

# Sound & Noise

# Hearing



Your baby is able to hear and can even recognize your voice as early as 23 weeks gestation.

The Auditory System (Hearing) is functional at 25-29 weeks gestation.

All sounds that he/she hears while in the womb are filtered before reaching his/her ears.

In the NICU your baby is no longer protected by the womb. Sounds are VERY LOUD to their ears.

# Sound vs Noise



- What to you are normal sounds, may be very loud NOISE to your baby's sensitive ears. Imagine having the volume on your ear buds up to the loudest setting all the time....

Academy of Pediatrics recommends <45 decibels for noise in our unit.

Average noise in a NICU is 60-90 decibels with peaks to 120 decibels.

Normal Conversation is 60 decibels.

Setting something on an isolette or shutting isolette doors without pushing the button is 80 decibels.

Monitors ring at about 80 decibels.



# Sound vs Noise

Preemies are unable to habituate/tolerate **NOISE** and can become overstimulated.

Exposure to **NOISE** can make your baby's vitals go up and down, make them irritable, and disturb sleep patterns.

Loud sounds and **NOISE** disrupt sleep.

Sleep is when important brain development happens.

If unprotected sleep happens too often, it can change how your baby's brain patterns develop for hearing and language skills.

# Sound vs Noise



Studies show that for good brain pattern development, it is important to provide your baby with good noises or meaningful SOUND.

What is meaningful SOUND?

Quiet family voices. Limited exposure to quiet music or sounds on a sound machine.

Your baby will respond best to mom and dad's voices as they have been listening to them while growing inside the womb.

Studies show that sing song speak and singing, especially from mothers for short periods of time can provide positive stimulation to the language center in the brain and also promotes bonding.

# Sound vs Noise



You have a sound machine in your baby's room to help provide meaningful SOUND to your baby.

Exposure to too much meaningful SOUND can also negatively affect hearing and language development.

If a baby hears the same song or SOUND over and over for a long period of time their brain will start to tune out that SOUND.

Please follow the guidelines on the following slide to help you use of sound machines appropriately for time, length and what SOUNDS are helpful to your baby.

You can also refer to the developmental care plan in your baby's room for a guide.

# Sound vs Noise



## Sound Machine Guidelines:

23-27 weeks: rhythmic noises that they would hear in the womb (your heartbeat during kangaroo care)

28-31 weeks: you singing or rhythmic noises (heartbeat, ocean, rain) provided by the sound machine outside the isolette

32-36 weeks: you singing and all sounds of sound machines are good

Older than 37 weeks: as much as your baby will stand it, share a variety of sounds

## How Long, Where and How Loud Sounds and Noises Can Be:

Only talk, read, sing or use the sound machine with your baby during care activities no more than 30 minutes.

Music should only be clearly heard if standing next to your baby's crib. Others who are not standing by your baby's crib should not be able to hear it.

Do not turn the volume up past the marks on the NICU's sound machines.

Place sound machines outside of the isolette.

Do not place sound machines or speakers right next to your baby's head when they have been moved to a crib. Placing the machine outside the crib is good.

Please talk with your baby's occupational therapist about good noise levels on devices from home that you may wish to bring in.

# Sound vs Noise



## What You Can Do To Promote Good Speech/Language Development

Protect your baby from exposure to noisy sounds

Always speak in “library” voices

Use sing songy speech when talking to your baby.

Stable infants >30 weeks gestation: Provide short gentle verbal interactions (ex: 5 minutes during Kangaroo Care)

Infants >32 weeks: Quietly read a book, sing, or talk with your baby for 15-30 minutes around care times.

Use the timers on the music boxes/sound machines to limit sound exposure to 30 minutes.

Follow sound recommendations on the Developmental Care Plans hanging at bedside.

Research shows that babies respond best to their mother’s voices, **BUT anyone** including dads, grandparents, designated visitors and members of your caregiving team should participate in providing MEANINGFUL sound.