

The Pediatric Primer

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***A MEDICAL ENCYCLOPEDIA
FOR CARING FOR SICK
AND WELL CHILDREN***

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*The Pediatric Primer:
A Medical Encyclopedia for Caring for Sick and Well Children*

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Foreword

As a pediatrician, I am privileged to participate in a child's healthcare and medical needs. However, I recognize that I have no right to force a family to comply with what is considered the standard of care. My responsibility is to provide information to families that will empower them to make educated decision about the health and wellbeing of their child.

There will always be new information with updated recommendations about healthcare illness and wellness. I advise caution when considering any new information. Changes to the recommended standard of care may be based upon early studies that considered results from only limited numbers of participating children. While these studies may produce interesting observations, true scientists would be the first to state that there is no statistical significance without much greater numbers of study trials.

Always use common sense and intuition, ask questions, and keep a healthy skepticism when recommendations change regarding your child's healthcare.

Michael W. Simon, MD
November 2018

General Information for a New Parent

Well-Child Visits and Vaccinations

Well-child visits occur regularly throughout childhood, beginning when an infant is five days old. These visits will typically include growth and blood pressure measurements, and more time than is needed will be scheduled so that the pediatrician can review the child's growth and development, look for signs of disease, and answer any questions from parents.

Appointments should be scheduled well in advance to accommodate work and school schedules. Recommended visit schedules are as follows:

Five days of age: Assessments for weight, feeding, urinary and stool frequency. Examination for heart murmur, jaundice, and infection, and inspection of circumcision when applicable.

Two weeks of age: Assessments for weight, height, head circumference, feeding, urinary and stool frequency. A complete examination will occur. Probiotic and vitamins may be started by some physicians.

Two months of age: Assessments for growth, weight, height, head circumference, urinary and stool frequency. Evaluation of development and a complete examination will occur. Vaccinations will include Acellular DPT, Hib, polio, and Prevnar.

Four months of age: Assessment for growth, weight, height, head circumference, urinary and stool frequency. Evaluation of development and a complete examination will occur. Vaccinations will include Acellular DPT, Hib, polio, and Prevnar.

Six months of age: Assessment for growth, weight, height, head circumference, urinary and stool frequency. Evaluation of development and a complete examination will occur. Vaccinations will include Acellular DPT, Hib, hepatitis B, Prevnar, and Influenza.

Nine months of age: Assessment for growth, weight, height, head circumference, urinary and stool frequency. Evaluation of development and a complete examination will occur. The Hepatitis B vaccination will be given.

12 months of age: Assessment for growth, weight, height, head circumference, urinary and stool frequency. Evaluation of development and a complete examination will occur. A blood test will check for anemia and lead exposure. The Hepatitis A will be given, as well as the Hepatitis B vaccination unless the first dose was received in the hospital when the child was a newborn.

15 months of age: Assessment for growth, weight, height, head circumference, urinary and stool frequency. Evaluation of development and a complete examination will occur. Vaccinations will include Hib, Prevnar, and MMR.

18 months of age: Assessment for growth, weight, height, head circumference, urinary and stool frequency. Evaluation of development and a complete examination will occur. The Acellular DPT and polio vaccinations will be given.

Two years of age: Assessment for growth, weight, height, head circumference, urinary and stool frequency. Evaluation of development and a complete examination will occur. Blood pressure will be checked. Techniques for potty training will be discussed, and the Hepatitis A vaccination will be given.

Three years of age: A complete examination will include growth assessment and measurements of weight and height. Blood pressure will be checked, and development will be evaluated, including an assessment of potty training.

Four years of age: A complete examination will include growth assessment and measurements of weight and height. Blood pressure will be checked, and development will be evaluated, including an assessment of potty training. The Acellular DPT, polio, MMR, and chickenpox vaccinations will be given.

Five years of age: A complete examination will include assessment for growth, measurements of weight and height, evaluation of development, and checking of blood pressure. Hearing will also be screened, and the chickenpox vaccination will be given.

Six years of age to 26 years of age: Annual checkups will include growth and weight measurements to assess growth, as well as blood pressure readings. Age-appropriate development will be evaluated. The Tdap booster will be given at 11 years of age and repeated every five years. The meningitis vaccination for types A, Y, C, and W-135 will be given at 11 and 16 years of age. The HPV vaccination to prevent against certain types of cancer may begin between the ages of 9 and 26. The Meningitis B vaccination will be given at 17 years of age, with a booster administered six months later. The influenza vaccination will be given annually, beginning at six months of age.

Sick Visits

During sick visits, the pediatrician will address only the immediate illness, with questions concerning normal development delayed until the next well-child visit. The doctor's office should be contacted early in the morning, as soon as the office has opened, to minimize wait times. Children sick with a fever should not be sent to daycare or school.

Telephone Calls

During Office Hours

The doctor's office receives a high volume of phone calls every day. The office staff typically reviews a child's problem over the phone and answers any questions that a parent may have. These discussions and any messages left will be reviewed by the doctor, nurse practitioner, or physician's assistant, after which additional instruction may be relayed by office staff to the parents. Minor illnesses may be handled over the phone, though many illnesses will require the child to come into the office for an evaluation before treatment recommendations can be made.

After Office Hours

Routine questions, such as those regarding feeding, medication doses, and growth and development, should be reserved for regular office hours. Alternatively, most health insurance companies now have a medical reference toll-free line listed on the back of the insurance card that is available as a resource for non-urgent questions and advice. If a child becomes ill and requires medical evaluation in the evening or on weekends, parents should refer to the pediatrician's after-hour care instructions.

Fees and Payments

The doctor's office may itemize charges for each visit by the specific care and tests performed. Parents will receive a copy of this statement listing the total charges and the amount paid. Charges and fee schedules can be explained and discussed by the office staff. Depending on the child's insurance health carrier, payment may be expected at the time of the visit. Offices can typically work out specific arrangements for payment when necessary.

Medical Records

Medical records for patients previously but not currently receiving medical care from a physician may be stored offsite. It may take from one week up to one month for the doctor's office to retrieve information from the stored

records. Past patients who need medical information should provide the physician as much time as possible to secure the material.

Continuity of Care

To provide the best medical care, it is critical that a child's pediatrician evaluate the child for both well and sick visits. It may occasionally be appropriate for a child to be seen after hours at an urgent care facility depending on illness severity, though in most circumstances a pediatrician will be able to see the child either the same day or early the next day.

Families who live far away from their regular pediatrician may find it more convenient to see a closer doctor to home for sick visits. In this case, it's recommended that all care be switched by that physician nearer to home so that medical care isn't diluted among many facilities, which can be dangerous and may delay the diagnosis of serious illness.

A child's pediatrician may occasionally refer the child to a specialist for further evaluation. The pediatrician will make these arrangements and will provide chart notes to the specialist upon their request. Before the appointment, the pediatrician often prefers to discuss the specialist referral with parents to ensure that appropriate care is received from the best specialist.

The Newborn

It is normal for new parents to be unsure of their skills, even if they have read parenting books. A baby that is loved, well-fed, and cared for does not mind that its parents are not childcare experts. Temperament varies greatly from child to child, and even healthy, normal babies will have both good and bad days. With guidance and time, new parents will become accustomed to their baby's differing moods and will develop a comfortable and confident relationship with their baby.

Feeding

Feeding provides an infant with nutrition, oral gratification, emotional fulfillment, and a pleasant physical experience. Once satisfied, most babies are ready to sleep and should be put to bed, while some may fuss before sleeping.

A baby's early feeding efforts might be frustrating and appear inadequate. Babies, like mothers, go through a lot during birth and tend to rest and recover for their first 3 to 4 days of life.

Human breast milk is designed to best meet a baby's nutritional needs. Formulas are man's best attempt to duplicate mother nature.

Babies are typically fed on a three-hour schedule in the hospital. However, they are not usually hungry on this schedule. Once at home, a newborn may feed every 2 to 3 hours for several feedings, and may then sleep for up to six hours. This is perfectly acceptable and the baby will not starve during this time. Babies usually work themselves into a predictable feeding routine within their first 3 to 4 weeks at home.

Babies suck for nutrition, but also for nurturing, to relax and go to sleep. If allowed, babies may continue to suck on their mother's breast, causing nipple soreness and bleeding, or to overeat from a bottle and throw up.

A pacifier may be offered to a baby after a feeding if the baby still wants to suck. Pacifiers come in different shapes and sizes, and parents may need to try several before finding the specific pacifier their baby prefers.

Parents may benefit from dividing the day into two time periods: from 8 a.m. to midnight, and from midnight until 8 a.m. The goal can be for babies to be awake more and feed more during the daytime, saving their deep sleep for the evening. Under this regimen, a baby who has been sleeping for three hours in the daytime should be woken, changed, played with, and offered a feeding. A cold, wet washcloth can be used to wipe the baby's face and chest to provide stimulation. After midnight the baby should be allowed to sleep, and should be fed only when waking on their own.

Babies often initially feed 2–3 times after midnight before getting into a better routine. Half of all babies, including those that are breastfed, may sleep through the night by the age of 4 weeks.

Breastfeeding

Breastfeeding is the natural way of feeding an infant. However, new moms are often concerned about their ability to supply the correct nutrition and volume of breast milk. Initially, breastfeeding will require patience. Nursing is usually easier at home and in a familiar, quiet surrounding where it is less likely to be interrupted.

Some babies grasp the nipple when it touches their cheek, but most are sleepy and will need help getting started. A mother should get into a comfortable position before nursing, either sitting or lying on her side. She should hold the nipple between her second and third fingers so that it protrudes, and then touch it to the baby's cheek. The baby's rooting reflex usually causes it to turn towards the nipple and grasp it in the mouth.

Expressing a small amount of milk before the baby begins to nurse can give the baby a taste and increase its interest for feeding. It can also make the areola less tense and easier to place in the baby's mouth. Mothers should try to get as much of the areola as possible the baby's mouth to minimize sore nipples.

New mothers should initially begin nursing for about three minutes on each side until her milk supply develops. Breastmilk will usually become more readily available by the second to fifth day after the baby's birth, depending on the difficulty of the birth.

Previous research reported that once the milk supply was established, a baby would consume approximately 50% of the supply within the first three minutes of feeding, and 80% of the supply within the first five minutes. However, lactation experts recommend that an infant feed for 20 minutes per side to receive the hindmilk.

It may take a breast two hours to fill up after a feeding. A baby that feeds more frequently than once every two hours is likely grazing, taking in enough milk to feel satisfied but not getting full. This can result in the baby feeding more often while consuming less and less per feeding. Babies taking their mother's expressed milk or formula in a bottle can develop the same pattern.

To prevent nipple soreness, suction should be broken with the finger or knuckle when terminating breastfeeding.

Until the breastmilk develops, a creamy-looking substance called colostrum will be produced and released for the baby's nutritional needs. It is a highly nutritious, low-volume breast secretion. Colostrum prepares the infant's digestive tract for milk, acts as a laxative, and contains immunity-builders.

Stimulation of the breast promotes the breastmilk supply to develop. While breastmilk will look thin and watery, like skim milk, it contains all the necessary nutrients for a baby with the exception of certain minerals and vitamins which will be given as a supplement.

When the breastmilk supply develops, a tingling sensation across the breast will occur, followed by a heavy sensation in 6–8 hours. Mothers may initially overproduce the volume of breastmilk and experience leaking. It may take several weeks for a balance to be achieved.

Breastmilk is digested more easily and emptied more quickly from a baby's stomach than formula. As a result, breastfed babies may want to be fed more often than babies receiving formula.

Supplemental Feedings

If necessary, babies may be offered supplemental formula feeding until the breastmilk supply is well established, which can be up to several weeks after birth. An elemental formula like Alimentum, or a soy-based product like Isomil sensitive soy, may be recommended for supplementation. It is recommended that babies not receive a formula based on cow's milk for at least the first three days of life. If the baby has 3–6 wet diapers a day, is gaining weight, and seems content, it is getting enough milk per feeding. A benefit

of supplemental formula feedings is that it allows other family members, including the dad, to more actively participate in the baby's care. It also allows the mother rest and mental breaks.

Once the milk supply is well-established, mothers may begin to pump breastmilk for supplementation. Pumping is effective when done between feedings, at least two hours after a feeding has been completed. Pumping is not as effective as nursing, so mothers shouldn't worry if only a small volume is expressed.

While expressed milk in the refrigerator should be discarded if not completely used within 36 hours, expressed milk stored in a thoroughly-washed container in the freezer will last up to nine months. Frozen expressed milk should be thawed by first moving it into the refrigerator for several hours, and then by holding it under warm running water or putting it in a bowl of warm water until it thaws.

Mother Care

Nursing a baby puts extra stress on a mother's body. A mother must get a lot of rest and try to nap at least once a day. She should not try to keep up with housework, laundry or shopping, and visitors should be kept to a minimum until the baby is well-adjusted and following a routine.

A nursing mother must double her fluid intake and avoid coffee, tea, soda, and sweets, which can agitate or stimulate the baby. Every mother and baby differ, and a mother may find that certain foods she consumes cause her baby to have gas and discomfort. Mothers should avoid or minimize eating cabbage, Brussels sprouts, beans, highly seasoned and spicy foods, citrus fruits, chocolate, and anything that upsets her stomach. For some babies, the mother's intake of cow milk and dairy products may cause G.I. upset. It's worthwhile for mothers to keep a food and beverage diary tracking any association between mother's intake and baby's fussiness, keeping in mind that it may take 4–6 hours for what she consumes to appear in breastmilk.

The mother should avoid taking medications while nursing. The baby's pediatrician should be contacted during office hours before any medications are used.

Developing breastmilk robs a mother's body of the nutrients it needs. She should focus on eating a well-balanced diet and continuing her prenatal vitamins. A poor diet can result in a tired mother with less milk, and consequently a fussy and demanding baby.

Self-confidence and patience are very important to successfully nursing, and it frequently takes several weeks to establish a regular nursing routine. As mother and baby relax, the mother's self-confidence will increase and she will feel tremendously satisfied.

Nipple Care

Most nursing mothers experience some nipple tenderness and find it helpful to use a product like lanolin ointment for several weeks after lactation begins. Shorter, five-minute interval feeding may be easier on the nipples. If nipples become tender, they should be exposed to air between feedings by wearing a nursing bra with the flaps down. Bra liners with plastic should be avoided, as they prevent air from getting to the nipples.

Heat on the nipples, for instance by sitting in front of a heat lamp for 5–10 minutes, may also reduce discomfort.

Mothers can wear a clean cotton handkerchief or gauze tucked inside your bra to catch leaking milk. Nipples should be cleansed with water, but frequent use of soap will dry out the nipples and should be avoided.

Bottle Feedings

All feedings should be a pleasant experience for both baby and feeder. When feeding from a bottle, the feeder should sit in a comfortable chair and hold the baby close, face-to-face. The baby should be held upright and burped after each feeding, or more frequently if the baby has gas problems. If a burp does not come easily, the baby laid on its stomach and have its back rubbed and patted, and then returned to a sitting position while having its back stroked and patted again. It is not uncommon for a baby to spit up some formula or breastmilk during burping.

The baby should never be left unattended with a bottle propped up. The baby should also not be put to bed with a bottle, as this may contribute to serious tooth decay in later months and can lead to sleep problems and ear infections.

Formula

Parents should pay attention to how much formula a baby wants. Overfeeding leads to obese babies who spit up frequently. A baby may initially consume

a quarter ounce to two ounces of formula per feeding. This will gradually increase to 6–8 ounces per feeding by the time a baby is four months old. For most infants, 28–32 ounces of formula per day is sufficient.

Every pediatrician has a preferred formula. Soy formula and predigested formula is easier to digest than cow milk formula.

Formulas come in powder, concentrate and read-to-feed preparations. Once prepared, it may be used immediately or safely stored in the refrigerator for up to 36 hours. The 32-ounce, recloseable ready-to-feed bottle of formula requires no mixing and is the most convenient formula for preparing bottles. This size bottle will usually provide a 24 to 36 hour supply of formula before another bottle must be opened. The most popular preparation is the 13-ounce concentrated formula, which requires the addition of 13 ounces of water to bring the mixture to a normal dilution for use. The most economical preparation is the powdered form of formula, which can easily be mixed for each individual feeding or for a full day supply.

Mothers often switch their infants from breastmilk or infant formula to cow's milk before their baby's first birthday. This is not recommended, as cow's milk does not supply the balanced nutrition a baby needs to promote normal growth and development during its first year of life. It is recommended that a baby continue to receive either breastmilk or formula for a full year, and that milk should not be changed without first consulting the baby's doctor.

Types of Bottles

Conventional glass bottles, hard glass bottles, and plastic bottles are all available with various nipple designs and have advantages and disadvantages. The Playtex nurser system and Dr. Brown's bottle with a bend tend to result in babies swallowing less air. Parents will find through trial and error their baby's preferred nipple design, which will then influence their decision when purchasing bottles. Parents should use the type of bottle that is most convenient and economical for a family's specific needs, while producing the greatest satisfaction for the baby.

Sterilization

If proper precautions are used, sterilization of bottles and nipples is not necessary. All parts the bottle and nipple should be carefully washed and rinsed

to ensure that no dry milk residue remains. They may be effectively disinfected by running them through a dishwasher.

Infant formula or expressed breastmilk must be handled properly. If the milk has been warmed and partially fed, any remaining milk may be promptly refrigerated. If it has been out of the refrigerator for over 30 minutes, it should be discarded.

If milk has been warmed for less than 30 minutes, it may be stored in the refrigerator and reheated for an additional feeding. After the second feeding, any leftover formula or expressed breastmilk should be discarded.

Solid Foods

The Academy of Pediatrics now recommends waiting until a baby reaches at least 6 months of age before introducing solid foods, but delayed no longer than 7 months of age to avoid the child developing pickiness.

However, babies may be introduced to stage I foods at 4 months of age, offered stage II foods at 6 months of age, and stage III foods at 9 months of age. As the stages increase, foods progress from being homogenized or blended to becoming bite-sized. By the time a child reaches one year of age, their digestive capabilities are working at peak efficiency and they may be given regular table foods with several exceptions for choking precautions.

Vitamins

Infants grow most rapidly during the first 4–6 months of their life. The next time they grow this rapidly is during puberty. Both breastmilk and formulas may vary or be deficient in certain trace elements, minerals, and in the case of breastmilk, iron. Vitamin supplements provide babies with these components that they need to promote growth and development. It is important to begin vitamins as early as two weeks of age.

Probiotics

Probiotics help to fortify the gastrointestinal tract with “good bacteria,” which has been shown to promote overall good health, reduce colic and eczema, promote brain development, reduce illness, and both reduce the need for

antibiotic and speed recovery time when illness occurs. Babies may begin receiving probiotic supplements as early as two weeks of age.

There are numerous probiotics on the market today. For young infants up to one year of age, it's important to ensure the probiotic is free of any cow milk protein residue. The best probiotics will contain bifidobacterium and/or Lactobacillus. BioGaia drops and Soothe drops are made specifically for babies, and five drops can be given once per day until the child reaches their first birthday.

Bathing and Skin Care

An infant should be sponge-bathed until their cord has separated, which generally occurs around 10–14 days of age. A mild, non-perfumed baby soap, such as a Dove bar soap, should be used.

The baby should be placed on a towel and either lathered or wiped off with a soapy washcloth. A baby's face may also be washed with a washcloth, but soap should be avoided near the eyes. The baby should then be rinsed with a washcloth that is wet with water only. All supplies should be ready in advance to speed the process and reduce chilling.

After the baby's cord has come off, the baby may be bathed in a small tub in water that is just slightly warm to the touch. The baby's head should be lathered gently, working from front to back to keep soap out of the eyes. Oil should never be used on their skin, as it clogs the pores and can cause rashes.

Bathing tends to dry out a baby's skin, so does not need to occur every day. Creams or lotions may be used on a baby's red, irritated, and rough skin areas, particularly the creases at the ankles, wrist, knees, elbows, chin, and cheeks. The dryness and peeling typical during a baby's first 3–4 weeks of life will respond well to a moisturizer. Dry skin in older babies responds best to less frequent bathing and a little lotion.

A baby's bottom should be cleansed with a diaper wipe or damp cloth, and should then be allowed to dry for a few minutes before a fresh diaper is applied. Using soap and rinsing with water may be the best way to clean a baby's bottom but is also more time-consuming. When diaper rash occurs, it may be treated with topical products like Calmoseptine or a coating of liquid Maalox, with several layers applied on the bottom and allowed to dry after application of each layer.

A baby's nose and ears should be cleaned only as far as can be reached with a washcloth. Q-tips should not be used anywhere. Eyes may be wiped

out once or twice a day, always wiping from the inside corner of the closed eye outward. A mucus discharge from the eyes is normal over the first 2 to 3 weeks following a baby's birth.

Crying/Colic

Uncertainty when a baby cries is often the most frustrating problem that a new parent will face in the first few weeks following the baby's birth. All babies cry as a way of expressing their needs, but some seem to be fussier than others.

Most babies will have a fussy period during the first few months of life. When the crying begins, a parent's first reaction will be to ensure that the infant is not hungry, wet or injured. After eliminating these possibilities, a baby will usually calm down if held close for a few minutes. Sometimes none of these efforts will help and the baby will scream for hours. Rhythmic motion often helps alleviate some of the crying and can be accomplished by sitting the baby in a stroller or swing, walking with the baby around the house, or taking the baby for a ride in the car. Parents should remember that their baby's crying is not a result of poor parenting, and that they can't make their baby smile all the time.

Colic is a very specific condition suffered by only a small percentage of infants. A baby suffering from colic will generally not have had long crying spells during the first 1–2 weeks of life, but will then suddenly begin to cry loudly and continuously. The infant will stiffen its legs and have a swollen abdomen due to swallowing gas. Crying usually begins about the same time every day, typically in the late afternoon and early evening, lasting 2–5 hours multiple days per week. True colic may suddenly disappear when the baby reaches 2–3 months of age.

Infants with colic will grow and develop normally. All typical techniques should be tried to help soothe the baby and stop the crying. However, parents may need to take breaks from colicky babies, as the baby will sense its parents' tenseness and become more distressed. When colic begins, the baby should be assessed by its pediatrician to confirm that there is nothing else health-related causing its crying.

Stools (Bowel Movements)

Some infants may have a stool after every feeding. Others may have a bowel movement less frequently, from every other day to only once a week.

Breastfed babies will initially have more frequent, looser stools. However, once a baby has a well-established breastfeeding pattern, they may only have a bowel movement once every 2–5 days.

Bottle-fed babies typically settle into a pattern of having a bowel movement as frequently as 2–3 times a day, or as infrequently as every other day. However, this can vary significantly. As long as a baby's abdomen is not bloated or distended and they are not vomiting, there is no need to be worried.

Consistency of stool may range from runny to well-formed. It is perfectly normal for a baby to strain when having a bowel movement, or even to occasionally cry or fuss. Babies should be allowed to establish their own pattern, and should not be given laxatives, suppositories, or enemas.

Fever

It is unusual for infants under three months of age to have a fever, which is defined as 101° or higher when taken rectally. Fever is different from an infant just feeling warm. If an infant does have a fever, this could signify serious illness, and the child should be seen as soon as possible by a pediatrician. The baby should not receive fever or cold medicines unless prescribed by the physician.

Stimulation/"Spoiling"

Parents are the best means of stimulating a baby. Attention and care are more important than expensive toys. Many parents are afraid of spoiling their children, though the truth is that a baby needs its parents' love just as much as it needs food, clothing, and sleep. An infant's ability to trust people and give love is based on the security of its parents' consistent, loving care.

Parents should not worry about holding their baby too much in its first two months of life. While a baby's overwhelming dependence on its parents may be frightening, it will also be very rewarding.

Jaundice

Jaundice is a yellow or orange color to the skin. It is a common part of the transition babies make from living inside mom to outside on their own, and as many as seven out of every 10 newborns will develop some degree of jaundice.

Jaundice is caused by a buildup in the blood and tissues of a yellow pigment called bilirubin. Bilirubin is a byproduct that results from the breakdown of excess red blood cells. Before a baby is born, it has a high red blood cell count to carry their oxygen. However, these excess red blood cells aren't needed once the baby is born, so the spleen breaks them down and dumps the jaundice products into the bloodstream. The liver is initially sluggish, but begins working at peak efficiency around the baby's fourth or fifth day of life converting the jaundice bloodstream products into a form that is removed by bowel movements.

In most cases jaundice does not cause any problems. However, special measures such as phototherapy and extra hydration may occasionally be taken to help the baby eliminate the jaundice.

Circumcision

Circumcision is an emotional topic. The decision for a baby to have a circumcision could be based upon personal preference, cultural reasons, or religious reasons. Uncircumcised males are more likely to have cancer of the penis, contract HIV, and serve as a source of the human papilloma virus (HPV) which can cause cervical cancer in women.

Babies may perceive pain during circumcision, which is noted by changes in their heart rate and blood pressure. However, their perception of pain is duller as a baby than it will be when they grow to become a boy or man. For this reason, it's preferable to perform a circumcision within the first few days of life if that is the parents' preference.

When circumcision is performed on an infant, topical or local anesthesia may be used. When circumcision is delayed it typically occurs after the first birthday, and more substantial or general anesthesia may be administered.

Positioning and SUID

The risk of any child having sudden unexpected infant death (SUID) is low—between 2–3 in 1,000 young babies. However, SUID is devastating when it does occur.

There are a number of risk factors that can impact an infant's chance of having sudden unexpected infant death. The factor that is most controllable is an infant's sleep position. It has been observed and reported that babies who sleep on their stomachs are more likely to rebreathe their exhaled air,

which increases their body's carbon dioxide level and can consequently turn off the breathing control center at the base of the brain. As a result, a baby may stop breathing and not be rescuable. For this reason, it is recommended that infants sleep on their back.

Other measures have been shown to help reduce the occurrence of SUID, including use of a pacifier, which stimulates the breathing control center, and use of a fan to circulate air, which reduces chances of rebreathing exhaled carbon dioxide. Parents who share a bed with their infant also increase the risk of SUID through suffocation.

Common Characteristics of Newborn Babies

1. **Noisy breathing:** Most babies will make a rattle sound when they breathe, which parents may think is a cold. However, if the child is exhibiting no other signs of illness, there is no reason for concern. Babies normally have mucus in their noses but can have trouble clearing it. Excess mucus may be removed with nasal saline and a nasal suction bulb or aspirator. Babies may also cough or sneeze as a measure to clear out the mucus.
2. **Sneezing:** Babies may sneeze repetitively. This is likely an attempt to clear mucus out of the nose, rather than a signal that the baby is catching a cold or has allergies.
3. **Hiccups:** Babies frequently have hiccups as a result of spasm of an immature diaphragm. A baby may have hiccups felt by mother before being born. As the baby's diaphragm matures, the hiccups will slow and stop. Babies are generally not bothered by hiccups, but if the baby appears fussy, rhythmic sucking and swallowing will stop them. Hiccups may also stimulate brain development.
4. **Spitting Up:** During the first few days of life, a baby will spit up as a way to remove extra fluid and mucus in the stomach. It is not unusual for some babies to spit up milk with feedings. As long as a baby is gaining weight well and is thriving, spitting up is more of a nuisance than a health concern. However, if the spitting becomes forceful or projectile, or the baby is not gaining weight, an underlying health concern may exist and the baby's pediatrician should be contacted.
5. **Reddening of the Face and Straining with Bowel Movements:** Most babies will visually show their difficulty passing a bowel movement. Babies are initially inefficient in coordinating the physical requirements of having a bowel movement, which includes closing the back of the mouth with the tongue, closing the vocal cords, and relaxing the pelvic muscles. As long

as the stool is soft, the baby is not constipated. Bowel movements will become easier for babies to produce as they become more physically active and more coordinated.

6. **Swollen Breasts and Vaginal Bleeding:** Both male and female babies frequently experience swelling of the breast tissue, and female babies often have some vaginal discharge during the first several weeks of life. These occurrences are related to stimulation of tissue by mother's hormones passed during pregnancy and in her breast milk. They gradually disappear with no intervention.
7. **Cold, Blue Hands and Feet:** A baby's hands and feet are often cold to the touch and blue in color. This is a common occurrence related to the control of blood flow to the extremities, and does not mean the baby is cold. Color and temperature will gradually improve over the first year of life as the nervous system's control of blood flow matures. This is only a concern if a baby is outside in a blizzard, at risk of cold stress and frostbite.
8. **Dry Skin:** Dry, flaky skin for the first several weeks of a baby's life is normal and usually requires no treatment. A lotion like Cetaphil may be applied to moisturize the skin. Areas where the skin bends, like the wrist and ankles, may be susceptible to cracking and bleeding. If this occurs, a thicker product like Aquaphor should be applied to these areas.
9. **Birthmarks:** Babies may be born with a collection of red, mottled spots on the back of their neck and on their eyelids. These spots are a collection of superficial blood vessels that fade with time, typically by the first birthday. Infants with darker skin may be born with a brown or black area at the base of their spine, called Mongolian spots, that may be confused for bruising, and that may not completely fade until adolescent years. It is important to document these spots in the baby's medical chart with photographs to show that they have been present since birth and are not recent bruises from injury or abuse.
10. **Puffy Eyes:** Many infants will have puffy eyes for up to a week after birth as a result of extra fluid in their system. This swelling is transient and not of concern.
11. **Facial Rashes:** Rashes on the face are common in the first few months of a baby's life. Most are caused by blocked pores or irritation to the infant's skin. The best treatment is keeping affected skin areas clean and dry. The baby's pediatrician should be contacted if the rash persists.
12. **Bowed Legs/Curved or Turned Feet:** The legs of a newborn are typically bowed from their curled-up position during months of pregnancy. Their feet may turn inward or outward for the same reason. Unless severe, this

positioning does not need special shoes or bars for correction, and as the baby starts to stand, bear weight and walk, their muscle strength will improve and their feet and legs will straighten. Improvement will occur over the first several years of life.

13. **Newborn Jitters:** Most infants easily startle and may jerk when disturbed. This is a normal and at times vigorous reflex that may involve the arms, legs, and chin.
14. **Weight loss:** Newborns may lose as much 10% of their birth weight during their first few days of life. This weight loss is not related to how well or poorly a baby is feeding, but rather to elimination of excess water that was retained in the womb. This excess water will be released through urination.
15. **Soft Spot (“Fontanelle”):** All babies have several soft spots, which allow the head to change shape when passing through the birth canal. The largest of the soft spots is located on the top of the baby’s head and may take up to 18 months to close over completely. Smaller soft spots are located on the back of the head and may close more quickly. Soft spots are covered by a thick membrane, so touching or pushing it will not hurt the baby. They may at times seem to pulsate, which is normal and caused by blood flowing through the blood vessels deep under it.
16. **Umbilical Hernia/”Outie” Belly Button:** It is normal for babies to have an umbilical hernia. Before birth, a small opening in the baby’s abdominal muscle wall allows blood vessels to pass from the cord to the deep organs of the baby’s body. This serves as a baby’s lifeline while in the uterus. Once the cord falls off after birth, the muscle wall slowly grows together and the hernia disappears. For most infants, this process is complete by the first birthday. For most of the others it will be completely closed over by four years of age.
17. **Sleeping:** Sleep requirements will vary from child to child, just as it does for adults. Infants may sleep as many as 20 out of every 24 hours, and may regularly fall asleep during feedings. By 3 to 4 weeks of age, babies will have more and longer wakeful periods.

Safety Tips for Newborns

1. Never leave a baby of any age on an unguarded elevated surface, such as a counter or changing table. When the baby is on the elevated surface, the parent should face the baby and form a barrier with their body.

The parent should keep a hand on the baby if looking away, to stop any movement before the baby can fall.

2. Do not leave a baby unsupervised in the middle of any bed.
3. Infants in a seat or carrier, even if buckled in, should be placed on the floor if left. Babies can tip over an infant seat or carrier.
4. Do not put a baby, even if in an infant carrier, on the high shallow child seat of a grocery cart. The baby should instead be placed in the deeper and more protected section of the cart.
5. Babies should sleep in their own beds or bassinets, and never with another person. Babies sharing a bed may be suffocated or roll out of the bed.
6. Keep stuffed animals, pillows and bumper pads out of a baby's bed.
7. The baby's mattress should fit its bed tightly, without big gaps along the sides.
8. Do not use safety pins around a baby. If their use is necessary, close them immediately upon removal from clothing.
9. Do not allow any type of plastic bag around a baby.
10. Keep long hair tied back when holding the baby to prevent hair strands from becoming twisted around fingers or toes.
11. All children should be kept in an approved car seat of an appropriate size for the child. The child's car seat should have wide straps over the chest and shoulders, as well as the lower part of the body. Be sure that the car seat is properly installed, preferably in the second row, directly behind the driver. A child should ride facing the rear for the first two years of life, and should never be allowed in the passenger seat under the age of 12.
12. Install and routinely check smoke and carbon monoxide detectors.
13. All household cleaners, medicines, poisons and plants should be kept far out of a child's reach. It is truly amazing how far a child will go to get a forbidden object. For easy access, the poison control center's phone number should be listed on the fridge and in parents' cell phones.
14. Limit visitors over the first few weeks of an infant's life. Mothers need rest, and mothers and babies need uninterrupted time to establish their breastfeeding pattern. When visitors do arrive, the baby should be kept in a separate room, with only one or two visitors allowed to see the baby at a time. All visitors must be healthy. Visitors can visit with older children before visiting the new baby, which will allow parents control, prevent overstimulation for the baby, and offer older children some attention. Visitors will often bring a gift for the new baby but nothing for older

- siblings; parents may want to keep small gifts available to give to older children when visitors leave the house.
15. A baby's room temperature should be kept between 68–72°. Plenty of sunshine and fresh air are healthy for mother and baby. Try not to overdress the baby; a general rule of thumb is that a baby should be dressed in one layer more than its parents are wearing. If it is very hot outside, a baby only needs a diaper and undershirt. For sleeping, parents may consider using a sleep sack or a sleeper instead of a blanket.
 16. Cribs: To safety-proof a crib, the slats must be less than 2 3/8 inches apart, the sides must be at least 26 inches above the mattress, and there should not be anything in the crib to help the baby climb out and over the top. No strings or cords should be dangling, and the mattress should be firm and tight-fitting. No plastic sheeting or pillows should be put in the crib. When a child reaches two years of age, a pillow may be placed under the fitted sheet for head elevation.

Common Problems for Children

Fever

Parents often call their pediatrician stating that their child has a “high fever.” A fever by itself is not a disease; it is a sign of an illness or process that may affect a child.

The normal rectal temperature of an infant will range from 97.8–100.6°. By definition, a child does not truly have a fever until their temperature is at least 101°, and fever does not cause brain damage unless it is above 108°.

There is very little correlation between the height of the fever and the seriousness of the illness, and high fevers don't necessarily indicate a bacterial infection. A child may have a fever of 105° and be playing normally with a roseola virus infection, or may have a normal body temperature but appear very ill with appendicitis. A child who is active with a temperature of 101° or greater is most likely not seriously ill.

The look of a child is typically more indicative of illness than fever. Pediatricians try to reduce a fever because it may make the child feel better and improve fluid intake. For a child six months of age or younger, acetaminophen can typically be used to reduce fever. For a child older than six months, ibuprofen can typically be used. Both medicines must only be given in appropriate doses and timing for a child's size and age.

The association between fever and convulsion is another common concern of parents. However, it is not the height of the fever that causes a convulsion, but rather how rapidly the body temperature rises. Fever-induced, or “febrile,” seizures are more likely to occur in children 6–36 months of age, and in children with family predisposition for seizure. There is no way to prevent a child from becoming ill and subsequently developing a fever. If a febrile seizure occurs, it does not produce any permanent injury or impairment. Depending on the time of day when the seizure occurs, parents should immediately contact their pediatrician in the office or their pediatrician’s after-hours triage service for advice. The seizure may be the first indication of a more serious illness developing.

Colds/URIs

Colds are very common during childhood and caused by a variety of viruses. Typical signs of colds are runny nose, stuffy nose, cough, congestion, and weepy eyes.

Some children seem to always have a cold. This may actually be an allergy disorder rather than a virus.

When a child has a cold, it is best to first try to alleviate and comfort symptoms by elevating a young child or propping up the head of a child older than 2 years, running a cool mist humidifier, and using a bulb suction with saltwater nasal drops. Saltwater drops come commercially prepared, or they can be made at home by adding 1/4 teaspoon of table salt to 1 cup of water. Alternatively, two drops of saline may be instilled in each side of the nose, and then suctioned out after two minutes, once the saline has had time to hydrate and lubricate mucus in the nasal passageway. The child’s healthcare provider should be contacted before cold medications are given.

Teething

Teething is an ongoing process for children throughout their first two years of life. Some babies may be born with teeth, while some children may reach their first birthday without teeth. As early as two months of age, a baby may begin gnawing on their fingers and fist and blowing bubbles, both of which may be early signs of teething. They may also develop two small elevations in the center of their lower gums, which indicate pressure on the gums from the beginning of teething.

Fussiness from teething may come and go with the teething process. A number of teething products are available, including solutions that may be rubbed on the gums for relief. I have found a mixture of one-part Benadryl, one-part Maalox and one-part 2% viscous lidocaine to be the most effective numbing product for the gums. This solution may be prepared by a pharmacist and applied to the gums as often as every two hours with a Q-tip.

If a child has a temperature of 101° or higher or seems ill, symptoms are probably due to an ongoing illness rather than teething.

Vomiting and Diarrhea

Vomiting is the forceful emptying of the stomach through the mouth, and is most commonly caused by a viral illness.

If a child experiences a spell of vomiting, the first step is to stop all food and drinks. Over-the-counter Emetrol at the recommended dose can be given every 15 minutes for 6 doses. The child may throw up the initial doses, but the Emetrol will gradually settle the G.I. tract. After the sixth dose, wait 30–60 minutes before giving the child a dose of Maalox, Mylanta, or Gaviscon to coat the stomach, which will have become inflamed. After another hour, the child can begin receiving clear liquids, and infants may resume breast-feeding. Formula-fed infants may be offered several feedings of Pedialyte followed by a mixture of half formula and half water. Children older than one year of age may be offered clear liquids that include popsicles, Kool-Aid, Jell-O, Jell-O water, ½ strength Gatorade, and flat and diluted Sprite or 7-Up. The day after vomiting has subsided, infants may be fed full-strength formula. Two days after vomiting, children under one year of age may be given bananas and applesauce, and children older than one may receive the BRAT diet (bananas, rice, applesauce, toast).

Zofran and Phenergan should not be given to a child to relieve vomiting unless approved by a child's pediatrician. These medications may delay the diagnosis of a more serious illness, such as meningitis.

Diarrhea is more frequent or watery bowel movements, and may be difficult to distinguish from normal stool patterns in infants. It may be caused by a number of conditions, including overheating, food allergy, too much juice, and may accompany an antibiotic. However, it is usually caused by a viral infection.

Emetrol and stomach coating agents aren't necessary for a child with diarrhea. However, the same dietary restrictions as recommended for

vomiting may be helpful. Experts are divided on whether a medication such as Donnatal, Immodium, or kaopectate should be used to reduce diarrhea, and a child's pediatrician should always be consulted before any medicine is started.

A probiotic given once or twice a day will help a child reestablish the good bacteria in the intestinal tract to promote healing. Zinc supplement has also been shown to promote healing of an inflamed G.I. tract. Older children may be given Zycam or Airborne for several days as a zinc supplement; both of these products are zinc-based products used to treat and reduce cold symptoms.

Children with either vomiting or diarrhea should be monitored for dehydration. Dehydrated infants may have a significantly sunken soft spot. If a child's mouth is moist, they are urinating at least three times a day, and they are producing tears, they are not significantly dehydrated. If there is concern that a child may be dehydrated, their pediatrician should be contacted.

SORE THROAT

Sore throat is a very common illness in children. On average, a child will have 8–12 throat infections every year for their first 4–5 years of life, after which time the number of throat infections will decrease.

Throat infections may be the result of a variety of viruses and bacteria. The most common bacterial causes of sore throat are the group A, C, G and F strep, *Peptostreptococcus*, *fusobacterium* and *Mycoplasma*. It is critically important that group A strep infections be appropriately treated with antibiotic, as untreated group A strep infections may have significant complications including rheumatic fever, glomerulonephritis, and brain inflammation that can produce Sydenham's chorea and PANDAS. Effective treatment of strep throat within a week of symptom onset has been shown to prevent these complications from occurring. Experts are divided on using antibiotic to treat other kinds of bacterial infections. However, data shows that symptoms improve more quickly and with fewer infection complications when using antibiotic treatment.

All infections, both viral and bacterial, benefit from symptomatic measures such as Acetaminophen (Tylenol), Ibuprofen (Motrin) in children six months of age and older, extra fluid intake to maintain hydration, and throat numbing spray for younger children and lozenges for older children.

When a child has a sore throat, it is acceptable to treat initial symptoms and observe the results. If a child does not begin getting better, or if the child becomes progressively more ill, a visit to the child's doctor is warranted.

Ear Infection

While earache has long been a complaint of childhood, the vaccination Prevnar and overall improved healthcare measures have decreased the frequency of ear infections.

Ear infections occur due to congestion changes in the middle ear, which is behind the eardrum. A child with an ear infection may have fever, irritability, and complain of decreased hearing. An earache may not be due to ear pathology, but could be referred pain from a sore throat or swollen gums from teething. Young children may rub or dig at their ears as part of a transition behavior when they are hungry or tired. Earache is not usually an emergency, but should be evaluated within 24–48 hours of symptom onset.

Until seen by their pediatrician, a child with earache may be made more comfortable by giving ibuprofen or acetaminophen, applying heat to the ear, and applying warm drops of sweet or baby oil to the ear to relieve the pain.

A child with earache should be evaluated by a pediatrician before beginning antibiotic treatment. Earache from either a sore throat or teething must be specifically addressed and treated, while specific germs causing an ear infection may respond well to a specific antibiotic.

Some physicians recommend observation and symptomatic treatment before beginning antibiotic. However, this approach could result in a ruptured eardrum from infection, diminished hearing, or hearing loss and infection that spreads to the mastoid bone behind the ear lobe.

Occasionally, fluid may persist behind the eardrum even after the infection is cleared. This can lead to hearing loss and speech problems.

Ingestions

Children grow and develop by experiencing and testing their environment. This occasionally includes tasting, eating or drinking toxic products.

Ingestions are more likely to occur as children get older and are able to maneuver themselves. Holidays and family visits are the most likely times for

accidents to occur, with children getting into medicine, drink, and cleaning supplies cabinets of family members. Various houseplants may also be poisonous if ingested.

If a child has ingested a potentially poisonous material, the local or regional poison control center should be contacted immediately. This number should be kept in parents' cell phones and posted on the refrigerator for easy access.

Immunizations