-containing vaccines do not cause any health risk, separating or spacing out these vaccines has no benefit. In fact, there is a risk to spacing out the vaccines—your baby will go unprotected against real vaccine-preventable disease.

Reality Check: If vaccines contain ingredients like aluminum or formaldehyde, wouldn't it be better if vaccine makers got rid of these additives? Shouldn't vaccines be “greener”?

This is a red herring argument against vaccines—current vaccines are safe, even with tiny/trace amounts of preservatives or additives like aluminum. And your baby is exposed to many of these ingredients every day ... simply by eating or breathing.

Q: Why is formaldehyde in vaccines?

Small amounts of formaldehyde are used to sterilize the vaccine fluid so your child doesn't get something like flesh-eating Strep bacteria when he gets his shots. We know when you think of formaldehyde, you think of that ever-present smell wafting from the anatomy lab in high school. But what you probably don't know is that formaldehyde is also a naturally occurring substance in your body. And if you use baby shampoo, paper towels or mascara, or have carpeting in your home, you've been exposed to formaldehyde. The small amount used in vaccines is not a health concern.²³

Q: Is it true that anti-freeze is used in vaccines?

No. Antifreeze has never been a component of vaccines. Antifreeze products commonly contain either ethylene glycol or propylene glycol. A product with a similar name, polyethylene glycol (PEG), is used in the production process to purify vaccines. PEG is not antifreeze! PEG is also found in medications, toothpastes, laxatives, lubricant eye drops, and various skin care creams.

Q: Is it safer to delay vaccines or use an alternative vaccination schedule?

Easy answer: No. The CDC publishes a recommended vaccine schedule for American children. Many, many doctors, scientists, and researchers work together with the CDC to decide what is the best timing to give shots. The goal: Protect babies as soon as it is safe and effective to do so. This schedule was not created out of thin air.

Between anti-vaccine activists shouting "too many shots, too soon" and Dr. Bob Sears hawking his book, new parents wonder if it would somehow be safer to wait on shots altogether or stagger them out on "Dr. Bob's schedule."

Here's a nasty little truth about alternative vaccination schedules: They are all fantasy. There is absolutely no research that says delaying certain shots is safer. Dr. Bob is making up "Dr. Bob's Schedule" all by himself. He even admits that. In an interview with iVillage, he commented, "My schedule doesn't have any research behind it. No one has ever studied a big group of kids using my schedule to determine if it's safe or if it has any benefits."

A 2010 study actually did evaluate children whose vaccinations were delayed and found absolutely no difference in their development compared with children who had received their shots on time. I'd much rather follow a schedule that has been extensively researched for both safety and effectiveness by experts in the field of infectious diseases.

What we do know about alternative vaccination schedules is that delaying shots is playing Russian roulette with your child. The simple truth is that you are leaving your child unprotected, at a time when she is the most vulnerable.

We realize that parents who choose to delay or opt out on vaccines are not bad parents. They are scared parents. What we are trying to help you realize is that the fear you should have is for the diseases that vaccines prevent. If you are on the fence about vaccinations, please take the time to research the disease—and talk to your child's doctor.

Q: If I want to do a staggered vaccination schedule, how should I do it?

I suggest setting up a consultation with your own pediatrician to discuss what both of you feel comfortable with doing. Remember, the ultimate goal is to have your child vaccinated in a timely manner.

Q: Didn't the government concede that vaccines caused a child's autism?

During the equivalent of a class action lawsuit against the government (called the "Omnibus Autism Proceedings"), one child, Hannah Poling, received a monetary settlement. The court did not hear her case. Hannah's case was being reviewed to serve as one of the test cases for a suit to represent 5,000 families who believe vaccines caused their child's autism.

During the review process, it was determined that Poling did not represent a test case because she had a rare, underlying genetic mitochondrial disorder that caused her deterioration and autism. For rare kids like her, any stress could have caused her to deteriorate. This is the equivalent of being born with an aneurysm, a ticking time bomb that could go off at any moment. Although she was not diagnosed prior to being vaccinated, experts recommend that even children with known mitochondrial disorders still be vaccinated.

Bottom line: The government did NOT concede that vaccines cause autism in the Poling case.

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Hepatitis B Vaccine

What You Need to Know

Many Vaccine Information Statements are available in Spanish and other languages. See www.immunize.org/vis

Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite www.immunize.org/vis

1 What is hepatitis B?

Hepatitis B is a serious infection that affects the liver. It is caused by the hepatitis B virus.

- In 2009, about 38,000 people became infected with hepatitis B.
- Each year about 2,000 to 4,000 people die in the United States from cirrhosis or liver cancer caused by hepatitis B.

Hepatitis B can cause:

Acute (short-term) illness. This can lead to:

- loss of appetite
- diarrhea and vomiting
- tiredness
- jaundice (yellow skin or eyes)
- pain in muscles, joints, and stomach

Acute illness, with symptoms, is more common among adults. Children who become infected usually do not have symptoms.

Chronic (long-term) infection. Some people go on to develop chronic hepatitis B infection. Most of them do not have symptoms, but the infection is still very serious, and can lead to:

- liver damage (cirrhosis)
- liver cancer
- death

Chronic infection is more common among infants and children than among adults. People who are chronically infected can spread hepatitis B virus to others, even if they don't look or feel sick. Up to 1.4 million people in the United States may have chronic hepatitis B infection.

Hepatitis B virus is easily spread through contact with the blood or other body fluids of an infected person. People can also be infected from contact with a contaminated object, where the virus can live for up to 7 days.

- A baby whose mother is infected can be infected at birth;
- Children, adolescents, and adults can become infected by:
 - contact with blood and body fluids through breaks in the skin such as bites, cuts, or sores;
 - contact with objects that have blood or body fluids on them such as toothbrushes, razors, or monitoring and treatment devices for diabetes;
 - having unprotected sex with an infected person;
 - sharing needles when injecting drugs;
 - being stuck with a used needle.

2 Hepatitis B vaccine: Why get vaccinated?

Hepatitis B vaccine can prevent hepatitis B, and the serious consequences of hepatitis B infection, including liver cancer and cirrhosis.

Hepatitis B vaccine may be given by itself or in the same shot with other vaccines.

Routine hepatitis B vaccination was recommended for some U.S. adults and children beginning in 1982, and for all children in 1991. Since 1990, new hepatitis B infections among children and adolescents have dropped by more than 95%—and by 75% in other age groups.

Vaccination gives long-term protection from hepatitis B infection, possibly lifelong.

3 Who should get hepatitis B vaccine and when?

Children and adolescents

- Babies normally get 3 doses of hepatitis B vaccine:

1st Dose:	Birth
2nd Dose:	1-2 months of age
3rd Dose:	6-18 months of age

Some babies might get 4 doses, for example, if a combination vaccine containing hepatitis B is used. (This is a single shot containing several vaccines.) The extra dose is not harmful.

- Anyone through 18 years of age who didn't get the vaccine when they were younger should also be vaccinated.

Adults

- All unvaccinated adults at risk for hepatitis B infection should be vaccinated. This includes:
 - sex partners of people infected with hepatitis B,
 - men who have sex with men,
 - people who inject street drugs,
 - people with more than one sex partner,
 - people with chronic liver or kidney disease,
 - people under 60 years of age with diabetes,
 - people with jobs that expose them to human blood or other body fluids,



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- household contacts of people infected with hepatitis B,
- residents and staff in institutions for the developmentally disabled,
- kidney dialysis patients,
- people who travel to countries where hepatitis B is common,
- people with HIV infection.
- Other people may be encouraged by their doctor to get hepatitis B vaccine; for example, adults 60 and older with diabetes. Anyone else who wants to be protected from hepatitis B infection may get the vaccine.
- Pregnant women who are at risk for one of the reasons stated above should be vaccinated. Other pregnant women who want protection may be vaccinated.

Adults getting hepatitis B vaccine should get 3 doses—with the second dose given 4 weeks after the first and the third dose 5 months after the second. Your doctor can tell you about other dosing schedules that might be used in certain circumstances.

4

Who should not get hepatitis B vaccine?

- Anyone with a life-threatening allergy to yeast, or to any other component of the vaccine, should not get hepatitis B vaccine. Tell your doctor if you have any severe allergies.
- Anyone who has had a life-threatening allergic reaction to a previous dose of hepatitis B vaccine should not get another dose.
- Anyone who is moderately or severely ill when a dose of vaccine is scheduled should probably wait until they recover before getting the vaccine.

Your doctor can give you more information about these precautions.

Note: You might be asked to wait 28 days before donating blood after getting hepatitis B vaccine. This is because the screening test could mistake vaccine in the bloodstream (which is not infectious) for hepatitis B infection.

5

What are the risks from hepatitis B vaccine?

Hepatitis B is a very safe vaccine. Most people do not have any problems with it.

The vaccine contains non-infectious material, and cannot cause hepatitis B infection.

Some mild problems have been reported:

- Soreness where the shot was given (up to about 1 person in 4).
- Temperature of 99.9°F or higher (up to about 1 person in 15).

Severe problems are extremely rare. Severe allergic reactions are believed to occur about once in 1.1 million doses.

A vaccine, like any medicine, could cause a serious reaction. But the risk of a vaccine causing serious harm, or death, is extremely small. More than 100 million people in the United States have been vaccinated with hepatitis B vaccine.

6

What if there is a serious reaction?

What should I look for?

- Look for anything that concerns you, such as signs of a severe allergic reaction, very high fever, or behavior changes.

Signs of a severe allergic reaction can include hives, swelling of the face and throat, difficulty breathing, a fast heartbeat, dizziness, and weakness. These would start a few minutes to a few hours after the vaccination.

What should I do?

- If you think it is a severe allergic reaction or other emergency that can't wait, call 9-1-1 or get the person to the nearest hospital. Otherwise, call your doctor.
- Afterward, the reaction should be reported to the Vaccine Adverse Event Reporting System (VAERS). Your doctor might file this report, or you can do it yourself through the VAERS web site at www.vaers.hhs.gov, or by calling **1-800-822-7967**.

VAERS is only for reporting reactions. They do not give medical advice.

7

The National Vaccine Injury Compensation Program

The National Vaccine Injury Compensation Program (VICP) is a federal program that was created to compensate people who may have been injured by certain vaccines.

Persons who believe they may have been injured by a vaccine can learn about the program and about filing a claim by calling **1-800-338-2382** or visiting the VICP website at www.hrsa.gov/vaccinecompensation.

8

How can I learn more?

- Ask your doctor.
- Call your local or state health department.
- Contact the Centers for Disease Control and Prevention (CDC):
 - Call **1-800-232-4636 (1-800-CDC-INFO)** or
 - Visit CDC's website at www.cdc.gov/vaccines

Vaccine Information Statement (Interim) Hepatitis B Vaccine

2/2/2012

42 U.S.C. § 300aa-26

Office Use Only



Keys to Successful Breastfeeding

Practice skin-to-skin care to help breastfeeding get started

- Place baby skin-to-skin on your chest as soon as possible after delivery.
- Keeps baby warm and medically stable.
- Helps baby start breastfeeding.
- Father can care for baby skin-to-skin if mother is not available.

Keep baby with you in your room

- Snuggle skin-to-skin with mom or dad whenever possible.
- Turn down offers to have your baby in the nursery at night.
- Staying together helps you get to know baby and learn breastfeeding.
- Builds confidence in breastfeeding before you go home from the hospital.
- Get a nap during the day when baby is napping.

Breastfeed frequently

- Follow your baby's feeding cues, not the clock.
- Feed whenever your baby show signs of hunger.
- Let baby finish nursing on the first breast before offering the second breast.
- Avoid a pacifier. Ask the staff to show you other ways to comfort your baby.



Plan to feed only breast milk

- Frequent breast feedings help prevent engorgement and helps establish a full milk supply.
- If it is medically necessary to give additional feedings to your baby, use your milk first. Seek help with manual expression or pumping if needed.
- Avoid bottles. The staff can show you how to use other feeding methods if a supplement is medically necessary.

Ask for help with breastfeeding

- It is normal to feel awkward or uncomfortable at first.
- Ask for the staff to help if it hurts to breastfeed or your nipples are getting sore.
- Learn where to get help with breastfeeding concerns before you go home.

*Washington County
Breastfeeding Coalition*

<http://www.livinghealthywc.org/Breastfeeding.html>

Duplicate as needed 3/2013

LivingHealthy
IN WASHINGTON COUNTY

We Support You!

Choosing to breastfeed is made easier when others offer their encouragement and support.

These resources will help get breastfeeding off to a great start:

- ♥ Find a **healthcare provider** that will support you in your breastfeeding efforts—this will make any challenges you face easier to tackle.
- ♥ Attend a **breastfeeding class** at your local hospital, clinic or WIC clinic—this will help you get some basic knowledge of breastfeeding.
- ♥ Connect with **La Leche League** (www.llli.org). Meetings are offered monthly in your community. Attending a meeting while you are pregnant is beneficial. Connect with a local Group and Leader who can offer you ongoing support when you arrive home.
- ♥ Visit the Living Healthy website at: www.livinghealthywc.org/Breastfeeding.html. The **Breastfeeding Resource List** will provide you with local resources that will support your breastfeeding relationship every step of the way.

How can I offer encouragement and support to the breastfeeding women in my life?

Partners: Let your wife or partner know that you are happy she made the choice to breastfeed because it is the healthiest choice for her and the baby. Tell her you are proud of her commitment to breastfeeding and ask what you can do to help.

Grandparents: Take a breastfeeding class to learn more about breastfeeding and how you can support your daughter/in-law as she learns to breastfeed. Encourage her to breastfeed wherever she is comfortable.

Friends: Help your friend ignore negative comments or attitudes toward breastfeeding and focus instead on the health benefits. Tell her you will be her “middle of the night” help if she has difficult times.

Neighbors: Let new parents know you’re available if they need help. Prepare a meal for the family. If there are other children in the home, offer to take them for an afternoon or evening to give the parents a break.

Employers: Let your employees know you support them and will follow regulations on providing breaks for women who are breastfeeding. Call Washington County Department of Public Health and Environment at 651-430-6655 to learn how to set up a lactation room for employees.

Child Care Providers: Take a breastfeeding class to learn more about breastfeeding and handling breast milk. Welcome mothers who want to breastfeed their babies during the work day. Follow the mother’s request to use only breast milk and avoid giving formula to her baby.

Washington County Breastfeeding Coalition

<http://www.livinghealthywc.org/Breastfeeding.html>

Duplicate as needed 3/2013

Breastfeeding



*A healthy choice
for*

**Washington County
Breastfeeding Coalition**

whose mission is to promote, support and protect breastfeeding through education, outreach, and collaboration within our community.

We envision a community where breastfeeding is the norm and where families are supported and empowered to achieve their breastfeeding goals.

Breastfeeding: A Healthy Choice for Everyone!

The American Academy of Pediatrics recommends:

- ♥ infants be breastfed for at least 12 months and thereafter for as long as mutually desired.
- ♥ babies do not need anything but breast milk for the first six months of life.
- ♥ breastfeeding should be continued after solid foods are introduced during the middle of the first year of life.



Best for Babies

Breastmilk:

- ♥ promotes optimal brain development and physical growth.
- ♥ provides antibodies to protect babies from infections and diseases.
- ♥ provides protection from allergies.
- ♥ promotes oral health.

Research shows breastfed babies are:

- ♥ less likely to become obese/overweight.
- ♥ less likely to suffer from recurrent ear infections.
- ♥ less likely to be hospitalized for respiratory conditions.

Best for Moms

- ♥ Breastfeeding has been shown to lower a woman's risk of breast and ovarian cancer.
- ♥ It may help some women lose their "baby weight" faster.
- ♥ Breastfeeding saves time since there is no need to buy and mix formula or warm up bottles.



Best for Families and Communities



- ♥ Breastfed babies are generally healthier than babies who are formula-fed.
- ♥ Since breastfed babies tend to be healthier, their parents need less sick leave to stay home and care for them.
- ♥ This translates into lower health care costs for families and employers.

Returning to Work or School

Enjoy the weeks at home

- Just enjoy being with baby. Let go of concerns about returning to work.
- Focus on getting breastfeeding off to a good start. Learn hand expression, a useful skill.
- Plan to take as much maternity leave as possible.

Plan your return to work

- Plan where you can pump and store milk at work, and how often. Get tips from other moms.
- Negotiate with your employer for break time. Both Minnesota and Federal law protect a mother's right to pump breast milk at work. Breastfed babies mean fewer sick days.
- Find a baby-friendly day care provider who knows how to support breastfeeding moms.
- Get the best double breast pump you can afford. Learn where to get replacement parts.
- Have someone besides mom introduce the bottle, but not too early. Wait until baby is at least three weeks old.
- Practice pumping at least two weeks before you return to work. Practice once in the morning. Freeze any milk obtained. Don't worry if you do not get much at first.

Keep Your Milk Supply

Breastfeed when you are with your baby. Reserve bottles for when you are at work.

Breastfeed often at home and at night. Keep your supply stable by nursing frequently on your days off.

If you cannot pump at work, continue breastfeeding at home. Any amount of breast milk is worth giving to your baby! Frequent breastfeeding can help keep up your supply.

Simplify Your Work Routine

Plan a happy departure and homecoming. Prepare everything the night before: what to wear, lunch, baby's bottles, pump kit, ice packs. Get to bed early and plan to wake up early. Breastfeed before you leave the house. Take advantage of any opportunities to breastfeed at daycare and again after work. Once home, relax and breastfeed before plunging into tasks. More breastfeeding, less pumping.

Simplify pumping. Plan to pump at least twice in an eight-hour work day, or about every three hours away from baby. Double pumping takes a lot less time. After pumping, just rinse and store in a zippered bag, then wash everything at home. Consider leaving a second pump kit at work.

Reduce Stress

Take time to nurture yourself. Find time for a relaxing bath, or a good book. Talk to friends. Discuss breastfeeding issues with supportive people. Find new breastfeeding friends.

Ask for support. Do not try to do everything by yourself. Talk with your family about how they can help take care of the baby...and the chores. Organize family life so that it works for you, too.



Washington County Breastfeeding Coalition

<http://www.livinghealthywc.org/Breastfeeding.html>

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Living Healthy
IN WASHINGTON COUNTY

Newborn Hearing Screening

FACT SHEET



What is newborn hearing screening?

Newborn hearing screening is a test that checks babies for hearing loss in the range where speech is heard. It is one of three newborn screens that should take place soon after birth, along with blood spot and pulse oximetry screening.



Blood spot
screening



Pulse
oximetry
screening



Hearing
screening

Why is hearing screening important?

It's important to identify any problems with hearing as soon as possible because speech and language begin to develop at birth. A child with hearing loss may have difficulty with speech and language without early help. If a baby has hearing loss, it is usually not noticeable to parents or providers because many babies with hearing loss startle to loud sounds and even appear to listen. Screening with follow-up testing is the **only** way to find hearing loss early. Learning that your baby has hearing loss at an early age will help you and your baby find the best ways to communicate.

How and when will my baby's hearing be screened?

Unlike hearing tests for older children and adults, newborn hearing screening does not require active participation from your baby. Instead, a small screening device will play soft sounds while it measures how your baby's inner ear or hearing nerve responds. The two methods currently in use for newborn hearing screening are otoacoustic emissions (OAE) and automated auditory brainstem response (AABR). *See backside for more details.*

Screening should be performed as soon as possible and is best completed before your baby is one month old. If your baby is born in a hospital, the initial screen should be performed before you and your baby go home. Hearing screening is best performed when your baby is calm, well-fed, and comfortable.

What do the results mean?

If your baby receives a PASS result, the screening indicates that your baby's hearing is normal at that time. Because hearing loss can occur at any time during a person's life, however, it is important to discuss any concerns about hearing loss or missed speech milestones with your baby's provider.

If your baby receives a REFER result, the screening indicates that further testing is needed to make sure that your baby is hearing all the sounds that are important for speech and language development. Your provider will help you arrange an appointment for follow-up as soon as possible.

Newborn Screening

FACT SHEET

Got a smart phone
or other device?

Scan here to get even
more information at
your fingertips!



What is newborn screening?

Newborn screening is a set of tests that check babies for serious, rare disorders. Most of these disorders cannot be seen at birth but can be treated or helped if found early. The three tests include blood spot, hearing, and pulse oximetry screening.



Blood spot screening checks for over 50 rare but treatable disorders. Early detection can help prevent serious health problems, disability, and even death. The box on the right lists the disorders screened for in Minnesota.



Hearing screening checks for hearing loss in the range where speech is heard. Identifying hearing loss early helps babies stay on track with speech, language, and communication skills.



Pulse oximetry screening checks for a set of serious, life-threatening heart defects known as critical congenital heart disease (CCHD). If detected early, babies with CCHD can often be treated with surgery or other medical interventions.

When will I get my baby's results?

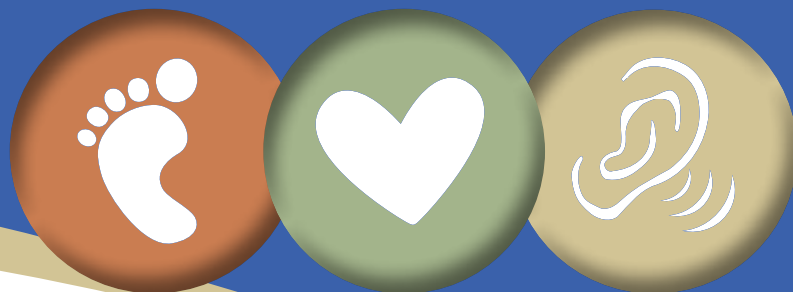
Your baby's hearing and pulse oximetry screen results will be available on the same day of screening. Be sure to ask your birth provider or the person performing the screen to discuss them with you.

The blood spot screening process takes a few days, but your baby's primary care provider will contact you as soon as possible if the results suggest a problem. The first well-child visit is also a good time to talk to your baby's primary care provider about results.



Blood spot screening checks babies for:

Arginemia
Argininosuccinate acidemia
Beta ketothiolase deficiency
Biotinidase deficiency
Carnitine acylcarnitine translocase deficiency
Carnitine palmitoyltransferase deficiency (2 types)
Carnitine uptake defect
Citrullinemia (2 types)
Congenital adrenal hyperplasia
Congenital hypothyroidism
Cystic fibrosis
Dienoyl-CoA reductase deficiency
Galactokinase deficiency
Galactosemia
Galactosemia
Galactosemia
Glutaric acidemia (2 types)
Hemoglobinopathy variants
Homocystinuria
Hypermethioninemia
Hyperphenylalaninemia
Isobutyryl-CoA dehydrogenase deficiency
Isovaleric acidemia
Long-chain hydroxyacyl-CoA dehydrogenase deficiency
Malonic acidemia
Maple syrup urine disease
Medium-chain acyl-CoA dehydrogenase deficiency
Medium-chain hydroxy acyl-CoA dehydrogenase deficiency
Medium-chain keto acyl-CoA thiolase deficiency
Methylmalonic acidemia (3 types)
Multiple CoA carboxylase deficiency
Phenylketonuria
Primary T-cell lymphopenias
Propionic acidemia
Severe combined immunodeficiency
Short-chain acyl-CoA dehydrogenase deficiency
Short chain hydroxy acyl-CoA dehydrogenase deficiency
Sickle cell disease
Sickle-C disease
S-beta thalassemia
Trifunctional protein deficiency
Tyrosinemia (3 types)
Very long-chain acyl-CoA dehydrogenase deficiency
2-Methyl-3-hydroxybutyric acidemia
2-Methylbutyryl-CoA dehydrogenase deficiency
3-Hydroxy-3-methylglutaryl-CoA lyase deficiency
3-Methylcrotonyl-CoA carboxylase deficiency
3-Methylglutaconyl-CoA hydratase deficiency



What happens to the remaining blood spots and results after screening?

Following newborn screening, test results and any leftover blood spots are stored to allow for follow-up testing, if needed. Stored blood spots and test results are also used for general program operations, such as making sure screening is accurate, improving test methods, and developing new newborn screening tests. They are not used for research or public health studies without the parent's written informed consent.

Parents have options regarding the storage of their child's blood spots and test results. You may request that your child's blood spots and results be destroyed, or you may request to obtain the blood spots through your child's primary care provider at any time. You may also choose to allow your child's blood spots and results to be used for public health studies or research. Ask your provider or visit the Newborn Screening Program website for forms and instructions on how to request these options and for the most up-to-date storage and use practices.

What personal information is written on the screening card and sent to the Minnesota Department of Health (MDH)?

The newborn screening card that is sent to MDH for testing contains only the information about mom and baby that will help staff interpret test results and contact your baby's primary care provider if more testing or follow-up is needed. This includes, but is not limited to, baby's name, date of birth, time of birth, mom's name, and the name of baby's primary care provider or clinic.

Can I refuse screening for my baby?

Yes. If you do not want your baby screened, you must complete the *Parental Refusal of Newborn Screening* form. You can ask your birth provider for a copy of the form or download it from the Newborn Screening Program website. You may also choose to arrange for blood spot screening through a private laboratory.

For more information on newborn screening:

Minnesota Newborn Screening Program

www.health.state.mn.us/newbornscreening

MN Early Hearing Detection & Intervention Program

www.improveehdi.org/mn

Save Babies Through Screening Foundation

www.savebabies.org

Baby's First Test

www.babysfirsttest.org



Got a smart phone
or other device?

Scan here to get even
more information at
your fingertips!



How do OAE and AABR work?

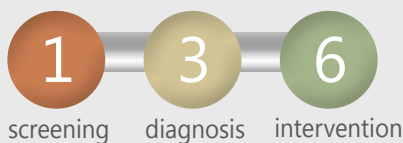
With OAE, a soft rubber tip placed in each ear delivers gentle tones and measures the echo that occurs when the ear is functioning normally. With AABR, earphones deliver the test sounds. Sensors placed on the baby's head and neck measure how the baby's hearing nerve responds to those sounds. For both OAE and AABR, a computer measures whether the result is a PASS or a REFER (not pass).

Early Hearing Detection and Intervention Program

The Early Hearing Detection and Intervention (EHDI) program assists in identifying newborns and infants who have or are at risk for having hearing loss and guides families to appropriate intervention services.

The goals of the EHDI program are for all babies to have:

- hearing screened before 1 month of age
- diagnostic evaluation before 3 months of age
- early intervention services initiated before 6 months of age



Minnesota's EHDI program website provides resources for parents, providers, and other professionals. Parents can learn about the EHDI process, find materials to help guide them through hearing loss identification and intervention, and locate hearing specialists and education resources in their area. The site also offers information to help parents connect with locally-available family and community support systems.

HAVE YOU HEARD?

EVERY YEAR, ABOUT
1 IN 300 BABIES
IN MINNESOTA IS BORN
WITH A HEARING LOSS
THAT CAN BE FOUND
THROUGH NEWBORN
HEARING SCREENING.



More questions about screening?

Feel free to call the Newborn Screening Program
at (800) 664-7772 or visit us online at
www.health.state.mn.us/newbornscreening
or www.improveehdi.org/mn



After 5 years of age, check-ups are recommended every year.

*The influenza vaccine is recommended for all children on a yearly basis beginning at 6 months of age.

Recommended Physical Exam & Immunization Schedule

Newborn	Hepatitis B
1 Month	
2 Months	Pediarix, Hib, Prevnar, Rotarix
4 Months	Pediarix, Hib, Prevnar, Rotarix
6 Months	Pediarix, Prevnar, Influenza*
9 Months	
12 Months	Prevnar, Hep A, MMR, Varicella
15 Months	DTaP, Hib
18 Months	Hep A
2 Years	
30 Months	
3 Years	
4 Years	ProQuad
5 - 6 Years	Kinrix
11-12 Years	Tdap, Menveo, Gardasil (2 doses of Gardasil at least 6 months apart. If the Gardasil series begins at age 15 or above, a total of 3 doses will be needed).
16-18 Years	Menveo

Pediarix	DTaP, Polio, and Hepatitis B
DTaP	Diphtheria, Tetanus and Pertussis (for children 6 yrs and under).
IPV	Inactivated Polio Virus
Hib	Haemophilus Influenza B (this is not the flu shot).
Prevnar	Pneumococcal Conjugate
MMR	Measles, Mumps and Rubella
Varivax	(Varicella) Chickenpox
Tdap	Diphtheria, Tetanus and Pertussis (for children 10 yrs and older).
Menveo	Meningococcal
ProQuad	Measles, Mumps, Rubella & Chickenpox
Rotarix	Rotavirus
Gardasil 9	Human Papilloma Virus
Kinrix	Diphtheria, Tetanus, Pertussis and Inactivated Polio Virus
Influenza	Influenza (Flu)