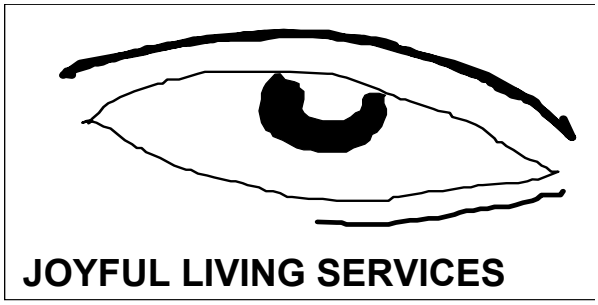

Certified Children's Health Counselor Online Course Instruction Manual

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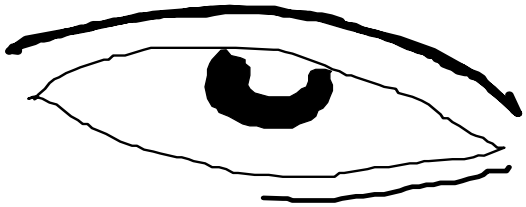

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Certified Children's Health Counselor Online Course Rules & Conditions

1. To be a part of this course you need to print each session. Be sure to write your name, telephone, e-mail address, and shipping address at the top of each page of **the Question and Answer page before you e-mail or fax it back to us for grading. You will receive a Question and Answer session at the end of each session. Fax it back to us at 530-878-1119 or e-mail it to us at iridology@netzero.net. There is no time limit as to when the Question and Answer session must be completed. However, we do recommend that you complete each session within the week you receive it so you do not get behind in the study**.

2. To be eligible for Certification you must complete all 16 sessions of the online course. You also need to let us know that you want to become certified. At the end of the 16 sessions you will be given a test. You must give correct answers to 80% of the questions in **the Test**. Scores are **not** averaged for an overall grade.

3. You must not loan, sell or reproduce this online course in any form. **To do so is cause for expulsion from certification from Joyful Living Services**. This provision is to protect the integrity of the certification. Such protection is further assured by periodic rotating and changing of the questions.

4. You must not edit or share the instruction sessions or test. You must e-mail or fax your Question and Answer session to us as well as the final test where they are maintained as part of your permanent file.

5. In the event of failure: If you should fail the final test, you may repeat the test after a wait of 30 days. There will be a re-examination fee of $15.00 to cover the costs of new materials, regrading and filing. Should you fail on this second attempt, you must then wait 60 days before making a third attempt. These mandatory delays are for the purpose of continuing study and preparation on your part.

6. When you have completed all sixteen sessions and question and answers, you will receive a bound final test. You must fill out the box at the bottom of the First Page of the Test Packet and have it notarized. There is a notarization form provided.

7. There is no time limit on the completion of this Online Course. Most candidates are full-time practitioners with little time to be able to rush through this course. So please take your time and get it correct the first time.

8. You may drop the online course at any time by notifying us. No refunds will be given if the course is dropped in the middle of any given month.

9. If you have any questions at any time, please e-mail your questions to iridology@netzero.net, fax them to 530-878-1119, or call us at 530-878-1119. We will answer your questions and spend as much time as necessary to help answer your questions.

10. The time you need to study and answer the questions for each session will vary on the amount of iridology you already know and understand and the amount of information we decide to send you. Each session can take you anywhere from one-half to three hours but should not take you longer than three hours to study and answer the question and answer.

NOTE: Joyful Living Services reserves the right to change the test questions for any test repeated.

NOTE: All information regarding a candidate's grades, or the fact of any failures, is kept strictly confidential and is not released to any person.

CERTIFIED CHILDREN'S HEALTH COUNSELOR ONLINE COURSE SESSION 1:

- **Course Definition, Course Details, Course Schedule**
- **Let's Start at the Beginning: Birth, Birth Defects, Birth Injuries, and Tests at Birth**

Course Definition

Children's health encompasses the physical, mental, emotional, and social well-being of children from infancy through adolescence. Most parents know the basics of keeping children healthy, like offering them healthy foods, making sure they get enough sleep and exercise and insuring their safety. This course is designed to teach you about children's health including the common diagnosis, treatments, and alternatives available.

Course Details

This course runs for 16 weeks. It contains 16 lessons on the web. The files are in PDF format and are ready to download. You will receive a certificate at the end of this course. There is homework with each session and there is a test at the end of the course. The homework and test will be graded as you turn them in. They will need to be mailed or e-mailed to us. This course is on your own time so you can complete the lessons at your own pace. If you are going on vacation, are ill, or don't have the time every week to read the lesson and complete the homework you will not be penalized. Because this course is online and is on your own time, you are responsible for turning in your homework when it is done. You will receive your certificate once all the homework has been turned in and once your final exam is graded and passed.

Course Schedule

Session 1	Let's start at the Beginning: Birth, Birth Defects, Birth Injuries, and Tests at birth
Session 2	Breastfeeding or Formula, Types of Formula, Mother's Diet, and Supplements
Session 3	To vaccinate or not to vaccinate, Medical or Alternative
Session 4	Illnesses: over-the-counter, prescription, or alternative treatments
Session 5	Mood Changes and Food Allergies: When to move to a gluten free diet
Session 6	How to discipline a child without losing their love: drill sergeants and helicopters
Session 7	Dealing with temper tantrums, causes and tools
Session 8	Teaching children to eat all types of foods/eating disorders
Session 9	Stress: tools to help children deal with daily stress
Session 10	School issues: socializing and communicating
Session 11	Medical and Alternative treatments for learning disabilities: ADD, ADHD, Asperger's Syndrome, Autism, etc. Medical and Alternative views
Session 12	Weight issues, playing outside and playing video games
Session 13	When hormones kick in: Taking care of their own body
Session 14	Sports: how to feed children based on protein/carb needs
Session 15	Teen Issues
Session 16	Final exam, Certification and evaluation

Birth: Deciding On Home Birth versus Hospital Birth

Since the idea of doing things "old school" tend to have an appeal on some people, the idea of giving birth at home rather than at a hospital may pop up as an expectant mother's inquiry. Is there a better method of giving birth between the two? Is one more dangerous than the other? You can find helpful information between home birth and hospital birth to help you make an informed decision.

Why Go With Home Birth?

While the topic of home birth is still hotly debated studies have shown that expecting mothers in optimal health can take advantage of home birth and reap its benefits. Those who choose home birth can have several benefits, including:

- **Minimal medical intervention**. In a home birth, there is only one midwife present to help move the delivery along. In a hospital, the delivery room may be crowded with a multitude of nurses, the delivering doctor, and other medical students and interns. Such an environment can prove to be noisy and uncomfortable during labor. The calm and private environment, with minimum medical intervention, is sometimes preferred.

- **Greater sense of accomplishment.** Many women who chose home birth feel a greater sense of accomplishment because they felt that home birthing was more "natural," as they are done without "exterior" aid, such as drugs and medication. With only a midwife to ensure smooth delivery (versus various nurses), it allows the mother to feel the full responsibility, and the following sense of accomplishment.

- **Quality environment.** The comfort level of home birth is more appealing at an emotional level, as you are surrounded by loved ones and family members rather than medical strangers. Also, you are giving birth in your own home, a familiar environment, minus the medical, harsh ambience of a clinical delivery room. The mother can have control over the lighting, music (if desired), and room temperature.

However, regardless of how healthy the expecting mother is, there should always be a "plan B" of going to the hospital should any medical emergency arise.

Things to Consider For Home Births

- **Absence of emergency medical equipment.** There is no 100 percent guaranteed safe delivery, so in the state of any delivery complications, home birth will not have the proper equipment to rectify the emergency at hand effectively.

- **Not optimal for women over age 35.** Since pregnant women over the age of 35 have a higher risk for miscarriage and birthing complications, home birth may not be optimal for those individuals.

- **Not optimal for multiple gestations.** When a delivery consists of twins, triplets, or more, the multiple babies delivered tend to be at greater health risk versus only one baby per delivery. Women who are expecting more than one baby during the delivery should not consider home birth, but seek hospital birth to ensure safety.

Why Hospital Birth?

According to the American Congress of Obstetricians and Gynecologists (ACOG), the Committee on Obstetric Practice feels that hospitals and birth centers are safer for delivery. Numerous physicians also advocate that hospital births are still at an advantage over home births for various reasons. These may be some factors to think about when deciding on the method of delivery:

- **Caesarian section.** If any potential fetal complications are detected, the physician may choose to perform a caesarian section (C-section) to maximize the baby's survival rate; this procedure cannot be carried out during home birth. Also, women who previously had births via caesarian section will not be able to choose home birth, as it places them at the risk of rupturing the uterus.

- **Mothers with preexisting medical conditions.** Expecting mothers who have preexisting medical conditions should consider hospital birth over home birth. Pregnant women who have hypertension or diabetes can encounter delivery complications that may potentially jeopardize the mother and the baby's life. Women expecting twins, triplets, or more are also not suited for home delivery. Hence, hospital-grade medical attention would be imperial for those women's delivery.

- **Preterm birth.** Women who are expected to deliver before reaching the full term should seek hospital delivery so any potential complications can be rectified easily. The infant can also be immediately taken care of by medical professionals right after delivery.

- **Ability to react to any medical situations.** If any birthing complications were to arise during delivery, the hospital will be well-equipped for prompt reaction toward medical emergencies. They will have all the equipment to ensure the mother and the baby's optimal health, whereas home birth may not necessarily provide the same service.

While this can give some pointers and differences between the two birthing methods, it is still better to consult medical experts on the best suited method of delivery. Indeed, a large part of the decision is ultimately based on the health history of the expectant mother.

The Most Common Types of Birth Defects

One of the things that any expecting parents should be aware of is the possibility of birth defects. These conditions are surprisingly common, even with today's advanced medicine. Although certain steps can help prevent the occurrence of birth defects, they are still unavoidable in some cases.

Definition

Birth defects are structural or functional abnormalities that are present at birth. These conditions cause mental and/or physical disabilities in infants. Some birth defects are relatively minor and can be treated easily. Others may have serious health effects and may even lead to death. Birth defects require surgical or medical treatment, either immediately after birth or later on in life. In some cases, treatment can even occur before birth.

Types of Birth Defects

There are numerous known birth defects, each of which falls into one of two main categories:

Structural

Structural birth defects involve a physical abnormality. Although this generally involves a particular body part, it also includes neural tube defects, which involve problems with the growth and development of the brain and spinal cord. The most common type of structural birth defects is heart defects, which affect about 1 in 150 infants according to KidsHealth.org. Some additional examples of structural birth defects include:

- Cleft palate
- Missing/misshapen valves
- Club foot
- Congenital dislocated hip
- Spina bifida

Functional

This type of birth defect involves a problem with how a body system or body part works. In many cases, these types of birth defects lead to developmental disabilities. Some of the key types of functional birth defects are:

- **Nervous system and brain issues**: Examples include learning disabilities, developmental disabilities, behavioral disorders, speech difficulties, convulsions, autism, and down – syndrome

- **Sensory problems**: Examples include cataracts, blindness, vision problems, hearing loss and deafness

- **Degenerative disorders**: Examples include Rett syndrome, muscular dystrophy and lysosomal disorders. These conditions are sometimes not obvious at birth and may only become apparent as a child's health worsens.

- **Metabolic disorders**: Examples include hypothyroidism and phenylketonuria. These are conditions that affect body processes or chemical pathways.

Causes and Risk Factors

In most cases, there is no one definite cause of a birth defect. A mixture of genetic, behavioral and environmental factors are said to play a role in the development of a birth defect. These can include things like chromosomal irregularities, the mother contracting an infection during pregnancy or a problem in the formation of an egg or sperm involved in fertilization. In some cases, no apparent cause will be present. There are often no obvious health problems present in the parents of a baby with a birth defect.

There are several known risk factors that are linked to birth defects, including:

- A mother taking certain drugs or drinking alcohol while pregnant
- A mother taking certain medications while pregnant, such as isotretinoin
- A mother smoking while pregnant
- A pregnant woman being over the age of 35
- A history of birth defects in the family
- A pregnant woman having diabetes or obesity

It's important to note that although birth defects may occur at any time during a pregnancy, the majority of these conditions occur during the first 3 months of pregnancy. This is the period where the organs of the baby are formed.

Prevention
Although some birth defects cannot be prevented, there are many steps that all pregnant women should take to avoid those birth defects which are preventable. Some key steps to preventing birth defects include:

- Taking 400 mg of folic acid daily. If possible, women should begin taking folic acid at least one month before getting pregnant.
- Not drinking alcohol, smoking or using any illegal drugs.
- Take steps to prevent infection and stay healthy.
- Talking to a doctor about any medications the mother is taking to ensure that they are safe during pregnancy.
- Getting diabetes, obesity or any other problematic health conditions under control before becoming pregnant.

Treatment
Treatment for birth defects can vary widely depending on the specific condition that an infant has. In some cases, diagnosis and treatment can begin before the baby is even born. Some of the defects which may be detected before birth are cleft lip, congenital tumors, Down syndrome and congenital heart defects. Treatment after birth may include anything from surgery to physical therapy to developmental therapy. If you are pregnant or have a child with a birth defect, talk to your doctor about possible treatment options. In many cases, quick and thorough treatment can either cure the defect or make it possible for a baby to live a relatively normal life despite their condition.

Birth Hypoxia... Could It Be Prevented?

Birth hypoxia is known by many other names, like birth asphyxia, intrauterine hypoxia, perinatal asphyxia, hypoxic-ischemic encephalopathy (pronounced: hy-POK-sik is-KEEM-ik en-ceph-al-opathy) (HIE or HIE injury) neonatal asphyxia, neonatal encephalopathy, cerebral hypoxia, and asphyxia neonatorum. The disorder is characterized by a lack of oxygen during the time of a child's birth. This lack of oxygen can lead to serious health problems very quickly; a baby could suffer permanent brain damage from mere seconds without air.

Potential causes of birth hypoxia are: cord prolapse (when the umbilical cord leaves the uterus before the baby), cord occlusion, placental infarction (growth of extra tissue or lesions on the placenta), or a nuchal cord (when the umbilical cord wraps around the newborn's neck). It may also result from excessive maternal sedation by anesthesia, placental abruption, breech delivery (also known as breech birth – when the child comes out of the uterus foot or bottom-first, rather than head-first), uterine rupture or prolonged labor.

Intrauterine growth restriction (IUGR) may be related to hypoxia in some way, although it is unknown whether it is a cause or a result of the disorder. Babies deprived of oxygen at birth are also at increased risk for sudden infant death syndrome (also known as SIDS) and, later in life, epilepsy, attention deficit disorders (ADD or ADHD), other cognitive or developmental delays, and cerebral palsy.

A new treatment is available for sufferers of birth hypoxia called body cooling treatment or head cooling treatment. Infants are kept in intensive care and their body temperature is cooled to 33.5 degree Celsius for 72 hours. This method was thought for years to decease neurologic problems and caused by oxygen deprivation, and a recent study has confirmed this projection. A recent study in a 2012 issue of *The New England Journal of Medicine* concludes, "[h]ypothermia . . . when initiated within 6 hours after birth among infants of more than

35 weeks' gestational age with hypoxic-ischemic encephalopathy, has been shown to reduce the risk of death or disability and increase the rate of survival free of disability at 18 to 24 months of age."

If you or a loved one have recently delivered an infant who suffered a lack of oxygen at birth you may wish to ask your doctor if the baby is a candidate for treatment with hypothermia.

Birth Injury

Birth injury is damage sustained during the birthing process, usually occurring during transit through the birth canal.

- Many newborns have minor injuries during birth.
- Infrequently, nerves are damaged or bones are broken.
- Most injuries resolve without treatment.

A difficult delivery, with the risk of injury to the fetus, may occur when the birth canal is too small or the fetus is too large (as sometimes occurs when the mother has diabetes). Injury is also more likely when the fetus is lying in an abnormal position in the uterus before birth. Overall, the rate of birth injuries is much lower now than in previous decades because of improved prenatal assessment with ultrasonography and because cesarean delivery may be done in certain circumstances.

Head and Brain Injury

In most births, the head is the first part to enter the birth canal and experiences much of the pressure during the delivery. Swelling of the scalp and bruising are common but not serious and resolve within a few days.

Blood may accumulate below the thick fibrous covering (periosteum) of one of the skull bones. This blood accumulation is called a cephalohematoma. Cephalohematomas feel soft and can increase in size initially after birth. Cephalohematomas do not need treatment and disappear over weeks to months.

Fracture of one of the bones of the skull may occur. Skull fractures are very rare. Unless the fracture forms an indentation (depressed fracture), it heals rapidly without treatment.

Bleeding in the brain (intracranial hemorrhage) is caused by the rupture of a blood vessel within the skull. Bleeding in the spaces around the brain results from deformity of the skull bones during delivery or from a lack of oxygen. Bleeding in the brain is much more common among very premature infants. It results from inadequate blood flow to the brain (ischemia) or a diminished amount of oxygen in the blood (hypoxia).

Most infants with bleeding do not have symptoms. But bleeding may cause sluggishness (lethargy), poor feeding, or seizures.

Bleeding can occur in several places within the skull.

- Subarachnoid hemorrhages occur below the innermost of the two membranes that cover the brain. They are the most common type of intracranial hemorrhage, usually occurring in full-term newborns. Newborns with subarachnoid hemorrhages may occasionally have seizures during the first few days of life but ultimately do well.

- Subdural hemorrhages, which occur between the outer and the inner layers of brain covering, are now much less common because of improved childbirth techniques. A subdural hemorrhage can put increased pressure on the surface of the brain. Newborns with subdural hemorrhages may develop problems, such as seizures or high levels of bilirubin in the blood.

- Intraventricular hemorrhages occur into the normal fluid-filled spaces (ventricles) in the brain. Intraparenchymal hemorrhages occur into the brain tissue itself. Intraventricular and intraparenchymal hemorrhages usually occur in very premature newborns and occur more typically as a result of an underdeveloped brain rather than a birth injury.

All newborns who have a hemorrhage receive supportive measures, such as warmth, fluids given by vein (intravenously), and other treatments to maintain body functions, until they recover. Subdural hemorrhages should be treated by a surgeon.

Nerve Injury

Rarely, nerve injuries may occur. Pressure on the facial nerve caused by forceps used to assist delivery or by the fetus's head lying against the mother's pelvis can result in weakness of the muscles on one side of the face. This injury is evident when the newborn cries and the face appears asymmetric. No treatment is needed, and the weakness usually resolves by 2 to 3 months of age.

During a difficult delivery of a large infant, some of the larger nerves to one of the newborn's arms can be stretched and injured. Weakness or paralysis of the newborn's arm or hand results. Extreme movements at the shoulder should be avoided to allow the nerves to heal. Very rarely, the arm remains weak after several weeks. In this case, surgery may be needed to reattach torn nerves.

Occasionally, the nerve going to the diaphragm (the muscular sheath that separates the organs of the chest from those of the abdomen) is damaged, resulting in paralysis of the diaphragm on the same side. In this case, the newborn may have difficulty breathing. Injury of the nerves to the newborn's arm and diaphragm usually resolves completely within a few weeks.

Injuries to the spinal cord due to overstretching during delivery are extremely rare. These injuries can result in paralysis below where the injury occurred. Damage to the spinal cord is often permanent.

Perinatal Asphyxia

Perinatal asphyxia means that there has been some injury to the fetus or the newborn around the time of birth. It results when too little blood flows to the fetus's or newborn's tissues or when there is too little oxygen in the blood. There are many causes, and sometimes the exact cause cannot be identified. Some common causes include the following:

- Abnormal development of the fetus (for example, when there is a genetic abnormality)
- Infection in the fetus
- Exposure to certain drugs before birth
- Pressure on the umbilical cord or a clot in one of the blood vessels in the umbilical cord
- Sudden loss of blood

Asphyxia can also occur if the function of the placenta is inadequate and the placenta cannot provide enough oxygen to the fetus during labor.

Regardless of the cause, affected newborns appear pale and lifeless, breathe weakly or not at all, and have a very slow heart rate. If asphyxia results from rapid blood loss, newborns will be in shock. They are immediately given fluids into a vein and then a blood transfusion. Newborns receive breathing and circulation support as needed. Newborns are kept warm, and blood sugar levels are monitored.

Asphyxiated newborns may show signs of injury to one or more organ systems. Brain function may be affected, and newborns may experience lethargy, seizures, or even coma. Kidney function and the output of urine can be affected by the lack of oxygen but do recover. There may also be problems with the lungs and breathing.

Many survivors will be completely normal, but others will have permanent signs of neurologic damage, ranging from mild learning disorders to delayed development to cerebral palsy. Some severely asphyxiated infants will not survive. Specific causes of perinatal asphyxia should be identified if possible and treated as appropriate. For example, antibiotics are given to treat blood infections, and blood transfusions are given when too much blood has been lost. Recently, it has been shown that cooling the full-term newborn's head for several hours beginning soon after birth offers some protection to the brain from injury and thus diminishes the neurologic damage.

Bone Injury

Rarely, bones may be broken (fractured) during a difficult delivery. A fracture of the collarbone (clavicle) is most common. The upper arm bone (humerus) or upper leg bone (femur) may break during a difficult delivery. However, arm or leg fractures are very unusual. A fractured bone in a newborn is kept from moving as much as possible by use of a sling or cast. Fractures in newborns almost always heal completely and rapidly.

Injury to the Skin and Soft Tissues

The newborn's skin may show some evidence of minor injury after delivery, especially those areas that receive pressure during contractions or emerge from the birth canal first during delivery. Swelling and bruising may occur around the orbits of the eyes and on the face during face-first deliveries and of the scrotum or labia after breech deliveries. Usually, no treatment is needed.

Birth Trauma

Birth trauma (BT) refers to damage of the tissues and organs of a newly delivered child, often as a result of physical pressure or trauma during childbirth. The term also encompasses the long term consequences, often of a cognitive nature, of damage to the brain or cranium. Medical study of birth trauma dates to the 16th century, and the morphological consequences of mishandled delivery are described in Renaissance-era medical literature. Birth injury occupies a unique area of concern and study in the medical canon. In ICD-10 "birth trauma" occupied 49 individual codes (P10-P15).

However, there are oftentimes clear distinctions to be made between brain damage caused by birth trauma and that induced by intrauterine asphyxia. It is also crucial to distinguish between "birth trauma" and "birth injury". Birth injuries encompass any systemic damages incurred during delivery (hypoxic, toxic, biochemical, infection factors, etc.), but "birth trauma" focuses largely on mechanical damage. Caput succedaneum, subcutaneous hemorrhages, small subperiostal hemorrhages, hemorrhages along the displacements of cranial bones, intradural bleedings, subcapsular haematomas of liver, are among the more commonly reported birth injuries.

Birth trauma, on the other hand, encompasses the enduring side effects of physical birth injuries, including the ensuing compensatory and adaptive mechanisms and the development of pathological processes (pathogenesis) after the damage.

Causes

- Cephalo-pelvic disproportion,
- the quick and rapid delivery,
- delayed and prolonged delivery,
- the abnormal birth position,
- asinclitic birth (asinclitismus),
- abnormal fetal attitude (extensor inserting head),
- obstetric turn,
- acceleration and stimulation of the birth,
- breech presentation,
- forceps and vacuum extraction

Risk factors include vacuum extraction and the use of forceps

While any number of injuries may occur during the birthing process. A number of specific conditions are well described. Brachial plexus palsy occurs in 0.4 to 5.1 infants per 1000 live birth. Head trauma during delivery can lead to a number of conditions include: caput succedaneum, cephalohematoma, subgaleal hemorrhage, subdural hemorrhage, subarachnoid hemorrhage, epidural hemorrhage, and intraventricular hemorrhage.
The most common fracture during delivery is that of the clavicle (0.5%).

Brachial Plexus Injury

The brachial plexus is a network of nerves that conducts signals from the spinal cord, which is housed in the spinal canal of the vertebral column (or spine), to the shoulder, arm and hand. These nerves originate in the fifth, sixth, seventh and eighth cervical (C5-C8), and first thoracic (T1) spinal nerves, and innervate the muscles and skin of the chest, shoulder, arm and hand. Brachial plexus injuries, or lesions, are caused by damage to those nerves.

Brachial plexus injuries, or lesions, can occur as a result of shoulder trauma, tumours, or inflammation. The rare Parsonage-Turner Syndrome causes brachial plexus inflammation without obvious injury, but with nevertheless disabling symptoms. But in general, brachial plexus lesions can be classified as either traumatic or obstetric. Obstetric injuries may occur from mechanical injury involving shoulder dystocia during difficult childbirth. Traumatic injury may arise from several causes. "The brachial plexus may be injured by falls from a height on to the side of the head and shoulder, whereby the nerves of the plexus are violently stretched....The brachial plexus may also be injured by direct violence or gunshot wounds, by violent traction on the arm, or by efforts at reducing a dislocation of the shoulder joint".

About Newborn Screening

Newborn screening is the practice of testing every newborn for certain harmful or potentially fatal disorders that aren't otherwise apparent at birth.

Many of these are **metabolic disorders** (often called "inborn errors of metabolism") that interfere with the body's use of nutrients to maintain healthy tissues and produce energy. Other disorders that screening can detect include problems with hormones or the blood.

In general, metabolic and other inherited disorders can hinder an infant's normal physical and mental development in a variety of ways. And parents can pass along the gene for a certain disorder without even knowing that they're carriers.

With a simple blood test, doctors often can tell whether newborns have certain conditions that eventually could cause problems. Although these conditions are considered rare and most babies are given a clean bill of health, early diagnosis and proper treatment can make the difference between lifelong impairment and healthy development.

Screening: Past, Present & Future

In the early 1960s, scientist Robert Guthrie, PhD, developed a blood test that could determine whether newborns had the metabolic disorder **phenylketonuria (PKU)**. People with PKU lack an enzyme needed to process the amino acid phenylalanine, which is necessary for normal growth in kids and for normal protein use throughout life. However, if too much phenylalanine builds up, it damages brain tissue and eventually can cause substantial developmental delay. If kids born with PKU are put on a special diet right away, they can avoid the developmental delay the condition caused in past generations and lead normal lives.

Since the development of the PKU test, researchers have developed additional blood tests that can screen newborns for other disorders that, unless detected and treated early, can cause physical problems, developmental delay, and in some cases, death.

The federal government has set no national standards, so screening requirements vary from state to state and are determined by individual state public health departments. Many states have mandatory newborn screening programs, but parents can refuse the testing for their infant if they choose.

Almost all states now screen for more than 30 disorders. One screening technique, the tandem mass spectrometry (or MS/MS), can screen for more than 20 inherited metabolic disorders with a single drop of blood.

Which Tests Are Offered?

Traditionally, state decisions about what to screen for have been based on weighing the costs against the benefits. "Cost" considerations include:

- the risk of false positive results (and the worry they cause)
- the availability of treatments known to help the condition
- financial costs

So what can you do? Your best strategy is to stay informed. Discuss this issue with both your obstetrician or health care provider and your future baby's doctor before you give birth. Know what tests are routinely done in your state and in the hospital where you'll deliver (some hospitals go beyond what's required by state law).

If your state isn't offering screening for the expanded panel of disorders, you may want to ask your doctors about supplemental screening, though you'll probably have to pay for additional tests yourself.

If you're concerned about whether your infant was screened for certain conditions, ask your child's doctor for information about which tests were done and whether further tests are recommended.

Newborn screening varies by state and is subject to change, especially given advancements in technology. However, the disorders listed here are the ones typically included in newborn screening programs.

PKU

When this disorder is detected early, feeding an infant a special formula low in phenylalanine can prevent mental retardation. A low-phenylalanine diet will need to be followed throughout childhood and adolescence and perhaps into adult life. This diet cuts out all high-protein foods, so people with PKU often need to take a special artificial formula as a nutritional substitute. Incidence: 1 in 10,000 to 25,000.

Congenital Hypothyroidism

This is the disorder most commonly identified by routine screening. Affected babies don't have enough thyroid hormone and so develop retarded growth and brain development. (The thyroid, a gland at the front of the neck, releases chemical substances that control metabolism and growth.)

If the disorder is detected early, a baby can be treated with oral doses of thyroid hormone to permit normal development. Incidence: 1 in 4,000.

Galactosemia

Babies with galactosemia lack the enzyme that converts galactose (one of two sugars found in lactose) into glucose, a sugar the body is able to use. As a result, milk (including breast milk) and other dairy products must be eliminated from the diet. Otherwise, galactose can build up in the system and damage the body's cells and organs, leading to blindness, severe mental retardation, growth deficiency, and even death.

Incidence: 1 in 60,000 to 80,000. Several less severe forms of galactosemia that may be detected by newborn screening may not require any intervention.

Sickle Cell Disease

Sickle cell disease is an inherited blood disease in which red blood cells mutate into abnormal "sickle" shapes and can cause episodes of pain, damage to vital organs such as the lungs and kidneys, and even death. Young children with sickle cell disease are especially prone to certain dangerous bacterial infections, such as pneumonia (inflammation of the lungs) and meningitis (inflammation of the brain and spinal cord).

Studies suggest that newborn screening can alert doctors to begin antibiotic treatment before infections occur and to monitor symptoms of possible worsening more closely. The screening test can also detect other disorders affecting hemoglobin (the oxygen-carrying substance in the blood).

Incidence: about 1 in every 500 African-American births and 1 in every 1,000 to 1,400 Hispanic-American births; also occurs with some frequency among people of Mediterranean, Middle Eastern, and South Asian descent.

Biotinidase Deficiency

Babies with this condition don't have enough biotinidase, an enzyme that recycles biotin (a B vitamin) in the body. The deficiency may cause seizures, poor muscle control, immune system impairment, hearing loss, mental retardation, coma, and even death. If the deficiency is detected in time, however, problems can be prevented by giving the baby extra biotin. Incidence: 1 in 72,000 to 126,000.

Congenital Adrenal Hyperplasia
This is actually a group of disorders involving a deficiency of certain hormones produced by the adrenal gland. It can affect the development of the genitals and may cause death due to loss of salt from the kidneys. Lifelong treatment through supplementation of the missing hormones manages the condition. Incidence: 1 in 12,000.

Maple Syrup Urine Disease (MSUD)
Babies with MSUD are missing an enzyme needed to process three amino acids that are essential for the body's normal growth. When not processed properly, these can build up in the body, causing urine to smell like maple syrup or sweet, burnt sugar. These babies usually have little appetite and are extremely irritable.

If not detected and treated early, MSUD can cause mental retardation, physical disability, and even death. A carefully controlled diet that cuts out certain high-protein foods containing those amino acids can prevent this. Like people with PKU, those with MSUD are often given a formula that supplies the necessary nutrients missed in the special diet they must follow. Incidence: 1 in 250,000.

Tyrosinemia
Babies with this amino acid metabolism disorder have trouble processing the amino acid tyrosine. If it accumulates in the body, it can cause mild retardation, language skill difficulties, liver problems, and even death from liver failure. Treatment requires a special diet and sometimes a liver transplant. Early diagnosis and treatment seem to offset long-term problems, although more information is needed. Incidence: not yet determined. Some babies have a mild self-limited form of tyrosinemia.

Cystic Fibrosis
Cystic fibrosis (CF) is a genetic disorder that particularly affects the lungs and digestive system and makes kids who have it more vulnerable to repeated lung infections. There is no known cure — treatment involves trying to prevent serious lung infections (sometimes with antibiotics) and providing adequate nutrition. Early detection may help doctors reduce the problems associated with CF, but the real impact of newborn screening has yet to be determined. Incidence: 1 in 2,000 Caucasian babies; less common in African-Americans, Hispanics, and Asians.

MCAD Deficiency
MCAD (medium chain acyl CoA dehydrogenase) deficiency is a fatty acid metabolism disorder. Kids who have it are prone to repeated episodes of low blood sugar (hypoglycemia), which can cause seizures and interfere with normal growth and development. Treatment involves making sure kids don't fast (skip meals) and supplies extra nutrition (usually by intravenous nutrients) when they're ill. Early detection and treatment can help affected children live normal lives.

Toxoplasmosis
Toxoplasmosis is a parasitic infection that can be transmitted through the mother's placenta to an unborn child. The disease-causing organism can invade the brain, eye, and muscles, possibly resulting in blindness and mental retardation. The benefit of early detection and treatment is uncertain. Incidence: 1 in 1,000. But only one or two states screen for toxoplasmosis.

Hearing Screening

Most but not all states require newborns' hearing to be screened before they're discharged from the hospital. If your baby isn't examined then, be sure that he or she does get screened within the first 3 weeks of life.

Kids develop critical speaking and language skills in their first few years. A hearing loss that's caught early can be treated to help prevent interference with that development.

Should I Request Additional Tests?

If you answer "yes" to any of these questions, talk to your doctor and perhaps a genetic counselor about additional tests:

- Do you have a family history of an inherited disorder?
- Have you previously given birth to a child who's affected by a disorder?
- Did an infant in your family die because of a suspected metabolic disorder?
- Do you have another reason to believe that your child may be at risk for a certain condition?

How Screening Is Done

In the first 2 or 3 days of life, your baby's heel will be pricked to obtain a small blood sample for testing. Most states have a state or regional laboratory perform the analyses, although some use a private lab.

It's generally recommended that the sample be taken after the first 24 hours of life. Some tests, such as the one for PKU, may not be as sensitive if they're done too soon after birth. However, because mothers and newborns are often discharged within a day, some babies may be tested within the first 24 hours. If this happens, experts recommend that a repeat sample be taken no more than 1 to 2 weeks later. It's especially important that the PKU screening test be run again for accurate results. Some states routinely do two tests on all infants.

Getting the Results

Different labs have different procedures for notifying families and pediatricians of the results. Some may send the results to the hospital where your child was born and not directly to your child's doctor, which may mean a delay in getting the results to you.

And although some states have a system that allows doctors to access the results via phone or computer, others may not. Ask your doctor how you'll get the results and when you should expect them.

If a test result comes back abnormal, try not to panic. This does **not** necessarily mean that your child has the disorder in question. A screening test is **not** the same as diagnostic test. The initial screening provides only preliminary information that must be followed up with more specific diagnostic testing.

If testing confirms that your child does have a disorder, your doctor may refer you to a specialist for further evaluation and treatment. Keep in mind that dietary restrictions and supplements, along with proper medical supervision, often can prevent most of the serious physical and mental problems that were associated with metabolic disorders in the past. You also may wonder whether the disorder can be passed on to any future children. You'll want to discuss this with your doctor and perhaps a genetic counselor. Also, if you have other children who weren't screened for the disorder, consider having testing done. Again, speak with your doctor.

CERTIFIED CHILDREN'S HEALTH COUNSELOR ONLINE COURSE - SESSION 1 QUESTION & ANSWERS

NAME: _____

ADDRESS: _____

CITY, STATE, ZIP, PC: _____

PHONE: _____

FAX: _____

E-MAIL: _____

Please be sure to fill out the information above, complete the test and e-mail or mail it back to us at iridology@netzero.net or P.O. Box 485, Weimar, CA, 95736-0485. We will grade your question & answer session and will let you know if we have any questions or concerns. Please use a separate sheet to do this assignment.

Go online and study Brachial Plexus Injuries. Write a 500 word report on what it is, what causes it, what is done about it, and how many babies are affected with it. How can it be avoided?

Go on the web and research the following birth defects and write about each:

1. Cleft palate
2. Missing/misshapen valves
3. Club foot
4. Congenital dislocated hip
5. Spina bifida

Go on the web and research the following causes and write about each:

1. Cephalo-pelvic disproportion
2. The quick and rapid delivery
3. Delayed and prolonged delivery
4. The abnormal birth position
5. Asinclitic birth (asinclitismus)
6. Abnormal fetal attitude (extensor inserting head)
7. Obstetric turn
8. Acceleration and stimulation of the birth
9. Breech presentation
10. Forceps and vacuum extraction