SENSE
Supporting & Enhancing NICU Sensory Experiences
A Guidebook For Parents In The NICU
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The NICU has its own language. We have created a list to explain some words that you will hear in the NICU and throughout this book:

- A baby who is not preterm grows inside the mother for 40 weeks before being born. So, the 25th week of pregnancy means that the baby is 15 weeks from their due date.
- NICU: the Neonatal Intensive Care Unit
- Due Date: The date the baby would have been born if he/she had stayed inside mom for 40 weeks.
- Full Term: A baby who was born at his/her due date or two weeks before or after his/her due date.
- Preterm: A baby who was born three weeks or more before his/her due date.
- Gestational Age: The number of completed weeks that an infant spent developing in mom’s womb prior to being born (from the date of the mother’s last menstrual period).
- Postmenstrual Age: The number of weeks gestation an infant was born at plus the number of weeks since birth. This helps us understand the ‘developmental’ age of your baby (how close or far from the due date your baby is). If your baby was born at 26 weeks gestation and is now 4 weeks old, his/her postmenstrual age would be 30 weeks (10 weeks before the due date).
- Term Age: A baby who has reached their original due date.
- Womb or Uterus: The place where a baby begins and grows inside of mom.
- Senses or Sensory: How you experience the world around you with touch, taste, smell, sight, hearing, and movement.
- Development: The process of growing and learning new things.
- Intervention: Something done to help and/or fix a situation; something done to help the baby develop or grow.
- Treatment: Something done to help and/or fix a medical problem.
- Nursing Cares: Something the staff does to help care for your baby. This can include: diaper changes, checking temperature and other vitals, and performing other procedures.
Chapter One:

Meet The Team

PREVIEW ONLY

We Are Here For You!
Bobbi Pineda, PhD, OTR/L
Investigator

Bobbi Pineda has been a pediatric occupational therapist since 1992, and much of her clinical experience included service to infants in the NICU. Her first son was born at 29 weeks gestation in 1998. She became intrigued with conducting research aimed at supporting the parents of infants in the NICU as well as research to support the developmental progress of the premature infant. She has been a member of the Washington University Neurodevelopmental Research group for the past 9 years. Her current work focuses on better understanding how early factors in the NICU environment support development of the growing, premature infant.

Joan Smith, PhD, RN, NNP-BC
Investigator

Joan Smith has nearly 3 decades of neonatal nursing experience and has worked as a Neonatal Nurse Practitioner since 1994. She is currently the Director of Clinical Research and Implementation at St. Louis Children’s Hospital. She has led multiple care teams with a focus on implementing evidence-based care interventions to support infant development. As a member of the Washington University Neurodevelopmental Research group, she has collaborated with Bobbi Pineda to better understand how the NICU environment can impact infant development in babies born prematurely. Her biggest claim to fame: she is the mother of former 29 week twin boys and has a very keen interest in this topic.
Meet The Team

The Sensory Support Team is made up of OT graduate students at Washington University, interns, staff, and volunteers who have a passion for understanding and supporting the development of preterm infants in the NICU. Every member of the SENSE team underwent a minimum of 12 hours of education to learn about medical interventions and complications in the NICU, early brain and sensory development, and how to support families and infants in the NICU.

The Sensory Support Team will be available to support you in providing sensory exposures to your baby. They will read to, touch, and comfort your baby when you are not able to be in the NICU.
Chapter Two:

Parenting In The NICU

PREVIEW ONLY
What You Can Do For Your Baby
Importance Of Parents

- You can offer security and support for your baby to help him/her continue to grow and develop while in the NICU.

- Parents provide stability for the baby in an unstable situation.

- The information in this book is a source of information that will help you support your baby throughout his/her stay in the hospital.
Tips For NICU Parents

• Premature babies sleep most of the time. Sleep is very important for your baby’s development.

• If your baby is sleeping when you arrive, speak softly to let him/her know you are there. Place a hand on his/her head to let him/her experience loving touch. You can also talk to your baby without waking him/her.

• Your baby may be easily overwhelmed by bright lights, noise, quick movements, and medical care. Your comfort can help your baby.

• As your baby grows and develops, he/she will wake for longer periods of time and will interact more.
Chapter Three:

Experiencing The World

Our Body’s Senses
We Have Seven Basic Senses:

1. Touch
2. Body Awareness (understanding the parts of your body, where they are located, how they feel, and what they can do)
3. Movement
4. Smell
5. Taste
6. Hearing
7. Seeing
• The tight wall of the womb keeps baby curled up, with pressure on his/her back, hands toward the middle of the body, and legs curled up.

• The “hug” of the womb makes the baby feel safe and secure. Your baby is able to move about while still feeling his/her mother’s "hug" all around his/her body.

• This teaches your baby about the position of his/her bones and muscles during bending, straightening, pulling, and stretching.
Smell & Taste

• Your baby’s taste buds develop at the 13th to 15th week of pregnancy.
• Your baby can smell and taste the mother’s diet; including salty, sweet, sour, bitter, and savory. The baby can perceive the unique smell of the mother.
• The sense of smell and taste together allow the enjoyment of many different flavors.
• Smell has a strong connection to long term memory, and the baby recognizes the mother’s smell immediately after birth.
• Recognition of mom's smell is important for bonding and makes your baby feel safe.
Baby’s hearing develops and is working by the 24th week of pregnancy.

Sounds from the outside world are muted by mom’s body.

Baby can hear mom’s heartbeat, gushes of fluid in the womb, blood flowing in the veins, noises of digestion.

Baby can hear mom’s voice from the outside, and can also feel vibrations.

Baby can recognize mom’s voice after birth. Knowing mom’s voice is important for bonding between mom and baby.

Hearing allows your baby to learn about language and communication.
Chapter Four:

Growing Up In The NICU

How To Support Your Baby
The NICU Experience

- Premature birth and staying in the NICU changes how your baby experiences the world around him/her.

- He/she no longer has the protection of mom’s body, and he/she experiences all of the noise, light, touch, pain, and gravity that is in the outside world.

- Your baby’s senses continue to develop just like they would in the womb, but now those senses are getting extra stimulation.

- It is important to make sure that your baby receives the right kind of stimulation, so that it will support his/her developing senses.

- How? By giving positive sensory experiences that are close to what your baby would get in the womb, and spending quality time with mom, dad, and family every day.
Supporting Your Baby’s Sense Of Touch

• Talk to your baby softly. Let him/her know you are there.

• Let your baby hold onto your finger with gentle pressure.

• Babies in the NICU may better tolerate firm and non-moving touch, rather than light or moving touch.

• Touch and contact helps your baby feel comforted and helps to calm him/her.
Infant Massage

• It gives baby positive touch, decreases baby’s stress, and supports baby.

• Helps baby and parents to bond.

• Your therapist will help you learn massage techniques and teach you how to read your baby’s cues.

• In general, your baby will be ready for massage when he/she is at least 32 weeks postmenstrual age.

• There is a ‘Bonding Touch’ class held on the 3rd Tuesday of each month. It is at 12:15pm in the NICU West Conference Room.
Protecting Your Baby’s Sense Of Smell

- Provide maternal scent through scent cloths:
  - Sleep with the scent hearts provided by the NICU (or place in shirt or bra).
  - Return the hearts to the NICU and place one under your baby’s head.
- Allow your infant to smell your presence:
  - Breastfeeding provides many benefits to your baby, including being near your scent.
  - Kangaroo care provides close physical contact between parent and baby and allows your baby to experience your scent.
Chapter Five:

How Your Baby Talks To You

Watching His/Her Signals
Approach Behaviors
“I’m Ready To Interact”

Focused Attention
Baby will make eye contact with you.

Bright Eyed & Sucking Movements

Regular Breathing Rate  Face, Arms, and Legs Relaxed  Color: Pink
Baby nestled, relaxed, and ready for comforting touch.

Awake, Quiet, & Alert
“Talk to me Mom & Dad”
Overwhelmed Behaviors
“I Need A Rest”

Worried Face, Salute (Arms Up), & Finger Splay

Worried Face, Wrinkled Forehead (Furrowed Brow), & Hand Splaying

Stop Sign
Hands up and out with fingers splayed.

Yawning
Chapter Six:

Your Time With Your Baby

When To Interact
Sleep is very important for your baby, but having positive sensory experiences are also very important.

By making sure the experiences are planned around your baby’s sleep, your baby can have both uninterrupted sleep AND positive sensory experiences.

Some activities should be structured around a time when your baby is going to be waking soon.

Other activities can be done while your baby is sleeping and may help your baby sleep.
Other babies may have their own schedule by waking up to eat when they are ready.

You can guess the time that your baby is going to wake up based on how long your baby usually sleeps between feedings, or you can watch for signs that your baby is beginning to wake up.

Some signs could be:

- Stretching
- Arm and leg movements
- Opening and closing eyes
- Bringing hands to mouth or face
- Sucking movements with mouth
Some positive sensory experiences can be done during sleep, and may even help your baby sleep!

Some examples of activities that can be done when an infant is sleeping include:

- Giving your baby a pacifier
- Giving comforting and constant touch with a steady hand
- Doing things for your baby’s hearing (like reading, talking, or singing) that are the sound of a whisper
- All of these things can be done at any time of day, including in between scheduled care times!
Chapter Seven:

Helping Your Baby’s Senses

PREVIEW ONLY

Week-By-Week
Each week in the NICU, your baby's senses are getting stronger.

This next section will introduce week-by-week activities to do with your baby. The age at the top of each page indicates the postmenstrual age to do the activities at.

The symbols on the left show which sense each activity will be helping.
Sensory Support: 23-27 Weeks

Here are some things you can do with your baby each day this week (as long as he/she tolerates it)

• Do kangaroo care (skin-to-skin) or comforting touch with your baby for at least 1 hour per day.

• Keep the area near your baby quiet, but engage in quiet conversations near the bedside and during diaper changes.

• Place a scent cloth under your baby's head.

• Keep lights off to protect your baby's eyes. Use a cover over the bed to further protect your baby from light (<10 Lux).

• Unswaddle your baby and allow stretching and free movement for 2 minutes prior to a diaper change at least 1 time per day.
Sensory Support: 36-40 Weeks

Here are some things you can do with your baby each day this week (as long as he/she tolerates it)

- Give at least 3 hours of positive touch each day by doing one or more of these things:
  - Do kangaroo care (skin-to-skin) for at least 1 hour
  - Provide comforting touch
  - Hold your baby in a blanket for 15 minutes at a time
  - Do up to 15 minutes of massage, several times per day

- Give at least 3 hours of positive sound each day by doing one or more of these things:
  - Read, sing, and/or speak to your baby (can be broken up into 30 minute periods several times per day)
  - Play soft music or recorded voice
  *At 45 decibels (the sound of a whisper or quiet conversation)

- Hold your baby as often as possible.

- Cycle light with 12 hours of the lights on (daytime, 25-100 Lux) and 12 hours of the lights off (<10 Lux). Avoid direct and bright lights.
- Have your baby try to follow your face (with your face 12-18 inches from his/hers).

- Unswaddle your baby and allow stretching and free movement for 2 minutes prior to every diaper change.
- Rock during holding for at least 7 minutes.
Chapter Seven:
Helping Your Baby’s Senses
A “How-To” Guide
Kangaroo Care

- Wear a button down shirt.
- Use the restroom and get any items you will need during your time holding your infant.
- Have a nurse or therapist assist you.
  - Ensure that there is enough room on your baby’s leads to allow movement from the bed to the chair.
  - Secure any tubes or leads in your hand or by clipping to your shirt.
- Unwrap the top of the infant but keep your baby in his/her positioning device or blanket.
- Unbutton your blouse and stand close to the infant’s bedside with a chair pulled up close to you.
- Bend down as close to your infant as you can, and then holding your baby’s body in alignment, scoop up your baby and place him/her directly on your chest.
- Once the infant is secure at your chest, stand back up tall and then pivot to sit down in the chair.
- Secure any additional leads.
- Secure the wrap around the infant (if you are using one) or use blankets or pillows to achieve comfort and support.
- Hold your infant skin to skin for a minimum of 1 hour to allow the infant to settle into it and achieve its benefits.
Positive Touch

• Your touch is comforting to your baby.

• Your touch lets your baby know you are near.

• Holding your baby or providing a hug with your hands is especially important during procedures or activities that may make your baby feel uncomfortable.

• To provide comforting touch (gentle human touch):
  • If baby is on his/her belly:
    • Place one hand between the buttocks and lower back
    • Place the other hand on the infant’s head
  • If baby is on his/her back:
    • Place one hand on the baby’s head.
    • Place the other hand on the baby’s belly.

  *Can also secure the arms across the chest or up toward the face for added comfort.

  *Can also use hands to tuck legs underneath or toward body.
Cycling Light

- Your baby should be in near darkness (<10 Lux) until 32 weeks postmenstrual age.
  - Use covers over the baby’s bedspace.

- Always protect your baby from direct light exposure.

- Once your baby is 32 weeks postmenstrual age, cycling light should be started:
  - 12 hours of lights on
    - During the daytime
    - Dim light is ideal (25-100 Lux)
  - 12 hours of lights off
    - During the nighttime
    - Darkness, shielded from light (<10 Lux)
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