

Safe Feeding

In the NICU and at home

This handout explains the feeding “building blocks” used in the NICU. It tells when and how your baby will start oral feedings by breast or bottle.

What is feeding progression?

Feeding progression is the term used to describe the stages babies in the NICU go through as they learn how to feed safely and get the nutrition they need. In the NICU at UWMC, we use a feeding progression tool called the *BROSS Approach** to help us assess what each baby needs, based on their stage of development.

The graphic below uses numbered building blocks to show the different stages in the BROSS Approach. A baby may start at any one of the building blocks, if they have already mastered the blocks before it. Every baby is different when it comes to feedings, and each progresses at their own pace.



Building blocks in the BROSS Approach to feeding

Building Blocks in the BROSS Approach

Here is a short overview of each of the stages in the BROSS Approach:

Blocks 1, 2, and 3: Pre-Feeding

1 Stability in Bed	Your baby cannot handle very much stimulation. Our main goals are to provide a quiet environment and to place your baby in a position that will help their development.
2 Stability with Handling	Your baby can tolerate “still touch” and <i>kangaroo care</i> (skin-to-skin holding), but they are still sensitive to stimulation. We will help you learn how to hold your baby so that they feel safe and can stay calm.
3 Stability While Sucking	Your baby is ready to suck at a fully pre-pumped breast, can suck on their pacifier while they are getting fed through their feeding tube, and might be able to taste milk on a breast or pacifier.

Blocks 4, 5, and 6: Beginning Feeding

4 Obligatory	Your baby is ready to try feeding from a breast, either before pumping or partially pumped, and/or from a bottle. But, your baby cannot yet coordinate breathing during a feed. The person feeding them will need to help them feed and rest to breathe throughout the feeding. (See pages 5 through 9.)
5 Alternating	Your baby has been breastfeeding, bottle feeding, or both. They are taking “sucking bursts” of 6 to 10 sucks, breathing, and then taking more sucking bursts. They will still need help from the person feeding them to know when to breathe and when to take a break.
6 Intermittent	Your baby has been breastfeeding, bottle feeding, or both. They are starting to coordinate their breathing with their sucking bursts, but they do not do this all the time. They will still need help for some of their feeding from the person feeding them to know when to breathe and when to take a break.

Blocks 7 and 8: Advanced Feeding (*Babies do not usually reach stages 7 and 8 until after they go home from the NICU.*)

7 Coordinated	Your baby is breastfeeding, bottle feeding, or both. They only need a little help from the person feeding them.
8 Integrated	Your baby is breastfeeding, bottle feeding, or both. During feeding, they are able to interact with the person feeding them and the environment.

What can I expect during feeding progression?

Each feeding stage builds on the last. The skills that you and your baby learn in one stage you will keep using in the next stage. If you have any questions or feedback, please talk with your baby's nurse. Remember that each baby is unique and goes at their own pace when learning how to feed.

The Pre-feeding Stages

In the pre-feeding stages, you will do certain activities with your baby to help them prepare for taking food by mouth (*oral feeds*). Here are just a couple of examples of pre-feeding activities that you can do for your baby:

- **Stability in Bed:** Use still touch and soft voices during this pre-feeding stage. The focus of this stage is to place your baby in positions that will best help them grow. Ask your nurse or motor therapist for more information on developmental positioning.
- **Stability with Handling:** Start using kangaroo care to help you and your baby bond. Hold your baby skin-to-skin as often as you can as they progress through the stages.
- **Stability While Sucking:** Help your baby practice sucking while tube feeding is going on. You can provide your pumped breast, a finger, or a pacifier. When the care team feels your baby is ready, place your baby on a fully pre-pumped breast.

When will my baby be ready for oral feeds?

Please talk with your baby's care team about when your baby might be ready to start oral feedings. For babies to start oral feeding safely, they must:

- **Be at least 33 weeks corrected gestational age.** Before this age, your baby is not physically mature enough to manage sucking, swallowing, and breathing in the way that is needed when taking food by mouth.
- **Have stable vital signs.** Stable vital signs means that your baby's breathing rate is less than 70 breaths a minute, and their heart rate is steady more often (Please read about ABCs in the handout "Medical Terms in the NICU.")

Other signs that your baby is ready to begin oral feeds are:

- Turning their head, opening their mouth, and trying to suck (rooting)
- Being able to suck on your pumped breast or a pacifier without tiring

Feeding Therapist Evaluation

Some babies are at high risk for early feeding challenges. They may have been born very small, needed breathing support for a long time, or have other health problems that are linked with feeding difficulties later on.

We have special feeding therapists in our NICU who are trained in feeding preterm and sick infants (see “Your Baby’s Care Team”). When the care team feels that your baby is ready to try oral feeding, one of our feeding therapists will observe your baby and do an evaluation. Please talk with your baby’s nurse about your baby’s “high-risk feeding level” to learn more.

Starting to Breastfeed

When the care team determines it is safe for your baby to start taking feeds by mouth, breastfeeding is the ideal method to start with. If you would like to breastfeed, please ask your care team about making a feeding plan so we can support your breastfeeding goals.

Learning to breastfeed is a process. At first, it may be hard for your baby to take milk from your breast. This is normal and expected. As you practice breastfeeding, your baby will learn how to get more milk.

Your baby’s suck will get stronger as they grow. This will help with learning to breastfeed, and will increase their feeding skills. Remember to help your baby stay in control as their suck changes.

Tips to Help with Breastfeeding

- The NICU care team will help you and your baby feel comfortable while breastfeeding. Ask if there is a breastfeeding resource nurse, lactation consultant, or feeding therapist who can support you.
- At first, we will not measure how much breast milk your baby is taking in. As your baby progresses, we will begin to measure how much milk they are getting at your breast.
- To help your baby grow, we will keep feeding your baby with the feeding tube even after you start breastfeeding. If your baby is alert while tube feeding, they can suck on your breast, finger, or a pacifier.
- Sometimes a baby has a hard time holding their mother’s nipple in their mouth. A nipple shield may be helpful when you and your baby are just beginning breastfeeding. The shield will help shape your nipple to fit your baby’s small mouth.
- Using the gavage and a small feeding tube, we can put the tube in your baby’s mouth while they are at the breast. This can help stimulate their sucking reflex and promote a strong latch. This is called a *supplemental nursing system* (SNS). Please ask a lactation consultant or breastfeeding resource nurse to help you with this.

Starting to Bottle Feed

If you are planning to breastfeed, we will help you start your breastfeeding routine before you offer your baby a bottle. As breastfeeding continues, your baby may also begin to take feeds from a bottle.

Bottle feeding a baby in the NICU is very different from feeding a healthy full-term baby. It is important to know the best ways to:

- Position your baby
- Hold the bottle
- Help your baby stay in control while feeding
- Read cues for how your baby is responding to feeding

How to Safely Feed Your Baby

Goals of Safe Feeding

- Sucking should be strong, slow, and even.
- Swallow should be smooth and silent.
- Breathing should be calm and quiet.
- Baby's facial expression or body language should be calm, relaxed.

It is important for you to be able to tell whether your baby is staying *organized* when feeding or whether they are *disorganized*:

- When a baby is **organized**, they stay interested and calm during a feeding. The feeder helps by watching the baby's signals and taking a break when needed.
- When a baby is **disorganized**, they do not stay involved with the feeding.

When you are feeding your baby, there are things you can do to help to improve the quality of your baby's oral feeding.

Respect Your Baby's Cues

Your baby will communicate with you throughout the feed. Watch for small changes in your baby's facial expressions and body language. Respond in a way that helps your baby relax, be calm, and stay organized.

Feedings should be enjoyable for your baby, so watch for:

- Signs your baby is enjoying their feed:
 - Calm, relaxed facial expression
 - Calm body
 - Active, strong sucking and swallowing

- Signs your baby needs a break:
 - Falling asleep or looking more and more tired
 - Eyes glazing, fluttering or rolling, looking away, or shutting eyes tightly
 - Milk spilling out of their mouth
 - Hands opening wide (like a “stop” sign) or squeezing into a fist
 - Neck or body pulling away from the breast or bottle
 - Pushing the tongue forward, pursing lips, or closing mouth
 - Slowing down or stopping sucking
 - Any squeaking or gulping noises

Reducing the Flow Rate

Most premature infants, and some ill full-term infants, have trouble keeping up with the flow rate. The faster the milk comes out of mom’s breast or a bottle, the more milk a baby needs to manage, and the more challenging it is to coordinate the swallow.

When the flow rate is too fast, the baby may:

- Lose milk out of their mouth
- Have noisy, gulpy, or squeaky swallows
- Not be able to keep a smooth rhythm of sucking and swallowing
- Need to swallow more than once for each suck
- Have tense, worried, or stressed facial expression or body language

Reducing the Flow Rate When Breastfeeding

- Mom reclines with baby positioned above her breast. This allows gravity to help slow the flow rate.
- Mom pumps a small amount of milk before starting to breastfeed.

Reducing the Flow Rate When Bottle Feeding

- Use a bottle with a slower flow. The first bottle we usually offer a baby is a “Dr. Brown’s Preemie.” If a baby shows signs that the flow rate of the “Dr. Brown’s Preemie” is too fast, we also offer:
 - Dr. Brown’s Ultra Preemie – The flow is even slower than a Dr. Brown’s Preemie bottle.
 - Binky Training – A feeding system that allows the feeder to have full control over the rate that milk enters a baby’s mouth.

Your baby's care team will talk with you about these options if they are needed for your baby.

- Hold the bottle almost sideways, so the milk just barely covers the nipple hole.

“Pace” Your Baby

The person who is feeding is responsible for keeping your baby calm, in control, and enjoying the feed. This often means teaching your baby to take a break even when they want to continue sucking.

What is pacing?

Pacing is when you stop the flow of milk so your baby can take a break to breathe. You can do this by tipping the bottle down, or taking your nipple out of your baby's mouth.

Pacing Your Baby at the Breast

- Place your finger between your baby's mouth and the nipple until they come off the nipple.
- Keep them close to the nipple as they rest, and watch their breathing.
- Restart when your baby is calm and begins to open their mouth again.

Pacing Your Baby with a Bottle

- Tip the bottle down, just enough so the milk is below the nipple (not flowing out). Do not take the bottle out of your baby's mouth at first. Ideally, your baby will take a break to breathe with the nipple still in their mouth.
- If your baby does not stop to take a break when you tip the bottle down, you may need to take the bottle out of their mouth.
- Keep the nipple in your baby's mouth or near their lips as they rest, and watch their breathing.
- Restart when your baby is calm, and begins to open their mouth or suck again.

After you have been feeding your baby for a while, you may start to sense when they might have trouble staying organized. If you have this feeling, give your baby a rest break even before they give cues that they need one. Here are some examples:

- Baby does well for about 4 sucks in a row, but has a hard time when trying a 5th suck. If this happens, the feeder should pace baby every 4 sucks, even if baby is still sucking.

- Baby does well during the middle of the feed, but has a hard time at the beginning and end of feeds. If this happens, the feeder can pace the baby during the beginning and end of the feed, but can let the baby “self-pace” when they have good control.

Use the Side-lying Position

Side-lying is a natural position for babies. It promotes reduced flow rate and safety during feeds. This is a good way to reduce the flow rate of a bottle system without changing anything else. Our NICU care team will help you and your baby with this position.

Hold the Nipple Still

Feeders used to twist or move the nipple in and out of a baby’s mouth to trigger the reflex of sucking. This was done to prompt a baby during feeds, get the baby to keep feeding, and finish a feed faster.

But, twisting or moving the nipple in and out of your baby’s mouth during breaks is not safe. If you do this, your baby may start to suck but may not be able to swallow. This kind of motion can also be uncomfortable for the baby. Just imagine if someone did this to you when you were resting between bites!

By holding the nipple still, you allow the baby to “ask” to eat again by beginning to suck on their own. The baby is then actively pulling milk into their mouth and is more ready to swallow. This promotes organization, coordination, and motor learning. Longer breaks between bursts of sucking also help the baby breathe more calmly.

Know Your Baby’s Best State for Feeding

Babies may feed best in an *active alert state*, in a *quiet alert state*, or just awake with their eyes gently shut. (See the handout “Your Baby’s Sleep and Wake States.”) Feeders should help the baby be in an organized state during the feed, and stop a feed if a baby cannot stay in this ideal state.

Save Your Baby’s Energy

Babies are able to feed better and longer if they do not need to use their energy to support their body. To help your baby save energy while feeding:

- Support their full body
- Position your baby *in midline* (with their limbs turned toward the center of their body)
- Swaddle your baby with their hands near their chest or chin
- Pace the feeding to support calmness, organization, and quiet breathing
- Reduce the flow rate as needed, so your baby is not working too hard with each suck

Provide Gentle Burping Breaks

Keep nurturing and supporting your baby during burping breaks. This helps them return to quality feeding after the break. It also helps your baby enjoy the feed.

Going Home

- Make sure you understand and are comfortable with your baby's discharge feeding plan
- Keep using the feeding supports you learned in the NICU when you take your baby home.
- Your feeding therapist will give you more information on how and when to transition your baby to fewer feeding supports. These steps will include moving to an upright position, increasing milk flow, and stopping pacing. The timing of this transition is different for each baby.

Call your baby's primary care provider if:

- Your baby feeds better when sleeping
- Your baby coughs or chokes when eating
- Your baby does not like to eat or refuses to eat

Helpful Online Resources

- **Feeding Matters:** www.feedingmatters.org
- **FeedingTubes Kids:** <http://feedingtubeskids.com>. Parents can purchase an app for their iPhone or iPad to learn more about *nasogastric* (NG) and *gastric* tubes (G-tubes).
- **Pediatric Feeding Association:** <http://pedsfeeds.com>. Parents can use this website to look up feeding therapists and providers in their area who specialize in feeding difficulties. Most providers listed are in Washington state.

* *BROSS stands for Baby Regulated Organization of Subsystems and Sucking. Information about the BROSS Approach adapted from "Eating as a Neurodevelopmental Process for High-Risk Newborns" by Joy V. Browne, PhD, and Erin Sundseth Ross, PhD.*

