The Journey to Developmentally Supportive Care in the NICU

LeAnn Rens, RNC-NIC, NTMNC
Mercy Springfield Hospital

OBJECTIVES

- Recognize the ability of infants to organize and control their behavior based on their gestational age
- Identify and interpret the behavior of preterm *(and ill)* infants
- Identify essential components of neuroprotective developmentally supportive care
- Identify practical ways to integrate neuroprotective developmentally supportive, family centered care into practice in the NICU.

HISTORY

PREMATURE AND ILL INFANTS BORN THROUGHOUT HISTORY
…LIVED… OR DIED… AT HOME

THE BEGINNINGS… 1800'S – 1940'S

- Mid-late 1800's – Dr. Stephane Tarnier (France)
  - Infants did better when kept warm and with good hygiene
  - Father of the incubator

- Dr Pierre Budin (France)
  - Studied under / worked with Dr Tarnier
    - Warmth
    - Good hygiene
    - Maternal attachment / contact
    - Breastmilk
  - Father of Perinatology; published *The Nursling: The Feeding and Hygiene of Premature and Full-term Infants*

- Early 1900's - Martin Couney (USA)
  - Worked with Dr Budin
  - Came to the United States
  - Developed a unconventional idea for raising research funds

Infant Incubator Exhibitions

- 1903 to1943 - exhibited at many World's Fairs and Coney Island
- Admission fee - $0.25
- Funded research on premature infants and covered cost of care.

Medical model – Mid-20th century: 1950's – 1960's

Focus on "survival"

- Sick infants grouped together in hospital nursery
- Managed by Pediatricians
- Incubators used
- O2 used freely
- Formula used
- Parent presence limited
- Limited understanding of neonatal pathophysiology
- No knowledge of brain development

Research ramped up mid 1960's

- Prompted by death of Patrick Bouvier Kennedy
- 35 weeks gestation - died from "hyaline membrane disease"

MODERN NEONATOLOGY

- 1960's – 1970's
  - Serious research that guides neonatal & developmental care
- Late1970's - Early 1980's
  - Neonatal units & equipment development increased
  - "Regionalization" promoted - centralize resources and increase expertise
  - Viability limit 28-29 weeks gestation
  - Significant morbidity
- Mid 1980'S
  - Surfactant development – viability dropped to 23-24 weeks

NICU DESIGN EVOLUTION…

SINGLE FAMILY ROOMS

- Developmentally appropriate care individualized to the gestational age of each baby (light and sound control, improved sleep patterns, better weight gain…)
- Lower infection rates
- Increased parent / family involvement & bonding
- Increased patient family satisfaction
- Decreased length of stay by 1-4 days; decreased cost

CHAMPIONS

Dr Stanley N Graven, MD

- 1960's to current: Research on neonates & impact of environment on early brain development
- Advocate for regionalization of neonatal care
- First chair of AAP Neonatal/Perinatal sub-board
- 1988 – 1st **Annual Gravens Conference on the Physical and Developmental Environment of the High Risk Infant**

Dr. Heidelise Als (PhD)

- 1970's-current: research on the behavioral organization of the newborn infant
- Developed Synactive Theory of Development
- Created Model of the Synactive Organization of Behavioral Development
- 1986 – published first NIDCAP recommendations - *Neonatal Individualized Developmental Care and Assessment Program*

DEVELOPMENTALLY SUPPORTIVE CARE IS:

- HOW we do what we do - never an "extra"
- Utilized to promote neurodevelopment and optimize outcomes
- Based on Dr Als' theory of subsystem interaction
- Acknowledges move from "surviving" to "thriving"
- Individualized and family-centered

IT'S ALL ABOUT THE BABY!

WHY
DEVELOPMENTALLY SUPPORTIVE CARE IS IMPORTANT

- Over 4 million births in US each year – 500,000 are preterm (over 1 in 10 babies)
- Life-long implications
- 75% of NICU admissions related to prematurity
- From 1989-1914, prematurity rates rose by 36% - then stabilized & decreased slightly
- Prematurity incidence rose from 9.6 to 10 % in past 4 years.

(March of Dimes, 2019)

Prematurity remains #1 Killer of Newborns!

PREMATURITY… POTENTIAL ADVERSE OUTCOMES

- Brain injury - IVH
  - Cerebral Palsy
  - Mental disabilities
- Apnea
- Infections
- GI complications
  - NEC
  - Feeding issues
- Retinopathy of Prematurity (ROP)
- Bronchopulmonary Dysplasia (BPD)
- Hearing loss
- Prolonged hospitalization
  - Parent-infant bonding disruption
  - Medical expense burden
- Developmental deficits
  - Learning disabilities
  - Autism
  - Sensory Processing Issues
- Psychological issues
  - Separation anxiety disorder
  - Phobia
  - Attention deficit hyperactivity disorder
  - Oppositional defiant disorder

SYNACTIVE THEORY OF DEVELOPMENT

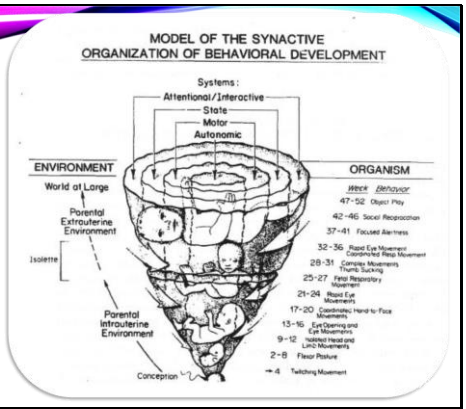
- 1st Theory of infant development
- Based on concept of synaction
- Foundation of developmental care

Theory Definitions:

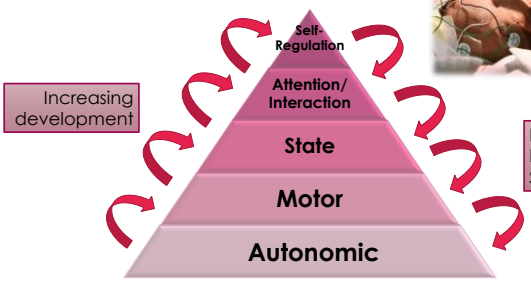
- **Development:** "a specified state of growth or advancement" (Oxford, 2012, p. 1)
- **Subsystem:** "a system that is part of some larger system; a group of independent but interrelated elements comprising a unified whole" (Subsystem, 2012, p. 1)
- **Neonatal behavior/ organization:** the ability of the infant to adapt to his environment and restore developmental activity
- **Synaction:** view of development in which the organism or individual is in "continuous interaction with its environment" (Als, 1986, p. 17)

Developmental care ~ *"an approach which views infants as an **active collaborator** in their own care, determinedly striving to continue their developmental trajectory in continuous relationship with their environment and with those around them"*
(Aita & Snider, 2003)

"The organism is actively shaping and selecting from the environment as it is constantly challenged and impinged upon by this environment" (Als, 1986, pp. 14-15).



SUBSYSTEMS



Increasing development

Immaturity
Illness
Stress

(LaRossa, M. M., 2012)

GESTATIONAL AGE CONSIDERATIONS

THE AUTONOMIC NERVOUS SYSTEM

IN THE PRETERM INFANT:

- Nervous systems under-developed
- Neurons not fully insulated with myelin
- POOR ***STATE TRANSITIONING*** & POOR ***STATE MAINTENANCE***
- Once the SNS system is "rev'd up", the PNS struggles to help relax and reorganize

Parasympathetic (PNS)

- Restores body to calm state
- "Rest and Digest"

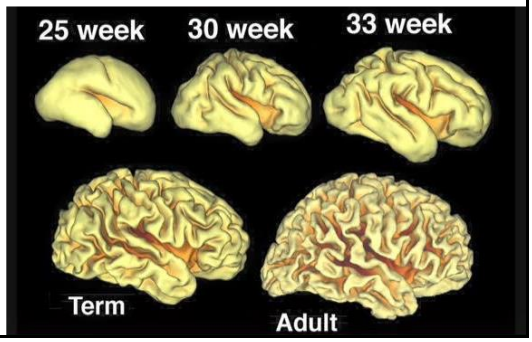
Sympathetic (SNS)

- Body's response to perceived threat
- Speeds up the body & becomes more tense
- Non-essential functions are shut down
- "Fight, Flight, or Freeze"

NEONATAL BRAIN DEVELOPMENT

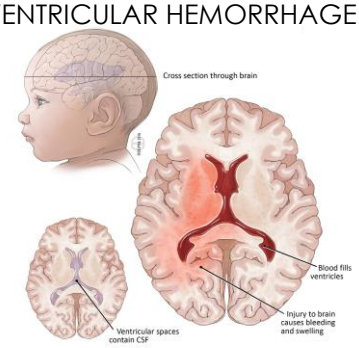
WE ARE WIRING BRAINS!

"One brain for life..... Everything matters."
Dr. Heidelise Als



INTRAVENTRICULAR HEMORRHAGE

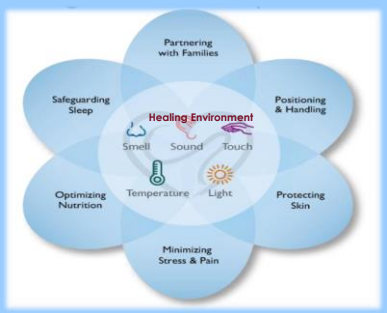
- Bleeding into the brain's ventricular system
- Typically occur in first few days of life
  - 25 % occur in the first 12 hours
  - 50% occur in the first 24 hours
  - 90% occur in the first 72 hours
- Essential to reduce any rapid changes in intraventricular pressure
  - Keep HOB elevated
  - Slow med, fluid, blood infusions and withdrawals
  - Avoid startling, sudden movements, loud noises, bright lights – minimize stressful events
  - Position midline for first 96 hours of life



NICU DEVELOPMENTAL CARE VISION STATEMENT

- The multi-disciplinary NICU team will respectfully provide compassionate, individualized, family-centered care in a neuroprotective developmentally supportive environment appropriate to the infant's gestational age and specific needs.
- Using evidence-based care practices, we will provide educational opportunities and resources to ensure optimal long-term outcomes for the baby, family, and community.
- The environment will support safety, comfort, professional development, positive morale, efficiency, and effective communication.

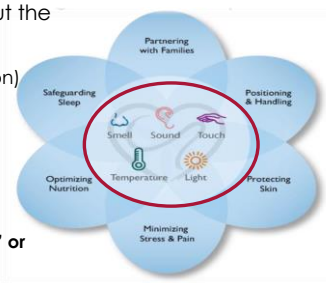
NEONATAL INTEGRATIVE DEVELOPMENTAL CARE MODEL



(Altimier & Phillips, 2016)

THE HEALING ENVIRONMENT

- The healing **environment** is all about the SENSES:
  - Somatosensory (touch)
  - Vestibular-Kinesthetic (proprioception)
  - Gustatory (taste)
  - Olfactory (smell)
  - Auditory (hearing)
  - Visual (sight)
- **By age of viability, immature sensory pathways are in place.**
- **Preterm infant has VERY limited ability to modulate sensations – cannot "tune out" or "turn off"!**



THE TACTILE SYSTEM – "TOUCH"

- Sensory nerve endings in place by 11 weeks gestation
- Skin is the largest organ of the body
  - Develops from same embryonic cells as brain and nervous system
  - Nerve endings just below the skin sense touch, pressure, temperature and pain.
  - Mouth, palms, and feet are first to develop sensitivity.
- Provides communication of both pleasant and painful stimuli

TACTILE SYSTEM INTERVENTIONS

Negative Tactile Stimuli
- Repeated handling
- Skin breakdown
  - Tapes,
  - Adhesives
  - Patches
  - Pressure
  - Rough linens
- Painful procedures
- Cold environment
- Cold hands

Tactile Alternatives
- Skin-to-skin care
- Minimized lab draws
- Non-invasive monitoring
- Soft bedding
- Warm environment
- Warm hands
- Thoughtful adhesive use

BENEFITS OF SKIN-TO-SKIN

- Improves thermoregulation
- Improves autonomic and physiologic stability
- Improves sleep
- Improves growth
- Improves brain development
- Decreases pain
- Decreases infections
- Improves feeding tolerance
- Improves neuro-development and motor development
- Decreases stress – for infant and family
- Increases breastfeeding rates and success
- Improves parent-infant bonding
- Decreases mortality
- Decreases length of stay

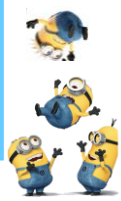
THE VESTIBULAR SYSTEM – BALANCE & MOTION

- Develops at ≈ 21 weeks gestation.
- Proprioception:
  - The uterus provides feedback mechanism by allowing extension and flexion in a gravity-free fluid environment.
  - Fetal movements facilitated by mother's diaphragm movements, gestures, and body actions

VESTIBULAR SYSTEM INTERVENTIONS

Vestibular Hazards

- Gravity
- Poor positioning
- Rapid movement - "Preemie Flip"
- Multiple handling times



Vestibular Alternatives

- Supportive boundaries
- Containment & flexion
- Gradual position changes
- Touch times
- Cluster caregiving

OLFACTORY SYSTEM - "SMELL"

- Develops between 11 and 15 weeks gestation
- Olfactory epithelium is bathed in amniotic fluid.
- Olfactory cortex (smell), amygdala (fear) and hippocampus (memory) combine in limbic system - critical to all human function.
  - Allows for an instant olfactory response, triggers emotions to be embedded in our memory.
  - Preterm infants are hypersensitive to and can differentiate odors.

OLFACTORY INTERVENTIONS

Olfactory Hazards

- Medical conditions
- Alcohol/chloraprep
- Chemicals
- Medications
- Perfume/lotion

Olfactory Alternatives

- Evaluate environment, cleaners and products for VOC off-gassing
- Scent cloths - "Sniffies"
- Open alcohol / chloraprep away from infant
- Olfactory stimulation
- Non-nutritive sucking with tastes

GUSTATORY SYSTEM – "TASTE"

- Gustatory sense develops at ≈ 17 weeks gestation.
- Flavenoids in amniotic fluid stimulate the taste buds.
- Swallowing established in the womb - baby swallows one quart of amniotic fluid each day.
- At delivery, the infant is able to differentiate tastes.
  - Own mother's breast milk
  - Components of mother's diet

TASTE INTERVENTIONS

Gustatory Hazards
- Plastic tubing – ETT, OG, NG
- Tape/adhesives
- Oral suctioning & oral care
- Oral medications
- Artificial nipples

Gustatory Alternatives
- Non-nutritive sucking
- Thoughtful oral care and suctioning
- Breast milk oral care
- Early nuzzling / tastes
- Breastfeeding
- Dilute oral medications

AUDITORY SYSTEM – "HEARING"

- Complete and functional by 24 weeks gestation .
- Stimulated when mom speaks, sings, laughs,
- Increases infant attachment – can recognize familiar voices at birth.

In-utero:
- Dominated by low-intensity sounds of mother's respiratory, cardiovascular, gastrointestinal systems, and speech.
- Protected from high-frequency sounds (above middle C) by tissue absorption.

AUDITORY INTERVENTIONS

Auditory Hazards
(dB > 50)
- VOICES - Staff and parent
- Alarms
- Intercoms, pagers, phones
- Equipment
- Radios/music devices

Auditory Alternatives (dB < 50)
- Speak in soft, low voices during care – "Language diet"
- Decrease volume - silence alarms if safe
- Adjust volume of intercoms, pagers, phones
- Incubator/Giraffe vs radiant warmer
- Avoid tapping or placing items directly on incubator
- Partially close doors to rooms

VISUAL SYSTEM – "SIGHT"

LAST system to develop – Matures AFTER term birth

- maturation continues from term to around 4-6 months of age
- Minimal visual stimulation needed until term.

Developmental concerns related to eyesight

- Immature pupillary reflex
- Underdevelopment of retinal vessels
- Thin eyelids
- Intense light exposure
- Sleep deprivation
- Interference with brain cell activity

VISUAL INTERVENTIONS

Visual Hazards

- Room lights
- Procedure (spot) lights - Task lights
- Phototherapy lights
- ROP exams
- Sunlight
- Sleep disruption

Visual Alternatives

- Shield eyes as needed
- Avoid bright, direct light
- Protect sleep cycles
- Cover incubator
- Cycled lighting: gestation dependent
- Introduce mobiles / toys after 38 weeks

SAFEGUARDING SLEEP

SAFEGUARDING SLEEP

Sleep is **NOT** a time of brain rest or quiet time –
IT'S A TIME OF BRAIN ACTIVITY & GROWTH

Sleep Requirements:

- Fetus sleeps 20-22 hours/day
- Newborn sleeps 16-20 hours/day (50-60% active sleep, 30-40% quiet sleep)
- Rapid Eye Movement (REM) and slow-wave (non-REM) sleep develops at 29-30 weeks gest

Sleep Deprivation causes:

- **Decreased learning and memory**
- **Smaller adult brain size**

SAFEGUARDING SLEEP INTERVENTIONS

Sleep Interruptions
- Bright lights
- Loud noises
- Frequent physically disturbing activities
- Multiple team members with agendas
- Excited family

Sleep Alternatives
- Dim lights / eye protection
- Quiet environment
- Cluster care / time procedures with touch times
- Skin-to-skin - minimum of 1 hour; prefer touch time to touch time
- Collaborate with all team members to time activities
- Educate family

OPTIMIZING NUTRITION

OPTIMIZING NUTRITION

Breastfeeding / breast milk: the single most powerful, well documented, preventative way available to:

- Reduce infant morbidity
- Reduce Sepsis
- Reduce instance of NEC
- Reduce ROP
- Increase brain volume
- Increase IQ
- Improve developmental outcomes.

World Health Organization

- NICU major focus - support mothers in initiating and maintaining adequate milk supply. Celebrate her efforts.
- Equally important to give permission to stop - support mothers who cannot!

SUPPORT MOTHER'S CHOICE – FED is best!

SUPPORTIVE FEEDING

GOAL
- **Safe**
- **Functional**
- **Nurturing**
- **Developmentally appropriate**

- Begin early "pre-feeding" activities
- Infant driven / cue-based feeding scale assists in achieving a pleasurable feeding experience.
- Most premature infants will need to learn complex task of nipple feeding
- Feeding Scale addresses
  - Infant readiness,
  - Quality of feeding
  - Caregiver interventions

FEEDING READINESS SCALE

1. Drowsy, alert, or fussy prior to care, eager rooting and/or hands to mouth behavior, awakens at or before scheduled feeding time.
2. Drowsy or alert once handled, some rooting or takes pacifier, adequate tone.
3. Briefly awake with care, no hunger behaviors, no change in tone.
4. Sleeping throughout care, no hunger cues, no change in tone.
5. Needs increased O2 for care, apnea and/or bradycardia with care, hypotonic, increased tachypnea over baseline.

QUALITY OF NIPPLING SCALE

1. Nipples with a strong coordinated suck throughout feeding.
2. Nipples with a strong coordinated suck initially, but fatigues with progression.
3. Nipples with a consistent suck, has difficulty coordinating swallow, some loss of fluid or difficulty pacing, needs external pacing.
4. Nipples with a weak suck, does not establish rhythm, may need rest breaks.
5. Unable to coordinate suck / swallow/breath pattern, may result in significant apnea / brady events or significant amount of fluid loss.

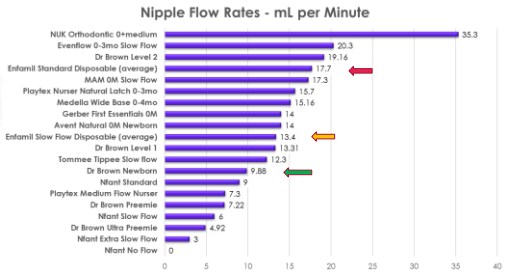
BREASTFEEDING IN THE NICU




BOTTLE FEEDING IN THE NICU

NICU feeding supplies

Home Feeding Systems



PROTECTING SKIN

PROTECTING SKIN

•Barrier Function:
- Physical boundary from the environment.
- Preserves integrity and homeostatic balance
- Protects from microbial invasion.

•Psycho-sensory function:
- Millions of dermal nerve endings provide sensations of touch, pressure, temperature, pain and itch
- Tactile input facilitates biochemical mediation of emotions

SKIN & SKIN CARE INTERVENTIONS

Immature Skin Hazards

•Transepidermal water loss
•Increased cutaneous permeability
•Increased risk of sepsis
•Increased risk of skin injury, tears, abrasions
•Increased surface area = heat loss

NICU Skin Care Practices

- Thermoregulation
- Humidity
- Emollients (Aquaphor)
- Limit adhesives / use alternatives / monitor use
- Duoderm to protect pressure areas
- Monitor patch placement
- Infrequent bathing

MINIMIZING STRESS & PAIN

STRESS & PAIN

A little stress is GOOD – Motivates adaptation, learning, and change – SURVIVAL!
Too much stress is BAD!

Neonatal stress results in:
- •increased energy expenditure,
- •decreased healing and growth,
- •impaired physiologic stability
- •altered brain development

NOT all stress causes pain, But ALL PAIN causes stress.

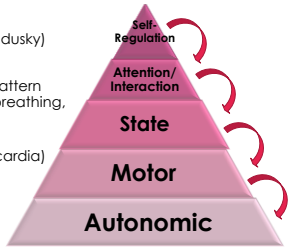
Abrupt state change = INDICATES STRESS
Premature infant states are characteristically
- diffuse
- not clearly defined
- transient

State changes common in response to *vestibular* input / transitions:
- To skin-to-skin
- To basin for bathing
- Repositioning for feeding - Feeding Plans: "slow transition" and "allow time to re-organize after transition"

STRESS & PAIN

Time-Out / Stop Signals mean baby is stressed and needs a break

- Flailing arms or legs
- Squirming
- Tremors or startles
- "Splaying" (Spreading fingers apart)
- Yawning
- Crying or fussing.
- "Worried" facial expression
- Frowning or grimacing
- Limp posture
- Looking away
- Arching back / neck
- Change in color (pale, dusky)
- Desaturation
- Change in breathing pattern (tachypnea, periodic breathing, apnea)
- Change in heart rate (tachycardia or bradycardia)
- Hiccups
- Spitting up.



NEONATAL BEHAVIORAL STATES

Deep Sleep: Eyelids closed and still, relatively unresponsive to outside noise, breathing and heart rate even and regular, very little movement.

Active Sleep: Rapid eye movement beneath closed eyelids, may have twitchy/jerky movements, may have sucking movements or other facial movements, breathing and heart rate uneven and irregular.

Drowsy: Transitional state, increased movements, stretching, various facial expressions, eyelids droopy with glazed, unfocused look.

Active Awake: Random purposeful movement, darting eye movements, little eye contact, possibly mild fussiness or vocalizations.

In NICU

Quiet Alert (low level): small infrequent movements, eyes open with brief watchful gaze, focuses on face, may divert gaze intermittently.

Quiet Alert (robust): small infrequent movements, eyes wide open with watchful gaze, may track a face or begin to imitate facial expressions –typically full-term.

Quiet Alert (hyperalert): Alert gaze similar to robust, however gaze becomes "locked on"; overstimulated, needs help to disengage.

Crying: Chaotic movement, eyes shut, arms and legs flail, facial grimace, loud vocalizations.

NIPS PAIN SCALE

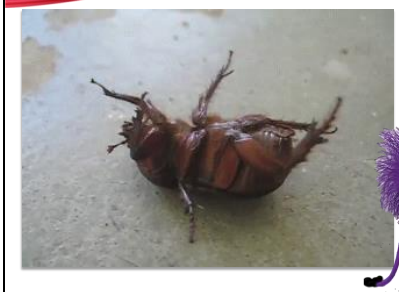
• Facial Expression	• Relaxed = 0 • Grimace = 1
• Cry	• No cry = 0 • Whimper = 1 • Vigorous cry = 2
• Breathing Pattern	• Relaxed, regular = 0 • Change in breathing = 1
• Arms	• Relaxed = 0 • Flexed / Extended = 1
• Legs	• Relaxed = 0 • Flexed / Extended = 1
• State of Arousal	• Sleeping / Awake = 0 • Fussy = 1

MINIMIZING STRESS & PAIN

- Non-pharmacologic comfort
  - Swaddling, tucking, sucking, containment, holding, frontal chest pressure
- Cluster care
  - Evaluate tolerance to handling
  - Assess the need for rest periods
- Non-invasive testing
  - Transcutaneous CO2 monitor
  - Pulse oxymeter
- Procedural pain management
  - Sucrose, pacifier, containment
  - Assure pre-procedure pain medication/sedation
- Pharmacologic treatment – work with medical team members

- Assess and advocate!
  - Infant's need for pain meds or sedation
  - Efficacy – needed adjustments
  - Withdrawal risk
    - Based on condition and situation
    - Manageable in the NICU

POSITIONING & HANDLING



POSITIONING AND HANDLING

The womb consistently provides
- A circumferential enclosed space
- 360 degrees of well defined boundaries.
- Controlled and predictable progression of neuromuscular development.

Therapeutic supportive positioning
- Imitates the spatial limitations and supportive containment of the womb
- Influences and improves neuromotor and neurosensory development.

SUPPORTIVE POSITIONING & CONTAINED CARE

- **Midline orientation**
- **Flexion**
- **Containment**
- **Comfort**

Infant-driven cues should be used for optimal caregiving practices and positions.

- Eliminates agitation and flailing of limbs during routine care.
- Allows spontaneous movement
- Encourages containment
- Provides rounded shoulders and flexed hips

HANDLING & CAREGIVING INTERVENTIONS

- Introduce yourself to baby verbally and with gentle touch
- Allow the infant time to orient to the environment
- Perform position changes in a gradual fashion
- Encourage parental involvement in care
- Provide 4-handed care whenever possible
  - Utilize parents/family, RT, NICU Therapists, coworkers, and volunteers – "Hand Hugs"
- Keep the infant contained during caregiving
  - *Feeding*
  - *Bathing*
  - *Weighing*
  - *Repositioning*
- Vary position regularly – include tummy time
- Approach infant from both directions
- Neonatal Massage therapy

Gradually wean off positioning devices and flatten head of bed once in an open crib.

POSITIONING AIDS

NEONATAL MASSAGE – WHY?

"To touch is to give life." Michelangelo

SKIN
- largest organ
- cells same as nervous system
- 2nd in importance only to brain

TOUCH
- vital for human survival
- powerful form of communication

Majority of NICU interactions are "NEGATIVE TOUCH"
Repeated negative touch leads to muscle tightness.
May contribute to positional deformities in shoulders and neck

NEONATAL MASSAGE PROVIDES POSITIVE TOUCH!

MASSAGE BENEFITS

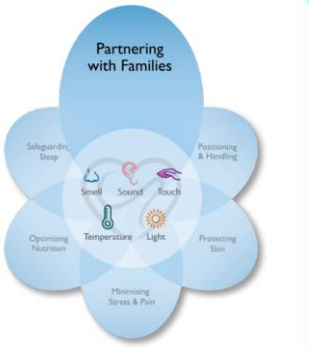
- Parasympathetic regulation:
  - Decreases cortisol release
  - Regulates vital signs
  - Promotes relaxation
- Loosens muscular tightness
- Improves sleep patterns
- Enhances growth & weight gain
- Boosts immune response
- Increases self-regulation abilities
- Pleasurable input to hippocampus & amygdala
- Decreases crying
- Improves circulation
- Improves digestion
- Increases alertness
- Increases lymphatic circulation
- Improves parent/infant bonding when parents provide massage

Massage Indications:

- Weight greater than 1200gms
- Gestation 32 weeks or more
- Absence of contraindications
- Medically stable for past 24 hours

Creative Therapy Consultants - Neonatal Touch & Massage Certification

PARTNERING WITH FAMILIES …A SHARED JOURNEY



CORE CONCEPTS OF FAMILY-CENTERED CARE

Family ~
Two or more persons related by birth, marriage or adoption who reside in the same household.
U.S. Census Bureau

"FAMILY" in the NICU – whatever the parents define it as…

Remember!

- Parents are partners on care giving team
- Demonstrate dignity & respect
- Joint decision making
- Confidence building
- **Communication!**

PARTNERING WITH FAMILIES INTERVENTIONS

- Call baby by name – not diagnosis or room
- Call parents by name – not "Mom" and "Dad"
- Encourage parental involvement in caregiving early and often - Encourage skin-to-skin & holding
- Support pumping & breast feeding efforts
- Encourage participation in bedside rounds
- Facilitate communication with medical team
- Orient family to unit and room
- Give Mercy Kids Folder on admission
- Utilize education flip charts in room
- Introduce "Sensory Diet" to parents

SENSORY DIET

- Formal parent education via video
- Daily activities for each sensory system adjusted based on gestational age
- Parent activity workbook – different page for each week gestation - 23 to 40 weeks

Date: I am 23 weeks old	Who Is Participating?	Touch	Smell	Hearing	Movement	Visual
Day 1	□ Mom □ Dad □ Grandparent □ Volunteer □ Other:	□ Hand Hugs How long:	□ Sniffies	□ Protect your baby from loud noises □ Talk quietly	□ Allow free movement within containment How long:	□ Eyes protected from bright light
Day 2	□ Mom □ Dad □ Grandparent □ Volunteer □ Other:	□ Hand Hugs How long:	□ Sniffies	□ Protect your baby from loud noises □ Talk quietly	□ Allow free movement within containment How long:	□ Eyes protected from bright light
Day 3	□ Mom □ Dad □ Grandparent □ Volunteer □ Other:	□ Hand Hugs How long:	□ Sniffies	□ Protect your baby from loud noises □ Talk quietly	□ Allow free movement within containment How long:	□ Eyes protected from bright light
Day 4	□ Mom □ Dad □ Grandparent □ Volunteer □ Other:	□ Hand Hugs How long:	□ Sniffies	□ Protect your baby from loud noises □ Talk quietly	□ Allow free movement within containment How long:	□ Eyes protected from bright light
Day 5	□ Mom □ Dad □ Grandparent □ Volunteer □ Other:	□ Hand Hugs How long:	□ Sniffies	□ Protect your baby from loud noises □ Talk quietly	□ Allow free movement within containment How long:	□ Eyes protected from bright light
Day 6	□ Mom □ Dad □ Grandparent □ Volunteer □ Other:	□ Hand Hugs How long:	□ Sniffies	□ Protect your baby from loud noises □ Talk quietly	□ Allow free movement within containment How long:	□ Eyes protected from bright light
Day 7	□ Mom □ Dad □ Grandparent □ Volunteer □ Other:	□ Hand Hugs How long:	□ Sniffies	□ Protect your baby from loud noises □ Talk quietly	□ Allow free movement within containment How long:	□ Eyes protected from bright light
Recommended Amount Per Activity	It is important to be present for touch times when possible to provide gentle support for your baby. If able, be present for 1-4 touch times each day.	Hand hugs/gentle containment can help sooth your baby during cares.	A new sniffie each day from parents. Ask your nurse for sniffies and how to use them.	At this age, loud/ high pitched noises are stressful for your baby. Use soft voices when talking or step away from the bedside.	Allow baby to have free movement with the presence of boundaries during diaper changes. Only when baby is medically stable for 1-2 mins.	Protect your baby's eyes from bright lights. You can use a sniffie or your hand to gently cover your baby's eyes.
Fun Facts About Being 23 Weeks	Your baby's ears are growing and they are starting to hear sound. Be sure to protect their ears from loud and high pitched noises.					

SENSORY DIET
(38 WK)

Date: I am 38 weeks old	Who Is Participating?	Touch	Smell	Hearing	Movement	Visual
Day 1	□ Mom □ Dad □ Grandparent □ Volunteer □ Other:	□ Hand Hugs □ Skin-to-skin □ Holding □ Massage How long:	□ Sniffies	□ Reading □ Talking □ Music How long:	□ Free Movement □ Tummy Time □ Gentle Swaying □ Joint Compression How long:	□ Provide cycled lighting □ Eyes protected from bright/direct light □ Modify light for feedings
Day 2	□ Mom □ Dad □ Grandparent □ Volunteer □ Other:	□ Hand Hugs □ Skin-to-skin □ Holding □ Massage How long:	□ Sniffies	□ Reading □ Talking □ Music How long:	□ Free Movement □ Tummy Time □ Gentle Swaying □ Joint Compression How long:	□ Provide cycled lighting □ Eyes protected from bright/direct light □ Modify light for feedings
Day 3	□ Mom □ Dad □ Grandparent □ Volunteer □ Other:	□ Hand Hugs □ Skin-to-skin □ Holding □ Massage How long:	□ Sniffies	□ Reading □ Talking □ Music How long:	□ Free Movement □ Tummy Time □ Gentle Swaying □ Joint Compression How long:	□ Provide cycled lighting □ Eyes protected from bright/direct light □ Modify light for feedings
Day 4	□ Mom □ Dad □ Grandparent □ Volunteer □ Other:	□ Hand Hugs □ Skin-to-skin □ Holding □ Massage How long:	□ Sniffies	□ Reading □ Talking □ Music How long:	□ Free Movement □ Tummy Time □ Gentle Swaying □ Joint Compression How long:	□ Provide cycled lighting □ Eyes protected from bright/direct light □ Modify light for feedings
Day 5	□ Mom □ Dad □ Grandparent □ Volunteer □ Other:	□ Hand Hugs □ Skin-to-skin □ Holding □ Massage How long:	□ Sniffies	□ Reading □ Talking □ Music How long:	□ Free Movement □ Tummy Time □ Gentle Swaying □ Joint Compression How long:	□ Provide cycled lighting □ Eyes protected from bright/direct light □ Modify light for feedings
Day 6	□ Mom □ Dad □ Grandparent □ Volunteer □ Other:	□ Hand Hugs □ Skin-to-skin □ Holding □ Massage How long:	□ Sniffies	□ Reading □ Talking □ Music How long:	□ Free Movement □ Tummy Time □ Gentle Swaying □ Joint Compression How long:	□ Provide cycled lighting □ Eyes protected from bright/direct light □ Modify light for feedings
Day 7	□ Mom □ Dad □ Grandparent □ Volunteer □ Other:	□ Hand Hugs □ Skin-to-skin □ Holding □ Massage How long:	□ Sniffies	□ Reading □ Talking □ Music How long:	□ Free Movement □ Tummy Time □ Gentle Swaying □ Joint Compression How long:	□ Provide cycled lighting □ Eyes protected from bright/direct light □ Modify light for feedings
Recommended Amount Per Activity	Involvement in touch times and feedings are very important at this age. If able, be present for 4-8 touch times/feedings each day.	Your baby should be held with each feeding if medically stable. Skin-to-skin/massage a minimum of one time each day if your baby tolerates it.	A new sniffie each day from parents.	During the daytime read/play soft music for your baby 1-4x for up to 45 mins. If you have to be away ask the nurse or a volunteer to do read to your baby.	During the daytime provide some type of movement with each touch time. Continue to provide containment as needed. Once in an open crib you can start doing tummy time before feedings for up to 5 minutes.	During the day open the curtains to allow an appropriate amount of natural light. At night keep lights dim. Always protect your baby's eyes from direct light. Modify light for feedings based on your baby's needs. Encourage eye contact when awake.
Fun Facts About Being 38 Weeks	Your baby enjoys being swaddle wrapped or contained.					

GRIEF IN THE NICU

- Parents anticipate a normal pregnancy and delivery.
- The NICU admission interrupts the typical parent/infant bonding process.

Parents who deliver an ill or premature baby experience all the emotions of the grieving process:

- Shock
- Denial, disbelief, bargaining
- Sadness, anger, anxiety
- Establish equilibrium
- Reorganization

"NORMAL" PARENT REACTIONS TO THE NICU

- **FEAR**
  - The unknown
  - Serious illness
  - Disability
  - Death
  - Response of others
  - Judgment of others
  - Inability to care for premature / ill infant
- **LOSS**
  - Of being pregnant
  - Of a full term healthy baby
  - Of expected birth experience
  - Of expected parenting role

GUILT

- "What did I do to cause this?"
- "What did I NOT do to cause this?"
- "What could I have done to prevent this?"

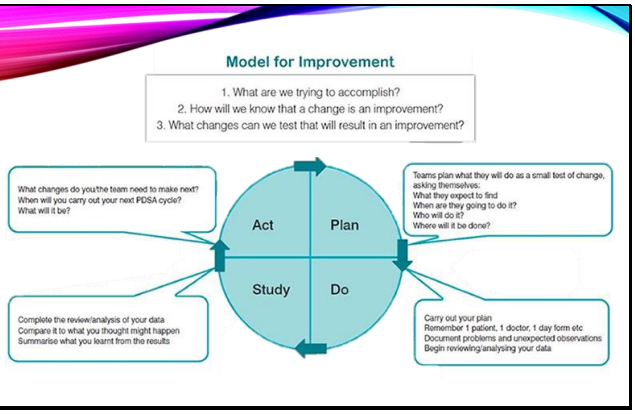
- **ANGER**
  - At themselves
  - At their partner
  - At family and friends
  - At hospital staff
- **POWERLESSNESS**
  - To make decisions
  - To control strange, unfamiliar environment
  - To comfort baby when in pain
  - To provide "normal" parenting to infant
- **FEELING "ON DISPLAY"**
  - Watched by staff
  - Watched by other NICU families
  - Limited privacy

CONCERNING SIGNS & SYMPTOMS…

- **Postpartum Depression**
  - as high as 67% of NICU moms - general population 14-27%
    - Exhaustion, inability to sleep, sadness, mood swings, loss of appetite, loss of pleasure in normal activities, thoughts of harming self or baby
- **Acute Stress Disorder**
  - 28-44% of NICU moms
    - fear and helplessness
    - De-realization & denial - unreal world they never asked /wanted to be part of - "this isn't happening", inability to accept situation
    - Anxiety & Dissociation - "disconnecting" – "too much to handle", may stop visiting
    - Amnesia - truly doesn't remember things that happened, discussions had
- **Can progress to PTSD**
  - 15-53% of ASD moms, 8-33% of NICU dads:
    - Re-experiencing symptoms and situations
    - Avoidance
    - Hyperarousal

MOVING FORWARD…

- **Multidisciplinary** communication in developing new practices and process – Providers, Nursing, Therapies, Support Departments
- Identify Developmental Care Champions – committed to learning and keeping caregiving dynamic and current
- Identify unit specific, measurable goals – short and long-term, as well as "just do it" changes
- Implement plan for bringing new staff on board with Developmental Care education
- Conduct internal nonpunitive audits to assure Developmental Care processes continue
- Initiate Neonatal Massage program
- Initiate Sensory Diet program



IN CLOSING…

DEVELOPMENTAL CARE provides…

- individualized
- developmentally appropriate
- neuroprotective

… care to each infant in partnership with their family.

Consistent acceptance, practice, and accountability must be established to guarantee the high quality care every infant and family deserves.

Thank You!
Questions…

leann.rens@mercy.net

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