



Chapter 12: Developmental care: how to support your Baby's development

Parent educational material for app

Imperial Neonatal Service, Imperial College Healthcare NHS Trust

1. Introduction to developmental care

Before the 1970s it was believed that all newborn babies were helpless beings that were incapable of interacting with the world around them. A group of paediatricians and psychologists started to look at newborn babies and their abilities. They found that each newborn has a developed set of skills and that they come into the world ready to feed, interact with their parents and learn from the moment of birth. One of the lead paediatricians was Dr Berry Brazelton and his work revolutionised the way newborn babies were treated.

The preterm baby comes into the world at an unexpected time. They leave the womb that has provided safety, warmth, food and comforting sounds and enter a neonatal unit; a place with bright lights, unexpected loud noises and dry air. They are touched by their parents and the nurses and doctors – a new experience – and get to meet their parents.

As they leave the womb early, your Baby's physical, sensory and social development continues outside where we can observe and support it. Their brain is small and vulnerable and unprepared for all of the new experiences of the world. We use many techniques to support your Baby to adapt to these new experiences on the neonatal unit – we call this developmental care.

Developmental care refers to the way we watch each baby, learn where they are on their developmental pathway, see what they like or don't like and adapt the way we handle and carry out their caregiving to support everything we know about that baby.

This chapter aims to explain to you what to expect from your Baby's development: their hearing, sight, sense of smell and taste, how they move, sleep, waken and how you can support your Baby to achieve their next developmental step. This is a wonderful and exciting journey at the start of your Baby's life.

Aims for this chapter

We want you as a parent to:

- spend as much time watching your Baby as you can, learning all about who they are as a little person
- use what you know about their likes and dislikes to make procedures more comfortable for your Baby
- understand how their brain is developing and the importance of protecting this
- learn what stage your Baby is at with their sensory development and how you can change the area around your Baby to make sure it is suitable for their stage of development
- know why your Baby is positioned on their tummy, back or side, why this happens and how to position them in the best possible way
- learn about and gain confidence in skin-to-skin holding with your Baby
- understand why equipment such as incubators, incubator covers, cot canopies, Zaky hands and dummies are used
- explore practical ideas of how to support your Baby during stressful or painful procedures on the neonatal unit.

1.1 Watching your Baby

Because your Baby has been born early or unwell, they may not be able to communicate with you in the way you had expected or experienced before with your other children. They may not have the energy needed to show you on their face when they are happy or uncomfortable. They will not cry in the early weeks and may have a ventilator tube in their mouth. This can make it challenging to understand your Baby's language. However, your Baby will 'communicate' to you clearly and spending time watching them will help you become an expert and develop your conversation.

The colour of your Baby's skin, the pattern of their breathing, and how they move tell us a lot about how they are managing to cope with their environment.

It may be useful to think about a **traffic light system** to know whether your Baby is showing that they can manage or if they need help to stay calm.

Red light: *I am not coping. This is too much for me.* Your Baby needs help to regulate their activity level.

Amber light: *I am just about managing. I may need your help to stay calm.* Your Baby would benefit from your help.

Green light: *This is OK. I can manage with this level of activity and interaction.* Your Baby is well regulated and calm.



What you may see:

RED LIGHT	AMBER LIGHT	GREEN LIGHT
Your Baby may look pale or have patchy pink and white colouring (mottled) all over their face or body. They may have areas that are dusky or blue in colour.	Your Baby may have small areas of paleness over their nose, some mottled colouring or may be red.	Your Baby's colouring is mostly pink.
Your Baby's breathing may be fast or slow and may have periods where they have pauses. Their chest might move in and out in an exaggerated pattern (recessions).	Your Baby's breathing may be slightly fast and there may be short pauses in breathing.	Your Baby takes regular breaths in a steady pattern.
Your Baby may be crying or look upset or uncomfortable.	Your Baby might be very active and look as if they are	Your Baby is settled and may be able to open their eyes to

They may look exhausted and 'shut down'.	about to start crying. They may struggle to pay attention and take action to look away or shut down from activity.	look out at you. They can sleep soundly and look comfortable.
Your Baby's movements are jerky and they stretch their arms out straight from the body (extension). Movements may continue in an increasing cycle and your Baby is unable to stop them.	Your Baby's movements may have some extensions but they try hard to bend arms and legs in towards the body (flexion). They may try to bring a hand out to their mouth or brace their feet against the nest or end of the cot.	Your Baby is relaxed in a flexed, tucked up position. They may bring hands up to their mouth or press feet together.



The Bliss booklet: *Look at Me – I'm talking to you. Watching and understanding your premature Baby.* This booklet is available to download from the Bliss website (see resources) and you will receive a paper copy while on the unit.

This booklet helps to explain your Baby's movements and gives a guide to how your Baby may communicate with you.

Make yourself comfortable:

The most important thing about watching your Baby is making yourself comfortable so that you can sit and be at your Baby's side for as many hours as you would like. There are a number of different chairs and stools available to help make you more comfortable. All of the incubators are height adjustable; do not hesitate to ask your Baby's nurse to show you how to lower the incubator so that you can see your Baby while sitting down.

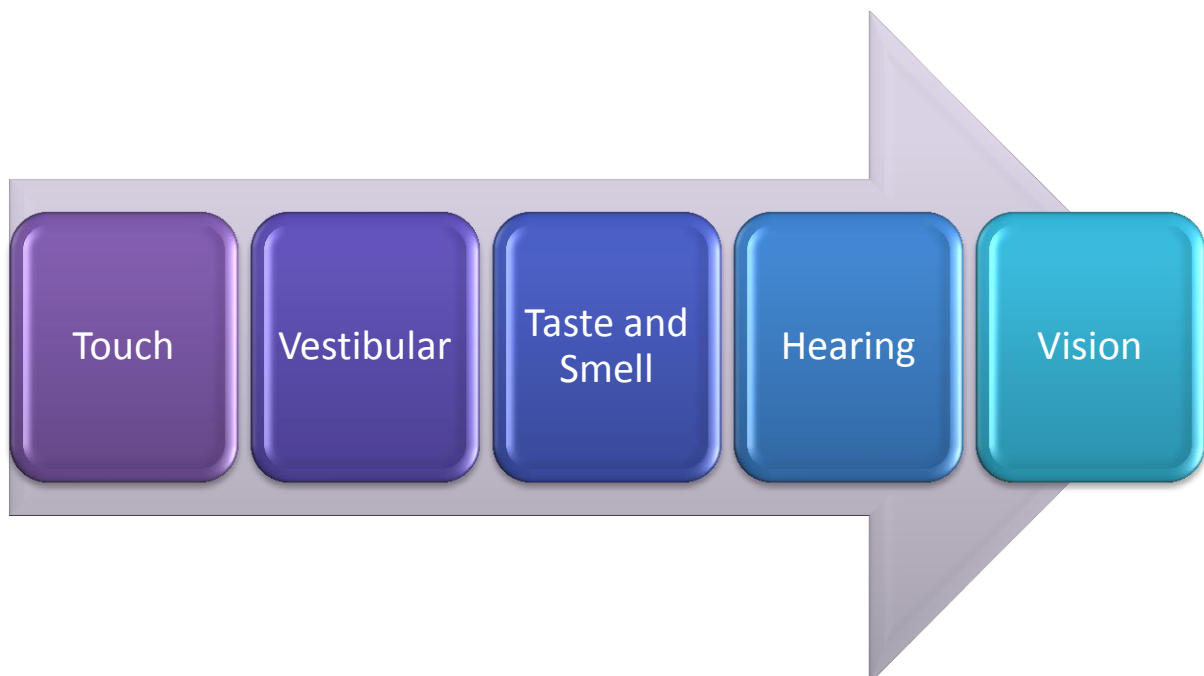
1.2 Your Baby's sensory development

Your Baby's senses have developed within the womb and continue to develop as they enter the world. While we think of the five senses: touch, sight, smell, taste and hearing, it is important to also consider your Baby's sense of balance (vestibular system).

The womb is the perfect environment for your Baby's sensory development; it is warm and fluid-filled with muted noises from outside, including their mother's voice, breathing and gut sounds. There is very little light and it is in muted, red tones. The amniotic fluid in which your Baby floats has different flavours depending on what their mother has eaten. The walls of the womb are elastic and give a surface against which your Baby can push and then relax back into a tucked up position.

When your Baby is born, they have to deal with very different sensory experiences: bright light; loud and unexpected sounds; dry air that can be cold; and the pull of gravity on their arms, legs and body. For a baby born preterm these sensory experiences are unexpected and they need help to reduce them until their senses are better developed to cope.

Your Baby's senses develop in a very specific order from early on in pregnancy as shown below:



Each sense has an important time for its development within your Baby's gestation. Providing extra sensory stimulation does not help speed up your Baby's development and it can in fact interfere with their expected developmental progression.

1.2.1 Touch

What we know:

Our skin is the largest sensory organ and is full of nerve endings that help us to feel touch, pressure and temperature. Your preterm Baby's skin is very sensitive to touch and they will respond differently to light and to feathery or deep, still touch. From 12 weeks of gestational age, your Baby is sensitive around their mouth, they grasp hold of the umbilical cord and suck their thumb. At 24 weeks of gestational age, your Baby will grasp your finger when placed into the palm of their hand and is very sensitive all over their body.

Different types of touch cause your Baby to react differently. Light, feathery or tickly touch is arousing and can be irritating especially before 34 weeks of gestational age. You may notice your Baby starts to move a lot, stretches their arm out straight as if to say 'stop' and may redden their face or grimace. Gentle firm touch, where you hold your hand in one place on your Baby's body, is more soothing.

How you can support your Baby:



- Warm your hands before touching your Baby.
- Use your hands to cradle your Baby and hold your hands still, keeping a gentle but soft pressure on your Baby.
- When you have to take your hands off your Baby, consider using a positioning aid such as a Zaky hand instead.
- Avoid wiping your Baby's mouth too vigorously.
- Gently clean your Baby's lips using expressed breast milk and soft gauze or a cotton bud. Use long, continuous movements rather than quick, feathery strokes.
- Hold your Baby skin-to-skin as much as possible.
- Bath your Baby in deep water (see the section on bathing under routine cares).

1.2.2 Vestibular (sense of movement)

What we know:

The part of the body responsible for balance is found inside the inner ear. It senses movement and gravity. In the womb, suspended in amniotic fluid, your Baby feels both their own movements and those of their mother. Movement influences how we behave: gentle, rhythmic and horizontal movements (like rocking a baby to sleep) are soothing; rapid, vertical or rotating movements are arousing. From 24 weeks of gestational age, your Baby will startle when their head is moved quickly in space (Moro reflex).

Movement on the neonatal unit can be unpredictable for your Baby. Turning and lifting need to be done carefully; if done too quickly, your Baby will startle and may have changes in their breathing or heart rate.

How you can support your Baby:

- Prepare your Baby for any change of position using your soft voice and cradling hands. They will not understand your words but will know that something is going to happen.
- Lift your Baby from side lying, bring your body close to them and hold them close to you. This gives your Baby a sense of security and a boundary onto which they can snuggle.
- When your Baby is very small you can swaddle them before lifting to help keep their arms and legs tucked up.
- Keep your Baby in contact with the mattress as they are turned. Your nurse or one of the therapy team can help you learn to roll your Baby and change position.
- Avoid bumping or knocking your Baby's cot or incubator.

1.2.3 Smell

What we know:

Our sense of smell has a strong link to our memory and emotions. In the womb your Baby tastes and smells the amniotic fluid which changes according to your diet. The neonatal unit has many strong and unpleasant smells such as alcohol gel which can cause changes in a preterm Baby's breathing. From 24 weeks of gestational age, your Baby's sense of smell is fully functional and they can recognise the smell of your breast milk. Your Baby is subjected to many new smells on the neonatal unit, some of which are unpleasant and can mask your own scent which is familiar. Ventilators, continuous positive airway pressure (CPAP), oxygen and medications interfere with your Baby's sense of smell.

What you can do to support your Baby:

- Always allow the alcohol gel to dry fully before putting your hands inside the incubator.
- Avoid using strong perfumes. This hides your natural smell which is familiar to your Baby.

- Keep the muslin from your expressing kit/ miniboo close to your body for several hours and put this in the incubator or cot with your Baby so that they can smell you. Your smell is the one constant from in the womb taken into the neonatal unit.
- Have your Baby out for skin-to-skin cuddles so that they can be close to your body and smell you.
- Avoid washing your Baby's clothes in detergent with a strong scent. Use non-bio, scentless washing fluid so that your Baby is not overwhelmed by smell.

1.2.4 Taste

What we know:

Taste buds are located in our tongues and mouth and can detect sweet, sour, bitter, salty and savoury tastes. From 10 weeks gestation your Baby starts to swallow amniotic fluid. This fluid changes flavour depending on what you have eaten. At 17 weeks gestation their taste cells are functional and the Baby has varied taste experiences. Between 28 and 29 weeks your Baby learns to distinguish between sweet and sour tastes and by 34 weeks shows a preference for sweet tastes.

Preterm birth can remove the ability to have varied tastes and your Baby may experience unpleasant tastes such as medications as part of their treatment outside of the womb.

What you can do to support your Baby:

- Use expressed breast milk for mouth cares and dip a dummy into your milk for non-nutritive sucking.
- Give medications via the nasogastric or orogastric tube rather than into the mouth.

1.2.5 Hearing

What we know:

Hearing is functional early in pregnancy as the parts of the inner ear are fully formed by 20 weeks. By 28 weeks' gestation your Baby can distinguish between male and female voices and by 34 weeks' gestation your Baby is learning how to block out unnecessary noise while asleep, which is known as habituation. Hearing is very important in the development of speech, language and communication. In the womb your Baby is protected by the mother's body and the amniotic fluid from most loud noises. In the nursery there are loud, unexpected and continuous sounds that can cause your Baby to startle and interfere with sleep. Being in an incubator does not block out all sounds or protect your Baby from background noise and the ventilators such as CPAP add to the level of background noise, making it more challenging for your Baby to hear you talking.

Many preterm babies show that they recognise their parents' voices very early on. When the nursery is quiet, with your Baby's face shaded from the light and when they are settled, talk to them softly. Wait a little for a response, as this can be delayed as your Baby starts to recognise your voice. If less than 34 weeks' gestation, your Baby may not be able to fully open their eyes and look at you, but you may see a little smile at the corner of their mouth and a softening of facial expression. Often you will see their eyebrows lift up quizzically as if to say, "Hey, I know and love that voice."

What you can do to support your Baby:

- Talk to your Baby in a soft voice. They won't understand the words but will be soothed by the familiarity and the rhythm of your voice.
- Prepare your Baby for cares or changes in position using your voice. As hearing is as well developed as touch, your voice and a still hand placed on your Baby prepares them for a change. They won't understand the words or know exactly what to expect but they will know that something is going to happen and that they are safe and secure because they can hear and feel that you are with them.
- Choose simple books that you can read each day to your Baby; keep them in the incubator or cot drawer. As your Baby gets older and has more established sleep you can read it at the end of the day when settling your Baby down for the night. When you go home this story can be part of your bedtime routine.
- Open and close the incubator portholes quietly and avoid placing objects heavily on top of the incubator.
- Soft singing with songs like lullabies or nursery rhymes can be soothing.
- If your Baby is close to term, they may enjoy some soft music. Playing music can add to background noise and make it more challenging for your Baby to hear you speaking – choose a quiet time on the unit when your Baby is settled and play the music to them at a low volume.
- Try not to have conversations over your Baby's cot or incubator and keep your voice soft. You may find those around you lower their voices as well.

1.2.6 Vision

What we know:

Vision is the last of your Baby's senses to develop. Light is not necessary for visual development before 34 weeks' gestation. Light inside the womb is in muted red tones while lighting on the neonatal unit can be bright white and blues. Too much light is stressful for your Baby, it interferes with sleep and can cause your Baby to show stress behaviours such as breathing pattern changes or high or low heart rate. (Read the section on stress, pain and comfort for more details). Light sleep, rapid eye movement (REM) sleep, is vital for the development of the visual system. Before 32 weeks, your Baby's eyelids are very thin. They are not able to make their pupils smaller (constrict) so cannot block out bright light. Their eyes may be partially open much of the time. From 34 weeks of gestational age, your Baby can look at your face and watch you as you move slowly from side to side in front of them; it is easiest

to do this when the lighting is low. By term gestation, all of the pathways through the eye to the brain are working, although vision is blurry at first. Your Baby's vision develops rapidly and continues to develop over the first year of life.

Flickering light, eg turning lights up brightly and then down, or pulling back the incubator cover and flooding your Baby's eyes with unexpected light, can cause pauses in breathing and interfere with sleep. Low light encourages your Baby to wake quietly and look at you.

What you can do to support your Baby:

- Shade your Baby's eyes from the light. It is vital for the nurses and doctors to be able to see your Baby's body, especially when small or unwell. Position the incubator cover so that your Baby's face is shaded, and place a soft cloth or nappy over your Baby's eyes when the cover has to be removed for procedures;
- Keep a cot canopy on. This helps them during their sleep. You may want to turn the cot around slightly so that light is not shining in under the canopy, as shown in this photo.
- Avoid rapid fluctuations in light. Shade your Baby's eyes with your hand or body as you lift them out into the brighter light.
- Arrange your chair before taking your Baby out for skin-to-skin cuddles so that your body blocks the bright overhead lights. You can drape a sheet or blanket over your shoulder to reduce the light shining on your Baby's face.
- Hold your Baby in skin-to-skin cuddles so that they can look up at your face.
- Your face is the best thing for your Baby to see for their development. They will start to scan the outside of your face and then look at your eyes, mouth and nose as they mature.
- Aim for near darkness at night and low-level lighting, natural daylight if possible, to help your Baby learn the difference between day and night.
- Contrasting patterns such as black and white stripes or patterns must be avoided as these are very stimulating for young babies and they find it difficult to break away from looking at them. Constant visual stimulation can make your Baby very tired; you may see their face droop or worried furrows on their forehead.
- Once your Baby reaches term (40 weeks), they need enough light to see shapes.
- Continue to provide darkness or near darkness at night and natural light during the day to help your Baby as they learn about day and night.



1.3 Your Baby's behaviour (behavioural states)

Every baby has times when they are awake or asleep; these times of different behaviour are known as behavioural states. In the womb your Baby has started to wake and learn to sleep and these states continue to develop once born.

There are six states and each has an important function. When your Baby is very small they may only spend a few seconds in a recognisable state such as sleep, but as they mature you may notice a more gradual change in the states and that they stay asleep or awake longer. Being awake allows your Baby to learn about their parents and the environment while sleep enables growth of body and brain.

Preterm babies' states are brief and the change between them (transition) can be quick. The closer your Baby is to term the smoother this change becomes until they are able to gradually wake from sleep rather than move straight from sleep to crying or activity.



Deep or quiet sleep:

When your Baby is deeply asleep, they have steady, regular breathing. There is no facial movement and the body is very still. In deep sleep your Baby's body is growing.



Light or REM sleep:

Light sleep, also known as rapid eye movement sleep, is when your Baby looks as if they are dreaming. You may see twitches in their face and body. Light sleep is when your Baby's brain is growing and making new connections.

Drowsy or transitional state:

This is the state that is in-between sleep and awake states. You may wonder if your Baby is trying to wake up or go back to sleep.

Awake states:

Your Baby may wake and open their eyes to look out, showing that they are alert and awake. They may stay quite still and look settled. You may notice that your Baby's forehead is furrowed – this is a heightened alert state and they may be showing you that the environment is too stimulating. You may think that your Baby's face looks a bit droopy – this is a low alert state and may show you that your Baby is finding the environment quite tiring.



This baby's face looks droopy showing that he is in a low alert state

This little girl has a furrowed brow indicating a high alert level

A baby who is quietly awake and enjoying his first bath

At times you may see that your Baby is awake with their eyes open and is moving their arms and legs a lot. This is an active awake state and often is a warning sign that your Baby needs help to calm back to a quieter alert state, or else they may start to cry.

Crying is the last behavioural state that you may see. While crying is a normal cue for term babies at home, we need to try and prevent your Baby from having to cry on the unit so that they are not wasting valuable energy and increasing the stress hormones in their body.

Things you can do to help:

- Use your still hands and soft voice to help your Baby tuck up, press legs or feet into your hand and grasp your finger.
- You may find your Baby would like to suck on a dummy or on their own hand.

1.4 Sleep

Sleep is vital for all of us and your Baby needs to have good periods of sleep to allow them to grow and develop. Before 28 weeks of gestational age, your Baby does not have very clear sleep states and you may only see a few seconds of sleep at a time. For much of your Baby's sleep before this time, it will be unclear as to whether they are in light or deep sleep. We call this sleep transitional.

From around 34 weeks of gestational age, your Baby may start to develop more of a pattern of being awake and sleeping. This is driven by your Baby's feeding pattern. You may start to notice that they sleep more at night; however, a baby does not start to develop a proper day/night sleep pattern until well after term gestation.

The ability to sleep during the night and stay awake during the day is a complex process that relies on exposure to daylight, as well as the release of the hormone that helps you to sleep, as your Baby receives it through your breast milk if you are breastfeeding.

1.5 Motor development and positioning

Positioning your Baby well is important. Good positioning can improve your Baby's oxygen saturations; promote sleep; reduce startles and tremors; support your Baby's own efforts to stay calm (self-regulatory behaviours); and help with digestion and temperature regulation. Good positioning is also important in keeping joints supple, strengthening your Baby's muscles and supporting your Baby as they learn to move.

Your Baby has been learning to move in the womb in preparation for both birth and being in the outside world. The walls of the womb are elastic and give a surface against which the Baby can push and then relax back into a tucked up position. This pushing and relaxing helps the Baby to develop their motor system, including learning how to move and building muscle strength. Babies that are born early miss out on this opportunity which is one of the reasons why good early positioning is essential.

What we know about motor development in the womb:

- At 12 weeks' gestation your Baby may suck their thumb.
- At 14 weeks their hands start to open.
- At 26 weeks' gestation your Baby will be quite active, reaching for their toes and bringing their hand to their face and holding onto the umbilical cord.

What you may see when your baby is born:

- At 26 weeks of gestational age, your Baby's arms and legs will often be stretched out straight (extended) and their movements may be quite jerky and uncontrolled.
- Around 30 weeks of gestational age your Baby will have become very active and will start to bend their legs in towards their body (flexion).
- By 36 weeks of gestational age, your Baby has much more flexion in their arms and legs and may even kick quite vigorously. With their head in the middle, they can turn to look to their left and right to follow a sound. Movements are more graceful and smooth.

Muscle tone, reflexes and position:

Muscle tone is a term used to describe the feeling of the muscle both at rest and when your Baby is active. It is described as either low (floppy or hypotonic) or high (stiff or hypertonic). Babies born early typically have low muscle tone and supporting your Baby through positioning will help to improve their muscle tone.

These are all signs that your Baby has typical preterm low tone:

- Arms hang limply at your Baby's side in the bed.
- Your Baby may appear to be 'sucked down' into the mattress.
- When lifted and held your Baby's arms may fall backwards and hang down at their sides.

When a preterm Baby's head moves quickly in space it sets off the Moro reflex. This is the startle reflex that doctors test on their discharge check. A sudden or unexpected change in head position causes the Baby to fling their arms out to the sides and straighten their legs in a big startle. After a Moro, the Baby will often cry if they have the energy but you are also likely to see desaturations, an increase in heart rate, change in colour and general instability.

What you can do to support your Baby's motor development:

- Have your baby out for skin-to-skin cuddles for as long as possible. You can learn more about skin-to-skin cuddles later in this chapter.
- Adapt the bedding so that your Baby has boundaries to help keep them tucked up and comfortable.
- Swaddling: Some babies like to be swaddled as it can help make them feel calm and protected. Your Baby's hands need to be up near their face rather than held down at their sides. Your Baby can easily then use their hands to calm themselves if they start to feel stressed or upset.
- Tummy time: Many babies on the neonatal unit will be nursed on their tummies. This is also an important position for helping to strengthen muscles and promote normal patterns of movement. Tummy time is a lovely developmental position that can be done when your Baby is awake having skin-to-skin cuddles. Once you get home, a small rolled up blanket or towel placed underneath the chest and shoulder may help your Baby to tolerate tummy time for longer. Make sure that their shoulders are forward with arms in front of the roll to allow them to push down through their arms when on their tummy.
- You can prevent the Moro or startle reflex and reduce the changes in breathing, heart rate and colour (physiological disorganisation) that can occur when moving your Baby out of the cot or incubator by turning and lifting while in side lying and keeping your Baby loosely swaddled.
- Swaddling helps your Baby to keep their arms near their face and enables you to hold your Baby carefully to prevent them from having lots of movements or loss of muscle



tone (motor disorganisation). When swaddling your Baby make sure the wrapping is not too tight around the hips.

How to know your Baby is well positioned:

There are some basic things to look for, whether your Baby is lying on their back, side or tummy as shown below:

The Baby's neck is straight, not twisted at an angle, with his head in line with his body

The Baby's back is in a straight line



Arms and legs are softly bent and look relaxed

The Baby can bring hands together

The Baby can get his feet together and can press them against the nest

A newborn baby, particularly if born early, stretches out their arms and legs searching for the elastic wall of the womb. We try to offer a surface against which the Baby can push in the incubator and cot using rolls and boundaries. When very small your Baby will be placed into a fabric nest. This can be a manufactured one as shown below, or one that you can make out of sheets, towels and muslins with your Baby's nurse.



A **nest** gives support all around your Baby – a high base into which their legs can be tucked and sides to grasp. The nest may be lined with soft muslin in which your Baby can be wrapped when lifted out for skin-to-skin cuddles or weighing.

As your Baby grows they will come out of a nest and

have rolls instead. These rolls are usually towels rolled up to give side support and a big roll for their feet. You can tuck your Baby up securely between these boundaries to provide security and support their sleep.



The **side rolls** provide extra support behind your Baby's back when lying on their side. This will support your Baby's breathing.

Your Baby will spend much of their time in side lying in the cot, but as they mature and get ready to go home, they will need to learn how to sleep on their back. Sleeping on their back is the only position you should use at home. At this time, the side rolls will be removed from the cot. Keep a roll at the end of the cot that will give a boundary for your Baby's feet.

You may be offered different devices to help with positioning such as the **Zaky hand**, a bean bag shaped like a hand. It can provide extra support and help your Baby to reduce their big movements, such as vigorously kicking or stretching out with arms or legs, and stay settled in sleep. There are other weighted positioning devices that can also be used.



When using a weighted positioning device, take care that it is not too heavy on your Baby, particularly on their chest or tummy. Jiggle the beans down to reduce the weight in the fingers and hand on your Baby.

You will know where your Baby likes to feel a still, comforting hand. They may like to have a hand around the top of their head or over a shoulder. Put the Zaky hand in the same place and let their nurse know so that it can be put there when you are not around.

1.6 Skin-to-skin holding

Background:

Skin-to-skin holding is a method of holding your Baby against the bare skin on your chest. Skin-to-skin holding was developed in Colombia by Nathalie Charpak and her team as a means of combating high infection and death rates, and to reduce the number of babies abandoned in hospital. It is referred to as Kangaroo Mother Care. You may want to read her book, *Kangaroo Care Babies*; we can lend you a copy on the unit or it is available on Amazon (you will find the book details at the end of this chapter). The idea of this closeness between mother and baby has been adopted by modern, high-tech neonatal and maternity units that have recognised the many advantages and benefits for babies and their parents.



What is skin-to-skin holding:

Skin-to-skin involves holding your Baby with skin contact, chest to chest and can be done by both parents. Your Baby is lifted carefully out of the incubator or cot, placed on your chest and wrapped under your clothing with a hat and socks on to keep warm.

At first your nurse may lift your Baby and bring them to you as you sit next to the bed; once you are confident you will be encouraged to lift your Baby while the nurse helps look after any lines or tubes. This skin-to-skin contact has many beneficial effects when done regularly and consistently.

If your Baby is still ventilated, they can come out for skin-to-skin once the doctors and nurses are happy that your Baby is ready and stable. It takes a lot of training and experience to take a ventilated Baby out for skin-to-skin and this may need to be planned with your nurse at a time when there is an extra nurse available to support you and your Baby.



The most important thing to remember when you are ready to have skin-to-skin with your Baby is **preparation**. The transfer out for skin-to-skin is the most challenging part for your Baby and you may be anxious about having your Baby out on your skin especially in the first few days. This anxiety is normal. The nurses will help you to prepare both yourself and your Baby so that you enjoy having cuddles as a family.

What are the benefits of skin-to-skin holding?

In order to be beneficial, skin-to-skin time needs to be long enough for your Baby to settle and have a consolidated period of uninterrupted sleep. Generally one hour is considered the minimum time.

Holding your Baby in skin-to-skin releases a special hormone, often called the 'love hormone' (oxytocin) in both you and your Baby. This hormone is the one responsible for many of physical benefits of skin-to-skin, some of which are described below:

- Better temperature control as your body helps keep your Baby warm.
- Steadier breathing and heart rate. When first out on your chest, your Baby may have some pauses in breathing or change in heart rate, this is usually related to the stress of being lifted out of the incubator. They should settle on your chest and your nurse will be close by to help if needed.
- Greater weight gain on the neonatal unit as your Baby saves their energy by having better temperature control and more time asleep.
- Earlier discharge from hospital.
- Lower risk of infection.
- Increased lactation, establishment and maintenance of breastfeeding.
- Improved ability to move from a sleep state to an awake state smoothly.
- It makes your Baby feel secure and safe and provides the familiarity of the sounds of your breathing and heart that they have heard when inside the womb.

- It provides lovely smell experiences and helps your Baby learn your smell, which is important for memory and emotion when older.
- Reduced stress in your Baby; helps recovery from birth-related fatigue, giving longer time spent in alert states and less crying at six months.
- Reduces your blood pressure and makes you feel calmer. You may find that you feel very sleepy during and after skin-to-skin – this is the hormone working its magic.
- Helps you get to know your Baby better and gain confidence in carrying out your Baby's cares.

When is your Baby ready for skin-to-skin?

Some babies may be ready for skin-to-skin very soon after birth and others may need to have several days or even weeks in an incubator or cot because they are unwell and unstable.

There are a few times that we may not want you to do skin-to-skin; these include:

- When your Baby is in the incubator with humidity set to more than 65 per cent – your Baby's skin is very fragile and they are at risk of losing a lot of moisture through their skin if out of the incubator. The decision to do skin-to-skin if your Baby is in more humidity (>65%) will be made with yourselves, the medical team and your Baby's named nurse.
- If your Baby has had their breathing tube removed (extubated) within the past 24 hours – your Baby needs time to adjust to being without the breathing tube and doing more of their own breathing.
- If your Baby's heart rate drops frequently (bradycardias) or if they have long pauses in breathing (apnoeas). Your Baby may do this during other cares or handling, or the doctors may have concerns over a possible infection. We would suggest waiting until your Baby is stable again before taking them out for skin-to-skin.
- Your Baby is having cooling after birth. They can come out for a cuddle on your lap on a pillow, but their temperature needs to be kept low and it is not suitable to hold them up against your chest.

When are you ready for skin-to-skin?

All parents who enter the neonatal unit embark on a journey. The first part of this involves watching your Baby and this is extremely important. Allowing you to have time to watch, touch and be in the presence of your Baby is vital and should happen before you do skin-to-skin.

You may feel confident enough to hold your Baby quickly after birth, or you may need time to learn about your Baby and become more comfortable with the environment. This is your journey and we will support you to hold your Baby when you are ready.

Preparation for skin-to-skin:

- Read the Bliss skin-to-skin information leaflet. This should happen as early as possible in your Baby's stay so that you have time to prepare for your first skin-to-skin and to ask questions.
- Plan a suitable time for skin-to-skin with your Baby's nurse. You need to take into account your Baby's medical condition, the temperature in the nursery, unit routines, feed times and your availability. A minimum of 60 to 90 minutes should be set aside to include the preparation and actual skin-to-skin time to ensure the full benefit for you and your Baby.
- Wear a front opening top, or suitable clothing, to make it easy to position and enclose your Baby.
- Have a drink of water with you, go to the toilet, and be prepared to do skin-to-skin for a minimum of one hour.
- Ask your nurse to help you get comfortable seating, preferably a reclining chair with arms and a footstool.
- Very small babies will need a hat and booties or socks. If your Baby is dressed, choose clothes that are easy to remove when changing their clothes earlier in the day.
- Ask your nurse for a screen if you would like privacy during skin-to-skin.
- If your Baby weighs less than 1,000 grams, your nurse will want to record their skin temperature before, during and after skin-to-skin.
- Your Baby may be briefly unstable during transfer to and from the incubator or cot to your chest. Your Baby's nurse will observe carefully to make sure they settle comfortably.
- Two nurses will be required to transfer your Baby if they are ventilated. The decision to do skin-to-skin with your Baby at this time needs to be a joint decision between yourself, your nurse and the doctors. There may be times that it is not possible to take your Baby out for skin to skin when on the ventilator. The nursing team will always make sure they have enough people to support you and may need to suggest a time for skin to skin when there are enough staff.
- If your Baby normally has times when they have short pauses in their breathing (apnoeas) or periods when their heart beats a bit slower (bradycardias) in the incubator, they may have them during skin-to-skin too.
- Have a mirror so that you can keep an eye on your Baby's colour, breathing and facial expression while you are having skin-to-skin.



Skin-to-skin with twins and triplets

Reuniting your Babies while doing skin-to-skin is a lovely way to be a family. The team will try to place your Babies' incubators next to each other while in intensive care and when you and your Babies are ready the nurses will help you to hold them together. It is a wonderful time to

watch your Babies rediscover each other and you may see them hold hands, touch each other's faces or suck on a brother or sister's fingers.

Another way is for both mother and father to have the babies out at the same time for skin-to-skin and sit next to each other. There will always be nurses around to help you get your Babies out and get them positioned well on you.

1.7 Comforting your Baby

While on the neonatal unit, your Baby will have to experience painful and stressful procedures as part of their care. Every care is taken to protect them from distress, but these medical procedures are necessary to support your small or sick Baby and enable them to recover, grow and be discharged home.

Reading your Baby's cues

(Adapted from work on preterm infant behaviour by H. Als)

Even though your Baby is little, they can communicate their likes and dislikes to you. Learning to read your Baby's cues or signals is very simple, once you understand what the cues from a small or preterm infant look like. The following is a list to guide you in interpreting your Baby's message.

Cues are grouped into two categories:

- stable cues – these tell you your Baby likes what is happening or that the Baby is comfortable and *ready* for interaction.
- stress cues – these tell you your Baby does not like what is happening and is uncomfortable. Stress cues indicate the need for a change or for Baby to *take a break*.

Individual babies have their own styles of communicating and their own sets of these behaviours. For example, not all babies twitch or hiccough when they are stressed. At first it may seem like a guessing game while you are learning to read your Baby's cues and you and your Baby are getting to know each other better. Learning to read your Baby's messages through these cues though is an important part of establishing a relationship and meeting your Baby's needs. This will get easier for you as you get to know your Baby.

Stable or 'ready' cues

These cues typically mean that the Baby is relaxed and comfortable and likes what is happening:

- regular breathing without variations
- stable pink colour without variations
- no gagging, grunting, tremors, startles or twitches
- no coughing, sneezing, yawning or sighing
- smooth movements of head and limbs
- able to maintain position without squirming
- able to actively do things to help themselves stay calm, such as bracing leg or foot against the bed
- holding feet one on top of, or next to each other
- holding fingers or holding the other hand
- bringing hand to mouth and keeping it there
- sucking on fingers or fist
- grasping the blankets or caregiver's fingers
- curling up into a ball on their side
- able to maintain calm sleep states

- able to calm themselves using a dummy to suck on, holding onto caregiver's hands
- able to look at caregiver's face or an object and stay calmly alert
- can focus with eyes and watch faces or objects (sometimes this is easier when the Baby is swaddled in a blanket or held as they are then able to feel more secure)
- can make the 'ooh' face by pursing lips when looking at faces
- tries to smile or coo
- can sustain interest in looking, listening, and following for brief periods of time.

Stress or 'take a break' cues

These cues typically mean that the Baby is not comfortable and doesn't like what is happening:

- changes in breathing to faster breathing, pausing or gasping for air
- becoming pale, white or blue
- hiccoughing, gagging or grunting
- vomiting
- straining as if having a bowel movement
- startling, trembling or several twitches of body, limbs or face
- coughing, sneezing, yawning or sighing
- squirming
- looking away from caregiver – avoiding their gaze
- becoming limp in limbs, neck, face or trunk
- becoming stiff in legs, arms or fingers
- sticking tongue out
- arching back and neck
- restlessness in sleep with jerky movements, whimpers or fussing
- looking tired and glassy-eyed, fussing, staring, or looking worried during awake times
- crying weakly or becoming irritable
- suddenly going to sleep or fussing
- frantic ongoing, disorganised activity that the Baby cannot control.

How you can support your Baby:

- Use your still, comforting hand and your soothing voice.
- Spend time watching your Baby so that you can learn their usual stress cues and what helps your Baby to calm.
- Skin-to-skin holding.
- Offering the dummy before, during and after any procedure that may cause stress or pain.
- Dipping the dummy into your expressed breast milk will give your Baby a lovely taste and is known to be more calming than sucking alone.
- Sing to your Baby softly.
- Help your Baby to tuck up on their side so that they can bring hands to face and press feet against the roll or nest at the end of the cot or incubator.

1.8 Massage

Touch is the first of the senses to develop and a basic behavioural need. It is an essential part of communicating and bonding with your Baby and nurturing touch supports your baby to thrive. Massage can bring many benefits to your Baby and they can be divided into categories that include interaction, stimulation, relief and relaxation (as originally defined by International Association of Infant Massage founder, Vimala McClure).

Massage can help to promote bonding, attachment and communication and it is through these interactions that you and your Baby show your love for each other. Massage can help in the stimulation of body systems and there are many that show positive responses to massage such as circulatory, digestive, respiratory and vestibular (balance) systems.

Many other body systems are positively benefitted by positive touch such as development of muscle tone and strength, sensory integration and body awareness. New evidence is emerging all the time to show the benefits nurturing touch can have. The relief of colic and constipation can be eased by massage as well as reported benefits for muscle cramps and teething, amongst others. Relaxation from massage is demonstrated by improved sleep patterns, improved self-regulation of behavioural states and reduced stress hormones within the body.

Your premature Baby may be quite sensitive to touch and therefore massage is adapted to your Baby and your Baby's cues. Often infant massage for your Baby will consist of holding your baby cupped in your hands and resting or still hands, which your nurse can show you. Your Baby may only cope with one intervention at a time, such as eye contact, touching or talking and may not be able to cope with all three at one time. However, as your Baby grows, they may become more able to accept more stimulation. Massage strokes would only be introduced once your baby shows cues that they are ready.

If you choose to see a certified infant massage instructor (CIMI), at all times your Baby's cues are respected and instructors teach you as parents how to massage your baby. They will not massage your Baby themselves. Explore baby massage classes near to your home for after discharge. Use the official website: <http://www.iaim.org.uk/> to find a certified instructor or speak to your health visitor.

1.9 Slings and carriers for home

You may want to use a baby sling or carrier with your Baby when you are discharged home. Carrying your Baby in a sling is a lovely way to keep close to them and can also help with reflux, temperature regulation and posture. There are many slings on the commercial market available to buy. The NCT website has useful information on 'baby wearing' – <https://www.nct.org.uk/parenting/babywearing-and-how-choose-sling> and a good leaflet (you will find the link to this in the reference section at the end of this chapter).

One of the key considerations when buying a sling for a premature baby is your Baby's weight. Many of the commercial brands can only be used once your baby is 3.5kg or 7 pounds in weight.

There are safety rules that must be adhered to when using a sling with your baby. The British Association of Babywearing Instructors recommends the '**TICKS**' checklist:

Tight – Slings and carriers should be tight enough to hug your Baby close, as this will be most comfortable for you both. Any slack or loose fabric will allow your Baby to slump down in the carrier, which can affect their breathing and pull on your back.

In view at all times – You should always be able to see your Baby's face simply by glancing down. The fabric of a sling or carrier should not close around them so you have to open it to check on them.

Close enough to kiss – Your Baby's head should be as close to your chin as is comfortable. By tipping your head forward, you should be able to kiss your Baby on the head or forehead.

Keep chin off the chest – A baby should never be curled so their chin is forced onto their chest as this can restrict their breathing. Ensure there is always a space of at least a finger's width under your Baby's chin.

Supported back – In an upright carrier, your Baby should be held comfortably close to you so their back is supported in its natural position and their tummy and chest are against you. If a sling is too loose, they can slump, which can partially close their airway. (You can test this by placing a hand on your Baby's back and pressing gently – they should not uncurl or move closer to you.)

The safest position for your Baby to be carried is in an upright position. Lying down cradle-type positions are best avoided with newborns and premature babies, as it is difficult to ensure the position is safe without their chin and chest touching. Upright positions, with your Baby's legs in a frog or 'M' position with their bottom lower than their knees, are also more suitable for their developing hips and spine.

Adapted from: <https://www.nct.org.uk/parenting/sling-safety>

Key messages and reflection:

After this chapter you should be able to:

- understand the value of supporting your Baby's physical and sensory development in the neonatal environment
- understand how you can help your Baby to adapt to their new environment
- be familiar with ways to protect and promote your Baby's sensory development
- know how to access more information and advice about your Baby's development.

Further learning in this topic

If you wish to know more:

- make sure you ask our neonatal team at any time
- ask for one-to-one support from one of our Integrated Family Delivered Care Project nurses
- use this app or your Parent Binder to record notes and questions
- attend small group teaching in topic: **Developmental care.**

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Resources

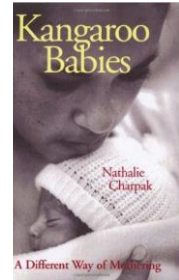
Caring for your Baby on the Neonatal Unit: A Parent's Handbook. An excellent book written by Inga Warren and Cherry Bond with input from many families of preterm infants. It is an excellent resource for any parent with a Baby on the neonatal unit. Available from www.earlybabies.com

www.earlybabies.com – useful information on preterm birth and parenting on the neonatal unit. You can buy the book *Caring for your Baby on the Neonatal Unit: A Parent's Handbook* from this website.

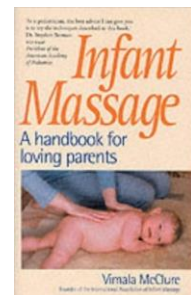
Kangaroo Babies: A different way of mothering (2006) by Nathalie Charpak.

ISBN-13: 978-0285637726

Available from Amazon and many good bookstores. We can lend you a copy on the unit.



Infant Massage: A handbook for loving parents (2001) by Vimala McClure.



Baby Wearing: a Guide:

https://www.nct.org.uk/sites/default/files/related_documents/Messenger%20Babywearing%20slings%20pull%20out_2.pdf

Different types of slings:

<https://www.nct.org.uk/parenting/different-types-slings>

Information on the Zaky Hand:

www.thezaky.com