

NEONATE LECTURE

The newborn is often referred to as a neonate because "neo" means new and "natal" means birth. The neonatal period extends for the first month of life.

At birth, the neonate is no longer completely dependent on its mother for survival. At the beginning of the birth process, the baby's lungs are filled with amniotic fluid. The pressure of being squeezed through the birth canal forces much of this fluid out of the lungs. When the baby emerges, the pressure is released and the lungs automatically expand, causing the baby to take its first breath. A special valve in the heart closes and soon will become permanently sealed. This valve allows blood to now circulate to and from the lungs rather than bypassing them as before.

The umbilical cord is no longer needed. It stops pulsing and begins to shrink. It will be clamped and cut off. The physician may allow the father to cut the umbilical cord so as to help him feel more a part of the birthing process. The part attached to the baby will soon dry up completely and will heal and fall off within two weeks. Before it falls off, it is vital that it is cared for properly to prevent infection. To care for the stump of the umbilical cord, you need to use a cotton swab dipped in rubbing alcohol and clean the skin and area around where the stump is attached to the skin. This should be done each time the neonate's diaper is changed. The top of the neonate's diaper should also be folded down to avoid rubbing against the stump. When the stump falls off a few drops of blood may appear. This is normal.

The newborn's head is proportionately large for its size. It is approximately 1/4 the size of the body. The neonate is not able to fully support his/her own head due to the lack of neck muscle control. (Show the transparency, "Body Proportions" and "Birth Through 6 Months.") The head may appear pointed on the top or lopsided because of its passage through the birth canal. The baby's skull is pliable and can be molded together during birth to make birth easier. Any unusual shape is temporary.

Babies have two fontanel, or open spaces, in the bones of their head. These are often referred to as "soft spots." The largest of these is just above the forehead. The other one is toward the back of the head. These open spaces allow the baby's skull to move together during birth. If the baby does not have these fontanel, the skull must be cut open and repaired surgically. As the baby grows older, the skull grows together and closes the spaces. This begins to happen by about age two but will not become solid until about age 14, to allow for brain growth. (Show the transparency "Fontanel.")

A typical newborn has a short flat nose and a receding chin. This will help him/her to eat by keeping the nose and chin out of the way. The sense of smell is extremely well developed, probably the best developed of all of the senses. One study had several mothers place a cloth between their bra and their skin to pick up the scent of their bodies. After a short amount of time, all of the cloths were presented to all of the babies. The babies clearly responded positively to the cloth that had their own mother's scent on it.

Most neonates' eyes are nearly adult size and are a gray-blue color. Permanent eye color will become apparent over the next several months. The newborn's eyelids will appear to be swollen or puffy. This protects their sensitive eyes. You can imagine what it is like coming from the dark womb into the bright world if you think of how you feel when you come from a movie theater and into the sunshine. The newborn cannot shed tears until about three months of age. It was once believed that newborns could not see. Recent research has found that newborns can see. Their vision is about 20/700. This makes their world seem fairly blurry. Therefore, newborns see best at about 8-12 inches and respond to high contrasting colors. Black and white have the greatest contrast; therefore, newborns like and can see toys and objects made of black and white. The baby's eyesight gradually improves until the baby can see as well as adults.

The neonate's ears are usually close to their heads and one may be higher than the other due to passage through the narrow birth canal. The neonate's sense of hearing is well developed. Because the newborn could hear while in the womb, he/she will respond to his/her mother's voice, as well as the father's voice. Research has also suggested that if the fetus responds one way to one of the parent's voices, it will most likely respond the same way after birth. For example, if when the father talks, the fetus moves around rapidly in the womb, then after the baby is born, it will probably respond in a similar manner. Neonates also tend to like high-pitched sounds or voices.

The neonate's sense of taste is also well developed. Neonates are born with a natural sweet tooth and will prefer sugar water over plain water. Therefore, do not give the newborn sugar water and then expect him/her to eagerly take plain water. It is best to give them plain water, if water is prescribed by a physician. Newborns can also distinguish and prefer breast milk over any other liquid.

A neonate's skin is blotchy. All neonates, no matter their race, are typically born with bright red or pink skin. Circulation by the baby is still being regulated and the fingers and toes may feel cold and appear bluish. There may be areas of peeling if any of the cheesy material that covered the baby's skin before birth still remains. Vernix covered the neonate's body while in the womb to protect it from the amniotic fluid. If there is vernix left on the skin, it should be rubbed into the neonate's skin. It is the best lotion around!

Lanugo, or fine hair found on the neonate's body, may also still be present. It has sometimes been referred to as peach fuzz because that is what it looks like. The lanugo also protects the neonate's skin while in the womb.

Milia are tiny white bumps that look like tiny whiteheads on the neonate. They are caused from vernix clogging the pores in the skin. They should not be bothered and will disappear within two or three weeks. Half of all neonates have milia.

Patches of deep pink skin commonly found on the bridge of the nose, the forehead, and eyelids are called angels kisses. However, if these same rashes are found at the nape of the neck, they are called stork bites. Angels kisses and stork bites are the most common birthmarks found in light-skinned neonates. They usually disappear by the second month.

Mongolian spots look like a large, flat, green-blue bruise on the lower back or buttocks. These are very common in dark-skinned neonates and usually disappear by age 5 or 6.

Many neonates are born with a sucking blister found in the center of the top lip. This is caused from the neonate sucking its thumb, hand, fingers, or lower lip while in the womb. It will heal within a few days. Sucking blisters can appear now and again when the baby sucks a great deal.

Cradle cap is a common condition found in neonates. It looks like crusty patches on the scalp. Cradle cap should be treated by rubbing a small amount of oil on the neonate's scalp 10 minutes before they have a bath. Use a soft brush to gently scrub the scalp while shampooing the hair. Do not put oil on the scalp and leave it there for an extended amount of time: this will clog the pores and make the condition worse.

Some babies are born before the normal prenatal development is complete. The time the fetus spends in the womb is known as gestation. Normal gestation is 40 weeks. Babies born before 38 weeks have a poorer chance of survival. A newborn is labeled premature if he/she is born before 38 weeks gestation. Seven percent of the births in the United States are premature. Due to great advancements in the medical field and modern neonatal intensive care units (NICU), babies born 14-15 weeks early or at six months gestation have a good chance of survival. Premature infants are more likely to have the following conditions and/or problems: cold stress (not enough fat to keep their body temperature up), feeding difficulties, respiratory distress, heart failure, hemorrhage into the brain, bowel disease, and jaundice. A premature baby's systems for heat regulation, breathing, and digestion are not yet mature. They are usually placed in incubators, which control the oxygen supply, temperature, and humidity of the environment in which the baby stays.

Any newborn weighing less than 2.5 kg or 5 1/2 pounds is considered low birth weight. The closer a baby comes to the average of 3.2 kg or 7 1/2 pounds, the better the chances of survival. A baby can be born between 38-40 weeks gestation and still be low birth weight. However, most premature babies are also low birth weight.

The APGAR test is used shortly after delivery to evaluate the infant's physical development. The infant is given a 0-2 rating on each of five items. The five items include pulse, breathing, muscle tone, responsiveness, and skin color. A total score of 7-10 is considered normal. A lower score is a sign that the baby needs special medical attention. The APGAR score is usually given one minute after birth and is repeated at five minutes after birth (use transparency to explain the APGAR score). A small percentage of neonates are given scores of 5 or less. Most of those that are given lower APGAR scores are those born prematurely or those delivered by emergency C-section.

Within one hour of birth, drops of an antiseptic ointment (silver nitrate) are put into the infant's eyes to protect against infections. The baby is weighed, measured, and identified by footprints or fingerprints. Keeping newborn babies warm and dry is especially important during the first few hours, so babies are generally placed in a warming bassinet.

Dr. Berry Brazelton, a well-known pediatrician, developed a testing procedure used by some hospitals called the "Brazelton Neonatal Assessment Scale." It shows parents how their babies respond to various actions and how their reflexes work. It allows medical personnel to detect problems the baby may have in development and to allow parents to appreciate their baby's special skills and abilities.

Newborn screening is done in most states. Nine congenital disorders are detected by this screening. These include PKU, sickle cell anemia, and cystic fibrosis. The screening is done by collecting a few drops of blood from the infant's heel onto a special type of paper. The dried blood spots are sent to a medical laboratory. If an abnormality is detected, the family will be notified. An optional computerized hearing test is available on request.

Neonates have received a large amount of their mother's hormones during pregnancy. Therefore, both male and female neonates may secrete a few drops of milk from their breasts, and the breasts may be enlarged. Likewise, a male neonate's scrotum may be enlarged, and a female neonate's genitals may be enlarged with a small amount of clear, white, or slightly bloody vaginal discharge. These conditions last only a few days and no longer than a week.

Circumcision is the removal of the top foreskin of the tip of the penis. This is usually performed by the pediatrician or obstetrician a day or two after delivery (unless it is delayed for religious reasons). In the United States, circumcision is common. Until 10 years ago, it was done routinely. However, recently some parents are opting not to have their sons circumcised because it is not medically necessary.

Whether or not the penis is circumcised, it must be cared for properly. The physician performing the circumcision will place a light gauze dressing with petroleum jelly on the circumcised penis. When the baby urinates, the gauze will most likely fall off. Some physicians recommend reapplying a fresh gauze dressing after each urination. Others suggest leaving the penis undressed. The tip of the penis will appear red. After a few days, a yellowing secretion will appear. This is normal and is an indication that the penis is healing. The penis will be completely healed in 1 1/2 to 2 weeks. The uncircumcised penis should be cleaned and bathed with soap and water, just like the rest of the diaper areas. The foreskin should not be retracted until the child is age 5 or 6. It is suggested that the parents watch the uncircumcised neonate urinate once in a while to make sure the hole in the foreskin is large enough to permit a normal stream of urine. If the stream is consistently a small trickle, or the neonate seems to have difficulty or discomfort urinating, a physician should be notified.

Merconium is the term used for the neonate's first bowel movements. Merconium looks like and has the consistency of hot tar. It lasts only a few days. Some babies will have a bowel movement after each feeding. Other babies have a bowel movement every day or two. Breast-fed babies tend to have frequent stools that are loose. Formula-fed babies have stools that are more solid.

It used to be suggested that infants sleep on their stomachs and not on their backs. Recent research suggests that infants should be placed on their back or side to sleep, not on their stomachs. The recent research shows a correlation between infants sleeping on their stomachs and Sudden Infant Death Syndrome (SIDS). This is sometimes called crib death because infants die of no apparent cause but always while they are sleeping. Most of these deaths occur between the third week to the sixth month of life and usually during the cold months of the year. Though the exact cause of SIDS is not known, some researchers feel that premature babies are more often victims because their nervous and breathing systems are not fully developed.