NUHS
National University Health System

National University Centre For Women & Children

Khoo Teck Puat – National University Children's Medical Institute

CONTENTS

Introduction to Well Newborn Care in the Postnatal Wards

Dear Parents,

Congratulations on the birth of your baby! We would like to inform you about 'routine newborn care' provided by our team of doctors and nurses in the next few days.

Your obstetrician has referred your baby for our care with some information about your pregnancy and birth. We will examine your baby and speak with you during our morning ward rounds. Your baby's cord blood results: Glucose-6-Phosphate Dehydrogenase (G6PD) deficiency screening and congenital hypothyroidism screening will be shared with you. Your baby would have received one injection of Vitamin K after birth in the delivery room. Subsequently, your baby will have his hearing screening and newborn vaccinations.

Our nurse will request your verbal consent for your baby's vaccinations (BCG on the left arm and Hepatitis B on the thigh). We recommend an additional blood test to screen your baby for inborn errors of metabolism (IEM) and other conditions. Further details about these tests and vaccinations are found in this booklet.

We will also examine your baby for jaundice. We use a handheld device as a screening tool and may take blood from baby's heel to confirm the jaundice level. If your baby develops significant jaundice, he will undergo phototherapy (treatment for jaundice) for about 24 hours and have additional blood tests done. Phototherapy can be done in your room or in the nursery.

We recommend that your baby room-in with you during your entire stay. You will be helped to breastfeed your baby and learn his feeding cues. You will also learn to change his diapers and care for him. Our nurses and doctors will check with you about your baby's feeding. You may record his feeding and urine/motion output into a feeding log. Additional information on breastfeeding and caring for your baby is available in a separate postnatal booklet that you are given.

As you prepare to go home, we can help to schedule your baby's appointments to continue his care with us. Your baby's first appointment is recommended at 2 or 3 days after discharge for a follow up check on jaundice, feeding and general wellbeing. At discharge, our nurse will inform you on the appointment details and provide you with your baby's health booklet. Please refer to the health booklet for baby's subsequent vaccinations and health checks.

Please feel free to approach our doctors or nurses on any issues concerning your baby.

Thank you.

A/Prof Zubair Amin, Head & Senior Consultant and
Dr Yvonne Ng, Senior Consultant and Clinical Director
Department of Neonatology, Khoo Teck Puat – National University Children's Medical Institute

Your baby's First 24 to 48 Hours in NUH

Screening Tests For Your Newborn Baby

To ensure that your baby gets the best start in life and stays healthy, your baby can be screened for more than 40 rare medical disorders. Although most babies with these disorders look healthy at birth, they may be at risk of having serious health problems later in life. These may include learning difficulties, recurrent sickness and even death if their disorder is not detected and treated early.

Early Detection Allows Early Treatment

These disorders are rare and they affect about 1 in 3,000 births in Singapore. By testing your baby during his first few days of life, such disorders can be treated early, often before any sign or symptom surfaces.

The disorders in the newborn screening include:

- Inborn Errors of Metabolism
- Cystic Fibrosis
- Congenital Adrenal Hyperplasia
- Severe Combined Immune Deficiency (SCID)
- Galactosemia
- Biotinidase Deficiency

Inborn Errors of Metabolism

When the body cannot successfully breakdown (metabolise) some substances in food/milk such as fats, protein or sugar, they can accumulate and become toxic to the body. This can cause serious health problems.

The newborn screening looks for more than 30 metabolic related disorders in the following categories:

Organic Acid Disorders | Fatty Acid Oxidation Disorders | Amino Acid Disorders

Cystic Fibrosis

This is a genetic condition that leads to accumulation of thick mucus in different organs leading to severe chest infections and poor growth.

Congenital Adrenal Hyperplasia

This is a disorder of hormone production that may affect baby's metabolism, response to infection, ability to regulate salt levels and sex characteristics.

Severe Combined Immune Deficiency (SCID)

This condition results in extremely poor immunity and the child can develop severe infections.

Galactosemia

Babies with galactosemia are unable to process lactose containing milk feeds and ingestion of such milk may lead to liver failure.

Biotinidase Deficiency

This is a metabolic disorder whereby the body is unable to recycle biotin leading to a deficiency. This can result in complications such as seizures, developmental delay and low muscle tone. Babies can also have skin and hair abnormalities.

It is important to note that although these are all serious medical conditions, early diagnosis and treatment can lead to a better outcome.

A Small Test with Big Benefits

In order to perform the screening tests, a small blood sample is needed from your baby. A few drops of blood are collected on special filter paper by pricking the heel. The sample is sent to the National Expanded Newborn Screening Laboratory for analysis.

Blood samples can be taken from your baby at any time between one day (24 hours) and seven days old. The best time for collection is between one to three days old (24 to 72 hours).

High Risk or Low Risk Results

When the sample has been analysed and results are available, one of the following will occur:

Your baby's result is Negative for all the disorders

More than 99 per cent of the babies fall into this category. It means that your baby is at very low risk of having these disorders. The result will be filed into your baby's medical record. On very rare occasions, a disorder may not be picked up on the metabolic screen.

A repeat sample is required

A second sample is needed for about one in 120 babies. It is usually needed because the first sample showed borderline results, which means it was not possible to tell whether or not a problem exists. You will be contacted to arrange for another sample to be taken.

Your baby's result is Positive for one of the conditions

Having a positive result does not necessarily mean that your baby has a disorder. It only means that further testing is needed. You will be contacted to make arrangements for a metabolic physician to review and investigate. If a diagnosis is made, your baby will be given appropriate treatment. It is important to know that most babies in Singapore are screened negative. Rare but life-threatening complications of the disorders can usually be prevented with early diagnosis and treatment.

Get In Touch

For more information about the metabolic screen in Singapore, please ask your paediatrician.

Alternatively, you can contact our doctors at:

A/Prof Denise Goh
✉ denise_li_meng_goh@nuhs.edu.sg

Dr Chin Hui-Lin
✉ hui-lin_chin@nuhs.edu.sg

Your baby will be screened as a part of routine newborn care. Please note that you have the right to refuse the metabolic screen. If this is your wish, please speak to your healthcare provider.

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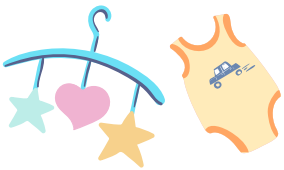


Universal Newborn Hearing Screening

Why does my baby need to have a hearing screening?

Babies who are born with hearing impairment are at risk of delays in speech, language, intellectual, social and emotional development. Early detection of hearing loss, preferably by 6 months of age, followed by the appropriate treatment will minimise the harmful effects on your baby's development. Without a screening test, hearing impairment may not be detected until much later.

When and how will my baby's hearing be screened?

This screening test takes place within the first few days after birth before your baby's discharge from hospital. It is performed by a trained staff and takes about 15 to 30 minutes. The screening test is safe and will not hurt your baby in any way. The staff will inform you of the result.

The instrument used will either be an otoacoustic emission (OAE) analyser or an automated auditory brainstem response (AABR) analyser or both. For the OAE, a small ear probe is placed at the opening of your baby's ears. The instrument makes clicking sounds and the probe listens to the responses (echoes) from your baby's ears. For the AABR, three jelly tab sensors are placed on your baby's head. A soft earphone delivering clicking sounds will evoke responses from your baby which will be recorded by the instrument.

What does it mean if my baby passes the screening?

This means that your baby's hearing function is normal at the time of testing. However, if you have any family history of hearing loss or have a child who was previously diagnosed with hearing loss, please inform us.

In some babies, hearing impairment may develop gradually as a result of recurrent ear infections, genetic factors or chronic illnesses. Hence, you need to be vigilant and continue to monitor the behavioural responses of your child's hearing ability according to the checklist provided in the health booklet. If you suspect that your baby has a hearing problem, please consult a doctor.

What if my baby does not pass the screening?

This does not necessarily mean that your baby has a hearing impairment though further investigation will be needed. If your baby does not pass the repeat screening, a referral will be made to an ENT (Ear, Nose and Throat) doctor who may do further tests.

It is very important to attend these appointments so that any hearing impairment can be diagnosed early and suitable treatment provided.

Congenital Hypothyroidism Screening

What is congenital hypothyroidism?

It is when the body does not produce enough thyroid hormones due to the absence or abnormal function of the thyroid gland from the time of birth. The thyroid gland is an endocrine organ which produces thyroxine hormone crucial for normal growth and development.

Why does my baby need to have the screening?

Signs of congenital hypothyroidism are very non-specific, subtle and difficult to detect. Congenital hypothyroidism must be detected early so that your baby can be started on replacement thyroxine soon after birth. A delay in treatment may lead to mental and physical retardation in the baby. With adequate treatment, a baby with congenital hypothyroidism can have normal growth and development.

A baby whose parents are well or do not have any family members with congenital hypothyroidism can still be affected. If your family member has a history of thyroid disease, please inform the doctors as your baby may require a repeat testing.

When and how will my baby be screened?

Congenital hypothyroidism screening is a standard newborn screening test in Singapore. Cord blood is collected after birth for testing. The results of your baby's congenital hypothyroidism screening will be shared with you and a copy attached to his health booklet.

What does it mean if my baby passes the screening?

This means that your baby does not to have congenital hypothyroidism. However, if baby develops any symptoms or signs suggestive of low thyroid hormones (e.g., prolonged jaundice, delayed development and growth), he needs to be reevaluated by a doctor.

What if my baby does not pass the screening?

About 1 in 3,000 babies will have very abnormal values that may indicate congenital hypothyroidism. The doctor will advise you on further steps in management.

Glucose-6-Phosphate Dehydrogenase (G6PD) Deficiency Screening

What is G6PD deficiency?

This is a hereditary condition where the baby lacks the G6PD enzyme. This enzyme is required to maintain the shape and health of the red blood cells. The baby can develop severe jaundice (yellowing of the eyes and skin) which can be harmful to the brain. Fortunately, this is preventable if assessment and treatment for jaundice is provided after birth.

Why does my baby need to have the screening?

Babies with G6PD deficiency can develop early and severe jaundice. Exposure to naphthalene (mothballs), fava beans and certain medicines can cause red blood cells to break down, leading to anaemia and jaundice.

The G6PD gene is located on the X-chromosome, so mothers may be carriers and may pass on the gene to their children. G6PD deficiency is more likely to affect males. Children whose parents are well or do not have any family members affected by this deficiency can be affected by it. Please inform us if you (i.e., the mother) have brothers or nephews who are affected or have older children who are G6PD deficient.

When and how will my baby be screened?

Cord blood collected at birth is tested. If cord blood is unavailable, baby will have his blood taken after birth for testing.

What if my baby is G6PD-deficient?

About 2 in 100 baby boys in Singapore have G6PD deficiency. Newborns with G6PD deficiency will need to be monitored for jaundice for at least 72 hours in hospital. Our doctors will educate you on this condition including monitoring for jaundice, life-long avoidance of certain substances and drugs and follow up care after discharge. Most children grow up and live normally with this condition if they did not have severe jaundice as a baby.

These are precautions that must be taken for the rest of your child's life:

Inform the doctor, nurse or dentist that your child has G6PD deficiency at every visit.

Do not use mothballs in your home.

Do not apply henna (a dye preparation derived from plant, also known as Mehendi) on your child's skin.

Your child cannot consume fava beans (or broad beans) and some medications and herbs. Please refer to the list provided. Breastfeeding mothers should not take fava beans (or broad beans) and the listed medications or herbs while breastfeeding.

What are the medications or herbs to be avoided should my child have G6PD deficiency?

Please consult your doctor for information on other medicines. Do not buy any medicine for your child without consulting a doctor first.

These medicines will cause your child's red blood cells to break down:

Antipyretics (for treating fever)

- Aspirin (acetylsalicylic acid)
- Phenacetin (acetophentidin)
- Acetanilid
- Antipyrine
- Aminopyrine

Antimalarials (for preventing malaria)

- Primaquine
- Pentaquine
- Chloroquine
- Pamaquine
- Quinine

Antibiotics (for treating infection)

- Nitrofurantoin
- Nitro-furazone
- Sulfanilamide
- Sulfamethoxazole
- Sulfamethoxy pyridine
- Furazolidone
- Sulfisoxazole

Others

- Nalidixic acid
- Phenylhydrazine
- Probenecid
- Vitamin K3
- Dimercaprol
- Methylene blue
- Aminosalicyclic acid
- Quinidine
- Chinese medicines containing berberine (e.g. Rhizoma coptidis 黄連, Cortex phellodendri 黄栢)
- Flos lonicerae (金银花)
- Flos chimonanthi praecocis (腊梅花)
- Calculus Bovis (牛黄)
- Margaritas (pearl powder)

Hepatitis B Vaccine

What Is Hepatitis B?

Hepatitis B is a serious disease caused by the Hepatitis B Virus (HBV) that affects the liver. HBV can cause:

Acute (short-term) illness

This can lead to a loss of appetite, diarrhoea and vomiting, tiredness, jaundice (yellow skin or eyes), and pain in muscles, joints and stomach. These symptoms are more common in adults. Death can occur in severe cases.

Chronic (long term) infection

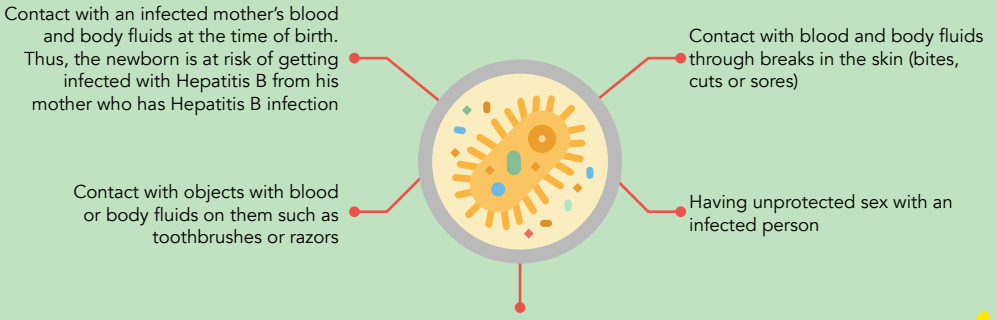
Some people go on to develop chronic Hepatitis B infection. This can be very serious and may lead to permanent liver damage (cirrhosis), liver cancer and death. Chronic infection is more common when the infection is acquired by a baby.

Although there are no visible symptoms of Hepatitis B infection in newborns and children, the disease process continues to progress and can cause serious consequences later in life.

How does Hepatitis B spread?

Hepatitis B is spread through contact with the blood or other body fluids of an infected person. Infected individuals can spread the disease to others even if they do not appear to be sick.

A person can become infected through:



Why should my baby receive the Hepatitis B vaccine?

Hepatitis B vaccine can prevent your baby from getting a Hepatitis B infection and its serious effects, including liver cancer and cirrhosis. The Hepatitis B vaccine is made from a part of the Hepatitis B virus and cannot cause Hepatitis B infection. The vaccine will give long-term protection against Hepatitis B infection.

When should my baby be vaccinated against Hepatitis B?

The Ministry of Health (MOH) in Singapore recommends that the first dose of Hepatitis B vaccine is given to newborns after birth. Children should complete 3 doses of the vaccine by 6 months of age.

If the mother is infected with Hepatitis B virus, i.e. a Hepatitis B carrier, the baby should receive the first Hepatitis B vaccine and Hepatitis B immunoglobulin (HBIG). HBIG works best when it is given within 12 hours of birth. Your baby must complete the primary vaccine course – three doses of Hepatitis B vaccine; first dose at birth, second dose at 1 month and third dose at 5 to 6 months. Upon completion, he should be tested for Hepatitis B immunity 3 months after the last dose of vaccine. The mother with Hepatitis B infection can breastfeed her baby as long as the baby has received the Hepatitis B vaccine and HBIG.

Are there any risks involved?

Hepatitis B vaccine is a very safe vaccine. Your baby may experience temporary mild soreness at the injection site or low-grade fever.

Bacille Calmette-Guerin (BCG) Vaccine

What is Tuberculosis (TB)?

TB is a disease caused by a germ (Mycobacterium tuberculosis) which is spread through the air when a contagious person coughs. TB usually affects the lungs but it can also affect other body parts such as the brain, kidneys or spine.

What is BCG vaccine?

The BCG vaccine is a weakened strain of Mycobacterium tuberculosis that protects against serious forms of TB. It is a recommended vaccine in Singapore.

Why should my baby be vaccinated?

The TB incidence rate is 38.4 per 100,000 population in Singapore (Communicable Diseases Surveillance in Singapore 2015, MOH, Singapore 2016). Singapore is surrounded by countries with a higher prevalence of TB. Globally, there is a rise in drug-resistant TB which is extremely difficult to treat with conventional antibiotics. MOH upholds the World Health Organization's (WHO) recommendation to give a single dose of BCG vaccine to babies after birth in countries where TB is prevalent.

BCG vaccination at birth has been shown to be highly effective in preventing the serious forms of childhood TB such as TB meningitis and disseminated TB which can potentially be fatal. Overall protection of BCG vaccine in preventing such serious forms of TB is 75 to 86% (Up to date 2017).

Who should not be vaccinated?

A baby with known or suspected immunodeficiency should not receive the BCG vaccine. Please inform us if you have another child or a close family member with immunodeficiency disorders.

How is the vaccine given?

The BCG vaccine is given by an injection in the skin (intradermal) on the left upper arm. Your baby will receive the BCG vaccine before being discharged from hospital.

What is the expected reaction?

Your baby may experience redness and/or a small lump at the injection site within 2 to 4 weeks after the vaccination. This is followed by a small ulcer (an open sore which may ooze). The ulcer is usually around 1cm in diameter and may last for a few weeks before healing to a small flat scar, usually by 3 months.

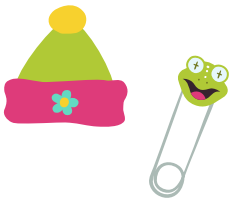
How do I care for the injection site?

Keep the area clean and dry. Carefully pat the area dry after bathing your baby. A temporary dry dressing with gauze may be used if the area starts to ooze. Change the dressing daily. There is no need to apply antibiotic creams. If lymph nodes near the injection area become very swollen and painful or if there is a large abscess, bring your baby to the hospital immediately.

You may visit these sites for more information:

Centres For Disease Control and Prevention (United States)
http://www.cdc.gov/tb

Ministry of Health Singapore
http://www.moh.gov.sg



Vitamin K Injection

Why is Vitamin K important?

Vitamin K helps the body to form clots and stop bleeding. It usually comes from the food we consume and is also made by the bacteria that live in our large intestines. Babies are born with very low stores of vitamin K because very little vitamin K passes from the mother through the placenta to the baby. As breast milk contains relatively low amounts of vitamin K, exclusively-breastfed babies do not get enough vitamin K from breast milk alone. All these factors can lead to serious bleeding problems if babies are not given the vitamin K injection at birth.

The vitamin K injection is the most effective method of supplementation to prevent vitamin K deficiency bleeding. There is no side effect other than transient discomfort during injection.

Why does my baby need the Vitamin K injection?

The vitamin K injection for babies is recommended to prevent the rare but sometimes fatal condition of vitamin K deficiency bleeding. This practice is the standard of care in Singapore. It is also a WHO recommendation. Vitamin K is given as a single injection in the baby's thigh soon after birth in the delivery room.

Can my baby receive the medicine by mouth instead of by injection?

Administering vitamin K orally is not a proven way of preventing vitamin K deficiency bleeding. If you choose not to have the vitamin K injection for your baby and prefer it to be given orally, your baby would remain at an increased risk of vitamin K deficiency bleeding, including bleeding in the brain for up to 3 months.

Feeding & Nutrition

NUH is the first Singapore hospital to be awarded the Baby Friendly Hospital Initiative (BFHI) accreditation in 2013. We support every mother in breastfeeding her baby from birth and have implemented the '10 Steps to Successful Breastfeeding'. We adhere to the International Code of Marketing of Breast Milk Substitutes. During your antenatal visits to NUH, you would have learnt about benefits and management of breastfeeding. We encourage you to have early skin-to-skin contact with your baby and breastfeed him soon after birth.

Why is breastfeeding best for my baby?

Breast milk is nutritionally complete for your baby. It is a rich source of antibodies and immune factors that protect your baby against common infections such as lung infection, middle ear infection and diarrhoea. Breastfed babies are less likely to become obese children and adults. They may be less likely to develop chronic illnesses such as asthma, allergies, childhood leukaemia and diabetes.

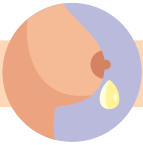
How often should I breastfeed my baby?

24 hours

Mother's first milk (colostrum) is produced only in small amounts in the first 24 hours after birth

Some mothers may have engorgement before milk production, while milk flows easily without engorgement for others

2-3 days after delivery



Milk production will occur at about second or third day after delivery

End of the week after delivery

Mature breast milk production happens by the end of the week after delivery and averages around 600ml per day

In the hospital, you will be guided to feed your baby based on his early feeding cues instead of a scheduled timing. Babies usually breastfeed about 8 to 10 times a day. We encourage you to room in with your baby.

Your baby will pass dark, sticky meconium for the first 1 to 2 days before his stools change to soft brownish or greenish stools and finally yellow stools by day 4 to 5 of life. Your baby will pass lots of clear urine after your milk comes in. Keep a diary of feeding, urine and stool changes. You may also wish to take photos of your baby's stools to help you keep track. Other signs that breastfeeding is going on well are that baby latches and suckles contentedly and you do not experience breast or nipple pain.

What challenges can I expect?

As breast milk naturally takes 2 to 3 days to come in, do not expect your baby to consume a large volume of milk in the first few days. If you feel that you have insufficient breast milk or if your baby is unsettled, unusually sleepy or latches with difficulty, inform us.

If you have concerns that you may not be able to exclusively breastfeed due to your medical condition or past experiences, do inform us. Our nurses will advise you on how to prepare and feed formula milk if your baby requires supplementation for medical reasons.

For further assistance, you may contact the NUH breastfeeding helpline at 9722 0376 daily, from 8am to 5pm.

TIPS

A breastfeeding guide prepared by NUH BFHI steering committee is available on our website. Scan the QR code on the right to access.

The UNICEF baby friendly website also provides reliable information on breastfeeding and formula feeding for parents (www.unicef.org.uk/babyfriendly).

Post Discharge Care

Jaundice

What is Jaundice?

Jaundice is the presence of a chemical called bilirubin in the blood caused by a breakdown of red blood cells. Most babies develop jaundice in the first few days after birth as their still-developing liver is unable to remove bilirubin efficiently. Jaundice usually goes away by the end of the second week of life.

How to tell if my baby is jaundiced?

In jaundiced babies the skin appears yellow. However, jaundice may be harder to see in babies with darker skin. Jaundice appears first in the face and then progresses to the chest, abdomen, arms and legs as the bilirubin level increases. The whites of the eyes will also be yellow. In addition, jaundice in the palms and soles generally indicates severe jaundice.

When should my baby be checked?

It is important for your baby to be seen by a doctor when he is between 3 and 5 days old because this is usually when a baby's bilirubin level is at its highest. We can perform a quick non-invasive skin-test for jaundice and/or a blood test to confirm your baby's jaundice level.

Which babies require more attention?

All babies should be seen for jaundice check between days 3 and 5 of life. If your baby has any of the following conditions, he is at higher risk of becoming jaundiced:

A high bilirubin level before leaving the hospital or had received phototherapy

Born premature (more than 2 weeks before the expected due date)

Jaundice had occurred in the first 24 to 48 hours after birth

G6PD deficiency

A lot of bruising or bleeding under the scalp

Poor feeding and excessive weight loss

A parent or sibling who had high bilirubin levels and received phototherapy

What should I do if my baby has jaundice?

It is important for your baby to attend the follow-up visit on day 3 to 5 of life at NUH or at a polyclinic and to continue with follow-up visits as determined by the doctor.

If your baby's jaundice level is high, the doctor will advise that your baby be admitted to the hospital for phototherapy. He will be placed undressed under visible blue light, which breaks down bilirubin into harmless substances to be passed out in urine and stools.

Jaundice can be dangerous if the bilirubin reaches very high levels. Severe jaundice may cause irreversible brain damage and hearing loss.

Spit-ups

Spitting up or regurgitation usually happens after a feed when a baby brings up a small amount of stomach contents such as fresh or curdled milk. About half of all babies spit up during their first three months. Vomiting is a more forceful expulsion of larger quantities of stomach contents. It can indicate a severe degree of reflux or more serious conditions (obstruction of the intestines or an infection).

Why do spit-ups happen?

Muscles between the oesophagus and the stomach act like a valve and prevent stomach contents from coming back up into the oesophagus. In babies, this mechanism takes time to develop and until then, spit-ups are common. Premature babies have weaker muscles and are more prone to spit-ups. Spit-ups also worsen if your baby's stomach becomes very full or when he strains.

Will spit-ups affect the nutrition and growth of my baby?

Normal spit-ups do not affect your baby's well-being. Parents usually overestimate the size of the spit-ups as it spreads over the linen or clothing. If your baby is not disturbed by this and is growing well (your doctor can confirm that during the periodic checks), you need not worry. Most babies stop spitting up by about 6 months of age.

How do I recognise a more serious problem that needs attention?

Spit-ups may not be normal if:

- Spit-ups is green or contains blood
- A significant increase in spit-ups
- Spit-ups associated with other symptoms like fever, diarrhoea, blood in stools and bloating of tummy
- Your baby appears to be fussy, arching his back and neck and reduces milk intake by more than 50%
- Your baby has slow weight gain

What can I do to reduce spit-ups in my baby?

A. Volume of feeds

Feed to satisfy the baby; do not overfeed or have a target volume in mind for your baby to finish. If your baby is prone to spit-ups, small but frequent volume feeds may help.

B. Positioning

Feed in a slightly upright position. Keep your baby upright for at least 20 to 30 minutes after feeding. Avoid activities that put pressure on your baby's stomach, for instance, active play or massaging, soon after feeds. Your baby should always sleep on his back. You may elevate the head end of the bed slightly (about 30 degrees from level ground).

C. Burping

Burp your baby to expel air and reduce stomach pressure. It can be done in between or after feeds.

D. Medical treatment

Some babies with severe reflux are treated with medication. Your baby's doctor will advise you on other feeding techniques as well.

Infant Colic

This is often suspected by parents of babies during periods of fussing and crying which are otherwise normal infant behaviour.

How do I know if my baby has colic?

Your baby may have colic if you notice these behaviour:

a) Inconsolable crying – Your baby has intense periods of crying and appears to be in pain.

b) A pattern to the crying episodes – These episodes occur at a certain time of the day, usually in late evenings. These crying spells may last for many minutes in between calm periods.

c) Your baby is well otherwise – Growing well and not sick.

Why does my baby have colic?

The exact cause of colic is unknown. Some believe that it is a response to pain which comes from hypersensitivity of the intestines to stretch. How a baby and parents process pain, crying or anxiety differ and this may explain why some babies have colic while others do not.

Will repeated episodes of colic affect my baby in the long run?

Colic is self-resolving. Most babies stop being colicky by 3 months. Colic does not have any permanent consequences or complications. It does not affect your baby's development.

Are there medications to treat colic?

There are no proven medications to stop colic. However, there are many over-the-counter medications that claim to be effective in treating colic. You may wish to discuss with your baby's doctor before using any over-the-counter medications.

How can I help my baby?

Here are some practical tips:

Identify	Try to identify the reason for crying. Is your baby hungry? Is he too hot or cold? Does he require a diaper change? Does he need some human interaction or change in position? Is he feeling unwell?
Feed	Small frequent feeds with intermittent burping may help. Sometimes babies fuss over a particular nipple, bottle or milk flow or even the taste of the formula. It is worthwhile trying to trouble shoot and see if changing these helps your baby.
Comfort	You can try carrying your baby, gently rocking, playing music, singing to your baby or giving him or her a gentle tummy massage.
Cope	If you find that you are getting exhausted in taking care of your baby or if you are stressed or feeling angry, please accept the help of other family members to allow you respite from caring for your baby. Never shake or rock your baby vigorously.

Infrequent Stools

Many parents often become distressed over their baby's infrequent stooling while the baby may not seem to be bothered about it at all. While infrequent stooling is common, infant constipation is not. It helps to know the variations in stooling pattern in infancy.

What is the normal stooling pattern in a baby?

Your baby's stooling pattern is unique and cannot be compared to another baby. However, the following recognisable changes in stooling have been noticed to occur in a baby's early life.

A baby usually passes 2 to 5 dark tarry stools per day called meconium in the first 2 to 3 days of life, followed by transitional stools which are watery and changes from green to yellow in colour.

Beyond the first week up to the second month of life, breastfed babies have frequent soft, seedy, bright yellow stools. Stool frequency usually decreases to 2 to 3 times per day of pasty (consistency of peanut butter or toothpaste) yellow, green, brown stools. After the second month, variations in stooling include passing motion after every feed (it is not diarrhoea) to passing large motion once in 5 to 7 days (this is not constipation). These situations do not cause your baby any discomfort.

Once your baby has started on solids, there is more variation in stool colour, smell, frequency and consistency.

My baby shows discomfort while passing motion. Is this normal?

It is normal for babies to strain, go red in the face, lift up their thighs onto their tummy or even make throaty noises during the passing of motion. Their tummy muscles are not as strong as those of older children and they will have to adopt other maneuvers to open their bowel. This should not be taken as a sign of constipation.

When should I suspect that my baby has constipation?

Although it is rare, constipation may be suspected if your baby demonstrates the following:

a) Hard pellet-like stools or formed stools with furrows and cracks on them

b) A change in stool consistency (harder) or frequency (less frequent)

c) Blood-streaked firm stools

d) Infrequent stools which cause the abdomen to bloat. Your baby may feed less or even spit up more and these symptoms disappear the day your baby passes motion.

When should my baby see a doctor?

You may consult your baby's doctor if you're worried about your baby's stooling behaviour. Information about your baby's stooling behaviour since birth, diet and a description of stools including photos may help. The doctor will examine your baby and may order relevant tests to investigate further.

Umbilical Cord Care

The umbilical cord stump typically will dry and fall off within 2 weeks after birth. There may be a little blood when the stump falls off. Meantime, treat the area gently.

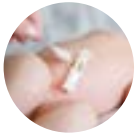
Contact your baby's doctor if there is a lot of foul-smelling discharge or the skin becomes red and swollen. These may be signs of an infection.

How do I care for my baby's umbilical cord?

✓ DO:

Fold down the diaper so that the stump is exposed to air

Observe for redness, bleeding or foul-smelling discharge



Use moist cotton swabs to clean the stump and use a fresh cotton swab for each swipe. Keep the stump clean and dry at all times

Continue to clean the base after the stump falls off until the skin heals over

✗ DO NOT:

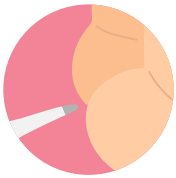
Pull on the stump before it is fully detached as it may cause bleeding

Use medicated oil or powder on your baby's abdomen

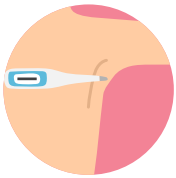
Fever in Young Infants

What is fever?

Fever is an elevation in body temperature above normal. Because of the normal variation in body temperature (36.5°C to 37.5°C) and the different ways body temperature is measured, there is no single value that is defined as fever. However, the following values are generally accepted as fever in an infant:



Rectal temperature
38°C (100.4°F)



Axillary (armpit) temperature
37.5°C (99.5°F)

What causes fever?

There are many causes of fever in infants and young children:

Infection is an important cause of fever in infants. Although most fevers are due to minor viral infections, fever may also be a symptom of more serious bacterial infections such as pneumonia, urinary tract infection, septicaemia (infection of the blood) or meningitis (infection of the brain and its coverings).

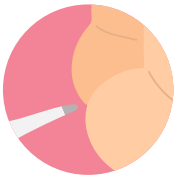
Newborns may develop low grade fever (37.5°C to 38.5°C) if they become dehydrated because of inadequate feeding. They would have lost excessive weight since birth with a decreased amount of urine and stools.

Bundling (overwrapping) can increase the temperature slightly. However, a temperature of 38.5°C or greater is unlikely to be related to bundling.

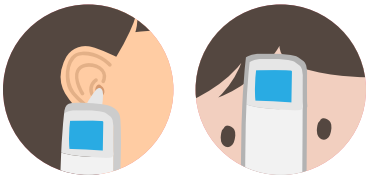
How do I measure my baby's temperature?

Digital thermometers, which are widely available, are preferred for measuring your baby's temperature. Glass thermometers containing mercury are not recommended for children because of the risk of breakage and mercury ingestion.

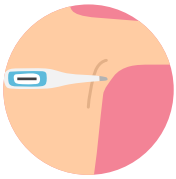
The site of measurement depends on several factors. Rectal temperature is the most accurate but may be distressing for a baby especially if measurements need to be taken repeatedly. Axillary temperature (in the armpit) is a suitable alternative for an infant. You should keep the tip of the thermometer in the armpit for a sufficiently long time by holding the baby's elbow against the side of his chest. Temperatures measured in the ear or on the forehead are less accurate.



Rectal temperature is the most accurate but may be distressing for a baby



Temperatures measured in the ear or on the forehead are less accurate.



Axillary temperature (in the armpit) is a suitable alternative for an infant.

When should I consult a doctor if my baby has a fever?

Infants less than 3 months old with a temperature of 38°C or above, regardless of how well they appear, should be evaluated as soon as possible in the hospital. These infants should not receive fever medications until you have consulted a doctor.

If your baby has a fever and any of the following signs, it may suggest a more serious illness. Go to the Children's Emergency immediately if your baby:

- Has breathing difficulties
- Refuses to drink or is too ill to drink
- Appears blue or pale
- Appears inactive and is difficult to rouse
- Has abnormal movements of the eyes, limbs or face
- Has frequent forceful vomiting

About the Khoo Teck Puat – National University Children's Medical Institute (KTP-NUCMI)

The KTP-NUCMI is the paediatric arm of the National University Hospital and comprises the Departments of Paediatrics, Paediatric Surgery and Neonatology. We provide comprehensive and specialised medical and surgical services for newborns, children and adolescents. NUH is the only hospital in Singapore that offers paediatric kidney and liver transplant programmes. Through a generous gift from the estate of Khoo Teck Puat, we have set up an integrated outpatient facility with medical, diagnostic and rehabilitation services.

NUH Children's Emergency

Location: NUH Main Building, Zone F, Level 1

General Enquiry: (65) 6772 5000

NUH Children's Urgent Care Clinic @ Bukit Panjang

Location: Junction 10, 1 Woodlands Road, #01-22, Singapore 677899

Operating Hours:
9am – 11pm daily
(including public holidays)

General Enquiry: (65) 6219 1538

Email: childrenucc@nuhs.edu.sg

Website: www.nuh.com.sg/ucc

Khoo Teck Puat – National University Children's Medical Institute

Location: NUH Main Building, Zone E, Level 2
(Accessible via Kent Ridge Wing, Zone C, Level 2, Lift Lobby C)

Operating Hours:
8.30am – 5.30pm (Mon to Fri);
8.30am – 12.30pm (Sat)

General Enquiry: (65) 6772 5736
Appointment Line: (65) 6908 2222

Breastfeeding Helpline: 9722 0376
(Daily, 8am - 5pm)

Email: ktpnucmi_appt@nuhs.edu.sg

Website: www.nuh.com.sg/ktp-nucmi

Educational disclaimer: The information provided in this publication is meant purely for educational purposes and may not be used as a substitute for medical diagnosis or treatment. You should seek the advice of your doctor or a qualified healthcare provider before starting any treatment or if you have any questions related to your health, physical fitness or medical condition.

Information is correct at the time of printing (February 2023) and subject to revision without prior notice.

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