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| ANT CERTIFICATION Mentorship  **Program Guide** | Abstract  This manual gives details about Association of Neonatal Therapists Certification & Mentorship Program to be held at Ace Children’s Hospital Dombivili.  neonataltherapistindia@gmail.com  Ace Children’s Hospital |

Contents

[Introduction 2](#_Toc35790459)

[Program Details: 4](#_Toc35790460)

[Program Goals 5](#_Toc35790461)

[Program Outcome 7](#_Toc35790462)

[Qualifications: 9](#_Toc35790463)

[Important dates: 10](#_Toc35790464)

[Topics: 11](#_Toc35790465)

[Components of Daily Schedule 13](#_Toc35790466)

[Resource List 14](#_Toc35790467)

[Bibliography 38](#_Toc35790468)

# Introduction

ANT: CNT (Association of Neonatal Therapists: Certified Neonatal Therapist

Constitution: A Distinct Identity

Association of Neonatal Therapists (ANT) knows that our strength lies not only in the words we stand by, but most importantly through the actions of our initiatives. Back in 2017, our Non-Profit Organization realized that by working together we could overcome our challenges much more efficiently, and that is why we ultimately decided to launch Association of Neonatal Therapists (ANT).

As per the constitution of ANT, submitted to regulatory bodies, we will be conducting Certification examination.

The purpose of the conducting certification examination is to enhance the professional standard, to ensure safety and utmost care for every Newborn. The aim is to bring about uniformity in the neonatal therapy services received by clients in our country.

​It has three sections

* Pre examination Section

Coordinator: Usha Uday Bhojne Kasar

Responsibilities of Pre examination Section

* Screen the candidate
* Decide the eligibility
* Give directions to the candidate
* Share the reference list with the candidates
* Controller of CNT Examination

Controller of CNT Examination: Dr. Jyothika Bijlani

Responsibilities of Controller of Examination Section

* Enlist topics
* Select examiner
* Request letter for sending the questions
* Collect questions
* Moderate questions
* Randomize questions
* Prepare 2 sets (100 each)
* Conduct exams
* Declare results (Passing marks are 70 percentage)
* Practice regulator

Nandgaonkar Hemant

Responsibilities of Practice Regulation Section

* After passing the certification examination, post the candidate at the clinical facility
* Approve the clinical facility
* Communication and collaboration with the facility
* Monitor the performance of the candidate
* Approve the performance of the candidate
* Issue final certificates with consultation with other authorities

# Program Details:

**ANT - Neonatal Therapy Mentorship program** aimed for training professionals in clinical care, research, community outreach, and advocacy for children with neurodevelopmental disabilities.

At least 40% of the clinical experience is mentored and the Neonatal Therapy Trainee also receives mentorship in teaching, research, and leadership.

The ANT Trainee will spend one months in rotation, working on an interdisciplinary clinical team and providing intervention services.

# Program Goals

• To support mission of advancing healthcare for children with a focus on the needs of critically ill infants and new-borns and infants and their families.

• To support the Vision by developing Certified Neonatal Therapists who will be experts in promoting optimal motor development, preventing iatrogenic consequences, diagnosing impairments, and providing interventions that promote activity and participation for hospitalized new-borns and infants with their families.

• To develop Neonatal Therapists who are experts in the best family-centered developmental Neonatal Therapy practice standards in examination, diagnosis/classification, intervention, and outcome measurement for newborns and infants who require intensive care and their families.

• To develop Neonatal Therapists who are skilled in implementing and disseminating best practice standards for family-centered developmental Neonatal Therapy care for newborns and infants who require intensive care and their families.

• To provide each fellow with a strong foundation and understanding of:

* The medical issues and interventions of preterm and full-term infants requiring intensive care
* Foetal, preterm and full-term infant sensory, motor and state development
* The intensive care environment and culture
* The impact of the intensive care environment on babies and families

• To prepare each fellow to collaborate with other health care providers for the follow up of infants at risk for developmental delay, in quality improvement initiatives for neonatal and infant intensive care, and in implementation of clinical best practice for newborns and infants.

• To prepare each fellow to critically appraise and apply evidence relevant to the practice of Neonatal Therapy in the population of infants at high risk for developmental delays and their families.

• To produce autonomous practitioners who are critical thinkers, skilful negotiators, strong patient and family advocates, reflective, empathic, and committed to lifelong learning and self-development.

# Program Outcome

By the end of the ANT Mentorship fellows will:

* Be recognized as experts in the practice of Neonatal Therapy for newborns and infants requiring intensive care.
* Provide the best family-centered developmental Neonatal Therapy practice standards in examination, diagnosis/classification, intervention, and outcome measurement for newborns and infants who require intensive care and their families.
* Lead, teach and advocate for family-centered, developmental Neonatal Therapy care of newborns and infants requiring intensive care and their families.
* Be equipped to implement and disseminate best practice standards for family-centered developmental Neonatal Therapy for newborns and infants who require intensive care.
* Use digital resources for documentation, education, analysis of data gathered during practice.

Demonstrate a strong foundation in:

* The medical issues and interventions of preterm and full-term infants requiring intensive care
* Foetal, preterm, and full-term infant sensory, motor, and state development
* The intensive care environment and culture
* The impact of the intensive care environment on newborns, infants and their families
* Be prepared to collaborate with other health care providers for:

o Implementation of clinical best practice for newborns and infants

o The follow up of infants at risk for developmental delay

* Quality improvement initiatives for neonatal and infant intensive care
* Be prepared to critically appraise and apply evidence relevant to the practice of Neonatal Therapy in the population of infants at high risk for developmental delays and their families.
* Be independent practitioners who are critical thinkers, skilful negotiators, strong patient and family advocates, and committed to lifelong learning and self-development.

# Qualifications:

Applicants must have completed an accredited program in occupational therapy (include official transcript of graduate work).

Applicants must be eligible for licensure in Maharashtra and have obtained licensure by the start of the program.

Applicants must be registered with AIOTA.

Extensive experience in paediatrics (including work experience, fieldwork experience).

Applications Must Include:

* + Current CV
  + Formal letter of intent including:
  + Goals for residency year
  + Leadership capabilities
  + Research interests
  + 2 letters of reference: Please email directly to ANT official email
    - Letters should be from individuals who can comment on your candidacy for the residency
    - Please provide contact information for each reference you provide.

# Important dates:

Training starts full-time on 1st of every month and lasts for 30 days (starting date can be negotiable).

Applications for 2020 will be accepted after CNT Examination results.

# Topics:

• Overview of intra uterine development

• Neonatology for Therapist

• Outcome of NICU graduate

• Infection control in NICU

• NICU environment and caregiving

• Pain in neonates

• Oral motor therapy to facilitate feeding

• Family centered approach

• Skin care

• Massage

• Kangaroo mother care

• Neurological assessment of neonate

• Neurobehavioral assessment

• OT IN NICU

• Positioning of the neonate

• Therapeutic Handling

• Taping

• Splinting

• Post discharge monitoring

• Post discharge OT assessment and intervention

• Establishing your niche in the NICU TEAM

• Evidence based practice to support Neurodevelopmental in NICU

• Documentation

• Team Building

• Standardized testing: NOMAS, TIMP, BSID, IDF, MAS and other

• Chart review

* CPCR

# Components of Daily Schedule

1. Attending rounds
2. Lecture - Introduction and orientation
3. video training
4. literature review
5. quality improvement project
6. NICU infection control guidelines
7. communication
8. family centered care
9. environmental evaluation
10. neuro behavioural assessment
11. postural evaluation
12. sleep assessment
13. pain assessment
14. feeding assessment
15. skin integrity assessment
16. screening Dubowitz
17. Ameil Tison
18. trauma informed care
19. goal setting
20. splinting
21. case study minimum 5 days follow up
22. Reflection hands on
23. Feedback hands on
24. Conclusion

# Resource List

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2. Sweeney JK, Heriza CB, Blanchard Y, Dusing SC. Neonatal Physical Therapy. Part II: Practice frameworks and evidence-based practice guidelines. Pediatr Phys Ther. 2010 Spring, 22(1):2-16. [http://mobile.journals.lww.com/pedpt/Fulltext/2010/02210/Neonatal\_Physical\_Therapy\_ Part\_II\_\_Practice.2.aspx](http://mobile.journals.lww.com/pedpt/Fulltext/2010/02210/Neonatal_Physical_Therapy_%20Part_II__Practice.2.aspx)
3. McManus, Beth M. PT, MPH, ScD, PCS; Chambliss, Juliette Hawa PT, DPT; Rapport, Mary Jane PT, DPT, PhD Application of the NICU Practice Guidelines to Treat an Infant in a Level III NICU Pediatric Physical Therapy:Summer 2013 - Volume 25 - Issue 2 - p 204–213 doi:10.1097/PEP.0b013e31828a4870 <http://mobile.journals.lww.com/pedpt/Fulltext/2013/25020/Application_of_the_NICU_Practice_Guidelines_to.17.asp>
4. Eilish Byrne and Suzann K. Campbell (2013). Physical Therapy Observation and Assessment in the Neonatal Intensive Care Unit. Physical & Occupational Therapy In Pediatrics Vol. 33 , Iss. 1,2013
5. Ch. 29 The Neonatal Intensive Care Unit. Campbell's Physical Therapy for Children Expert Consult 5th Edition Editors:: Robert Palisano Margo Orlin Joseph Schreiber Hardcover ISBN: 9780323390187 eBook ISBN: 9780323390781 Imprint: Saunders Published Date: 13th Decem
6. https://evolve.elsevier.com/cs/product/9780323390187

THEORETICAL PRINCIPLES THAT GUIDE NEONATAL THERAPY PRACTICE IN THE NICU

Family-Centered Care

1. Trends in Family-Centered Care in Neonatal Intensive Care Maree, Carin PhD; Downes, Fiona MS (MCur–Neonatal Nursing)Journal of Perinatal & Neonatal Nursing: July/September 2016 - Volume 30 - Issue 3 - p 265–269 doi: 10.1097/JPN.0000000000000202 <http://journals.lww.com/jpnnjournal/Abstract/2016/07000/Trends_in_Family_Centered_Care_in_Neonatal.24.aspx>
2. Family support and education Goldstein LA. Phys Occup Ther Pediatr.2013 Feb;33(1):139-61. doi: 10.3109/01942638.2012.754393. Review.PMID: 23311525

<https://www.ncbi.nlm.nih.gov/pubmed/23311525>

1. Gooding JS, Cooper LG, Blaine BA, Franck LS, et. al. Family support and family-centered care in the neonatal intensive care unit: origins, advances, impact. Seminars in Perinatology. 2011, 35(1) 20-28 <https://www.ncbi.nlm.nih.gov/pubmed/21255703>
2. Patient’s Bill of Rights:

For example see: www.chop.edu/about/our-philosophy-of-care/patients-bill-of-rights.htm

1. S L Hall, M T Hynan, R Phillips, S Lassen, J W Craig, E Goyer, R F Hatfield and H Cohen. The neonatal intensive parenting unit: an introduction. Journal of Perinatology advance online publication 10 August 2017; doi: 10.1038/jp.2017.108 <http://www.nature.com/jp/journal/vaop/ncurrent/full/jp2017108a.html?WT.feed_name=subjects_medical-research&foxtrotcallback=true>
2. Hall, S., Phillips, R., Hynan, M. (2016). Transforming NICU Care to Provide Comprehensive Family Support. Newborn & Infant Nursing Reviews, 16, 69-73.

Synactive Theory of Development

1. Yvette Blanchard PT, ScD, PCS & Gunn Kristin Øberg PT, PhD, PCS (2015) Physical therapy with newborns and infants: applying concepts of phenomenology and synactive theory to guide interventions, Physiotherapy Theory and Practice, 31:6, 377-381, DOI: 10.3109/09593985.2015.1010243http://www.tandfonline.com/doi/full/10.3109/09593985.2015.1010243
2. A Synactive Model of Neonatal Behavioral Organization:Heidelise Als Physical & Occupational Therapy In Pediatrics Vol. 6 , Iss. 3-4,1986
3. Dynamic Systems Theory and Theory of Neuronal Group Selection
4. Hadders-Algra, M. (2000), The Neuronal Group Selection Theory: a framework to explain variation in normal motor development. Developmental Medicine & Child Neurology, 42: 566–572. doi:10.1111/j.1469-8749.2000.tb 00714.x Neuroplasticity
5. Cerebral plasticity: Windows of opportunity in the developing brain Ismail, Fatima Yousif et al.European Journal of Paediatric Neurology , Volume 21 , Issue 1 , 23 - 48

International Classification of Functioning, Disability and Health (ICF)

1. Ch. 1 Evidence-based decision Making in Pediatric Physical Therapy Campbell's Physical Therapy for Children Expert Consult 5th EditionEditors:: Robert Palisano Margo Orlin Joseph Schreiber Hardcover ISBN: 9780323390187 eBook ISBN: 9780323390781 Imprint: Saunders Published Date: 13th Decem https://evolve.elsevier.com/cs/product/9780323390187

Trauma Informed Care

1. Marcellus et al. (2016). Trauma-Informed Care in the NICU: Implications for early childhood development. Neonatal Network,35(6), 359-366.
2. Trauma-Informed Care in the NICU: Evidenced-Based Practice Guidelines for Neonatal Clinicians 1st Edition Mary Coughlin RN MS NNP (Author) ISBN-13: 978-0826131966 ISBN-10: 0826131964 <http://www.springerpub.com/trauma-informed-care-in-the-nicu.html>
3. Transformative Nursing in the NICU: Trauma-Informed Age-Appropriate Care 1st Edition by Mary Coughlin RN MS NNP ISBN-13: 978-0826196576 ISBN-10: 0826196578

http://www.springerpub.com/transformative-nursing-in-the-nicu.html

Developmental Care

1. Guidelines for the Institutional Implementation of Developmental Neuroprotective Care in the Neonatal Intensive Care Unit. Part A Isabelle Milette, , Marie-Josée Martel , Margarida Ribeiro da Silva, Mary Coughlin McNeil Canadian Journal of Nursing Research Vol 49, Issue 2, pp. 46 - 62 First published date: May-17-2017 10.1177/0844562117706882
2. Developmental Care of Newborns and Infants: A Guide for Professionals. Edited by Carole Kenner, PhD RNC-NIC FAAN and Jacqueline M. McGrath, PhD RN FNAP FAAN. Published August 1, 2010. Reviewed July 2015
3. On-Line Training Modules: NANN Developmental Care Modules. http://apps.nann.org/store/product-details?productId=390 Cost: $199.00

TYPICAL DEVELOPMENT

Central Nervous System And Musculoskeletal System

1. Ch. 29 NICU & Ch. 5 Musculoskeletal: Campbell's Physical Therapy for Children Expert Consult 5th EditionEditors:: Robert Palisano Margo Orlin Joseph Schreiber Hardcover ISBN: 9780323390187 eBook ISBN: 9780323390781 Imprint: Saunders Published Date: 13th Decem <https://evolve.elsevier.com/cs/product/9780323390187>
2. Neonatology at a Glance, 3rd Edition Tom Lissauer, Avroy A. Fanaroff, Lawrence Miall, Jonathan Fanaroff August 2015, ©2014, Wiley-BlackwellISBN : 978-1-118-76732-0 http://www.wiley.com/WileyCDA/WileyTitle/productCd-EHEP003344.html

Sensory Development

1. Melinda B. Clark-Gambelunghe, David A. Clark. (2015) Sensory Development. Pediatric Clinics of North America, Volume 62, Issue 2, Pages 367-384 .
2. Pineda et al. (2016). Enhancing sensory experiences for very preterm infants in the NICU: An integrative review. Journal of Perinatology, 16, 1-10.

Behavioural State Regulation And Behavioural Stress Cues

● http://www.pediatrics.emory.edu/divisions/neonatology/dpc/nicubeh.html

○ http://specialstart.ucsf.edu/sstp/download/getting\_to\_know.pdf ○ Foreman SW, Thomas KA, Blackburn ST. Preterm Infant State Development: Individual and Gender Differences Matter. Journal of obstetric, gynecologic, and neonatal nursing : JOGNN / NAACOG. 2008;37(6):657-665. doi:10.1111/j.1552-6909.2008.00292.x.https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2765199/

■ Grenier I, Bigsby R, Vergara E, Lester B. Comparison of motor self-regulatory and stress behaviors of preterm infants across body positions. Am J Occup Ther. 2003 May-Jun;57(3):289-97.

Motor And Sensory Motor Skills

1. Ch 3 Motor Development and control, Ch 4: Motor Learning: Campbell's Physical Therapy for Children Expert Consult 5th Edition Editors:: Robert Palisano Margo Orlin Joseph Schreiber Hardcover ISBN: 9780323390187 eBook ISBN: 9780323390781 Imprint: Saunders Published Date: 13th Decem <https://evolve.elsevier.com/cs/product/9780323390187>
2. Pathways Awareness Foundation (<http://www.pathways.org>)

Educational videos Topics include: sensory, motor and communication development of infants; typical and atypical infant development at 2 and 6 months; and videos of infants in therapy sessions.

Social Development And Infant/Parent Interaction

● www.zerotothree.org

● Infant/parent interaction: Hope empowerment model

○ http://www.copeforhope.com/nicu.php

○ http://www.copeforhope.com/pdf/Nationwide-Childrens-Hospital-Study.pdf

○ Melnyk, B.M., Feinstein, N.F., Alpert-Gillis, L., Fairbanks, E., Crean, H., Sinkin, R.A., et al. (2006). Reducing premature infants' length of stay and improving parents' mental health outcomes with the Creating Opportunities for Parent Empowerment (COPE) Neonatal Intensive Care Unit Program: A randomized controlled trial. Pediatrics, 118, e414-e1437.

○ http://pediatrics.aappublications.org/content/118/5/e1414.long?sso=1&sso\_redirect\_count=1&nfstatus=401&nftoken=00000000-0000-0000-0000-000000000000&nfstatusdescription=ERROR%3a+No+local+token

● Sweeney, S., Rothstein, R., Visintainer, P., Rothstein, R., Singh, R. (2016). Impact of kangaroo care on parental anxiety level and parenting skills for preterm infants in the neonatal intensive care unit. Journal of Neonatal Nursing, 23 (3), 151-158.

● Shaw, R., St John, N., Lilo, E., Jo, B., Benitz, W., Stevenson, D., & Horwitz, S. (2013). Prevention of traumatic stress in mothers with preterm infants: A randomized controlled trial. Pediatrics, 132, e886-e894.

● Athanasopoulou E, Fox JR: Effects of kangaroo mother care on maternal mood and interaction patterns between parents and their preterm, low birth weight infants: a systematic review, Infant Ment Health J 35(3): 245-262, 2014.

Early Cognitive Development And Learning Opportunities In Infancy

● Oudgenoeg-Paz, O., Mulder, H., Jongmans, M. J., Van Der Ham, I. J. M., & Van Der Stigchel, S. (2017). The link between motor and cognitive development in children born preterm and/or with low birth weight: A review of current evidence. https://doi.org/10.1016/j.neubiorev.2017.06.009

● www.zerotothree.org

OUTCOMES OF NEONATES AT RISK/ATYPICAL DEVELOPMENT Infants Born Preterm (Social/Developmental)

1. Hornman, J., de Winter, A. F., Kerstjens, J. M., Bos, A. F., & Reijneveld, S. A. (2016). Emotional and behavioral problems of preterm and full-term children at school entry. Pediatrics, e20152255.PDF:http://pediatrics.aappublications.org/content/pediatrics/early/2016/04/19/peds.2015-2255.full.pdf
2. Joseph, R. M., O'Shea, T. M., Allred, E. N., Heeren, T., Hirtz, D., Paneth, N., Leviton, A., & Kuban, K. C. (2017). Prevalence and associated features of autism spectrum disorder in extremely low gestational age newborns at age 10 years. Autism Research, 10(2), 224-232. PDF: <http://onlinelibrary.wiley.com/doi/10.1002/aur.1644/pdf>
3. Jeanie L. Cheong, MD; Lex W. Doyle, MD; Alice C. Burnett, PhD; et al Association Between Moderate and Late Preterm Birth and Neurodevelopment and Social-Emotional Development at Age 2 Years JAMA Pediatr. 2017;171(4):e164805. doi:10.1001/jamapediatrics.2016.4805
4. Pierrat Véronique, Marchand-Martin Laetitia, Arnaud Catherine, Kaminski Monique, Resche-Rigon Matthieu, Lebeaux Cécile et al. Neurodevelopmental outcome at 2 years for preterm children born at 22 to 34 weeks’ gestation in France in 2011: EPIPAGE-2 cohort study BMJ 2017; 358 :j 3448 ● Einspieler C, Bos AF, Libertus ME, Marschik PB. The General Movement Assessment Helps Us to Identify Preterm Infants at Risk for Cognitive Dysfunction. Frontiers in Psychology. 2016;7:406. doi:10.3389/fpsyg.2016.00406.https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4801883/ ● Crozier, S., Goodson, J., Mackay, M., Synnes, A., Grunau, R., Miller, S., Zwicker, J. (2016). Sensory processing patterns in children born very preterm. American Journal of Occupational Therapy, 70 (1), 1-7.
5. Kelsey Philpott-Robinson, Shelly J Lane, Larissa Korostenski, Alison ELan. The impact of the Neonatal Intensive Care Unit on sensory and developmental outcomes in infants born preterm: A scoping review. British Journal of Occupational Therapy Vol 80, Issue 8, pp. 459 - 469 First published date:June-29-2017 10.1177/0308022617709761 http://journals.sagepub.com/doi/pdf/10.1177/0308022617709761

Infants with Neonatal Abstinence Syndrome & infants with exposure to morphine for pain control

1. Ko JY, Patrick SW, Tong VT, Patel R, Lind JN, Barfield WD. Incidence of neonatal abstinence syndrome--28 states, 1999-2013. MMWR Morb Mortal Wkly Rep 2016;65:799-802.
2. Krans EE, Patrick SW. Opioid Use Disorder in Pregnancy: Health Policy and Practice in the Midst of an Epidemic.Obstetrics and Gynecology. 2016 Jul;128(1). 4-10.
3. Patrick SW, Schumacher RE, Horbar JD, Buus-Frank ME, Edwards EM, Morrow KA, Ferrelli KR, Piccirillo AP, Gupta M, Soll RF. Improving Care for Neonatal Abstinence Syndrome. Pediatrics. 2016 May;137(5).
4. Howard, MB, Schiff, DM, Penwill, N, Si, W, Rai, A, Wolfgang, T, et al. (2017). Impact of parental presence at infant's’ bedside on neonatal abstinence syndrome. Hospital Pediatrics, 7(2), 63-69.
5. Bagwell et al. (2016). Improving skin integrity in babies diagnosed with neonatal abstinence syndrome. Neonatal Network, 35(5), 1-7.
6. Zwicker et al. (2016). Smaller cerebellar growth and poorer neurodevelopmental outcomes in very preterm infants exposed to neonatal morphine. Journal of Pediatrics. doi: 10.1016/j.jpeds.2015.12.024.

Infants With Genetic Conditions

● https://www.genome.gov/10001204/specific-genetic-disorders/

Infants With Cardiovascular And Pulmonary Conditions

1. Ch 25 Children requiring long term mechanical ventilation, Ch 28:Congenital Heart Conditions: Campbell's Physical Therapy for Children Expert Consult 5th Edition Editors:: Robert Palisano Margo Orlin Joseph Schreiber Hardcover ISBN: 9780323390187 eBook ISBN: 9780323390781 Imprint: Saunders Published Date: 13th Decem <https://evolve.elsevier.com/cs/product/9780323390187>
2. Cheatham SL, Carey H, Chisolm JL, Heathcock JC, Steward D. Early results of neurodevelopment following hybrid stage I for hypoplastic left heart syndrome. Pediatric Cardiology 2015;36:684-691.
3. Brain Injury and Neurodevelopmental Outcome in Congenital Heart Disease: A Systematic Review. Review article Mebius MJ, et al. Pediatrics. 2017.Pediatrics. 2017 Jul;140(1). pii: e20164055. doi: 10.1542/peds.2016-4055. Epub 2017 Jun 13.

Infants With Neonatal Brain Injury

1. Rogers EE, Hintz SR. Early neurodevelopmental outcomes of extremely preterm infants. Sem Perinatol 2016;40:497-509. ● Cole et al. (2017). Clinical characteristics, risk factors, and outcomes associated with neonatal hemorrhagic stroke: A population-based case-control study. JAMA Pediatrics ● Hielkema et al. (2016). Motor and cognitive outcome after specific early lesions of the brain – A systematic review. Developmental Medicine & Child Neurology, 58, 46-52.

Infants With Neuromuscular Injury

1. Chang, KW, Yang, LJ, Driver, L., & Nelson, V. (2014). High prevalence of early language delay exists among toddlers with neonatal brachial plexus palsy. Pediatric Neurology, 51, 384-389.
2. Ch 9 Congenital Muscular Torticolllis, Ch 20: Brachial Plexus Injury: Campbell's Physical Therapy for Children Expert Consult 5th Edition Editors:: Robert Palisano Margo Orlin Joseph Schreiber Hardcover ISBN: 9780323390187 eBook ISBN: 9780323390781 Imprint: Saunders Published Date: 13th Decem https://evolve.elsevier.com/cs/product/9780323390187

Infants born Late Preterm

1. Spittle et al. (2017). Neurobehavior at term-equivalent age and neurodevelopmental outcomes at 2 years in infants born moderate-to-late preterm. Developmental Medicine and Child Neurology, 59(2), 207-215.
2. Hadders-Algra. (2017). Neurobehavior at term in infants born moderately and late preterm is associated with cognition at 2 years. Developmental Medicine and Child Neurology, 59(2), 122-123. Infants born Preterm
3. Breeman et al. (2017). Neonatal predictors of cognitive ability in adults born very preterm: A prospective study. Developmental Medicine and Child Neurology.
4. Serenius et al. (2016). Neurodevelopmental outcomes among extremely preterm infants 6.5 years after active perinatal care in Sweden. JAMA Pediatrics, 170(10), 954-963.
5. Crozier et al. (2016). Sensory processing patterns in children born very preterm. American Journal of Occupational Therapy, 70(1), 1-7.
6. Subedi et al. (2017). Developmental trajectories in children with prolonged NICU stays. Archives of Disease in Childhood, 102(1), 29-34.
7. Segal et al. (2016). Relationship between central hypotonia and motor development in infants attending a high-risk neonatal neurology clinic. Pediatric Physical Therapy, 28(3), 332-336.

EXAMINATION AND EVALUATION Examination procedures for neonates:

Determining physiologic and behavioral readiness for neonatal physical therapy examination

Monitoring autonomic, behavioral state, and motor stability throughout an examination

Conducting observational examination techniques

Administering minimal contact examination techniques

Determining when standardized assessment is safe to perform and clinically warranted

Providing standardized assessments developed for neonates born preterm or at term gestation

1. White Matter Injury and General Movements in High-Risk Preterm Infants C. Peyton, E. Yang, M.E. Msall, L. Adde, R. Støen, T. Fjørtoft, A.F. Bos, C. Einspieler, Y. Zhou, M.D.Schreiber, J.D. Marks, A. Drobyshevsky American Journal of Neuroradiology Jan 2017, 38 (1) 162-169; DOI: 10.3174/ajnr.A4955 <http://www.ajnr.org/content/38/1/162>
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3. Oana Craciunoiu and Liisa Holsti. A Systematic Review of the Predictive Validity of Neurobehavioral Assessments During the Preterm Period. Physical & Occupational Therapy In Pediatrics Vol. 37 , Iss. 3,2017
4. Novak et al. Early, accurate diagnosis and early intervention in cerebral palsy. JAMA Pediatr doi:10.1001/jamapediatrics.2017.1689
5. Sweeney J.K., Blackburn S.T. (2013). Neonatal Physiological and Behavioral Stress During Neurological Assessment. Journal of Perinatal and Neonatal Nursing. 27 (3): 242-252.
6. Craciunoiu et al. (2016). A Systematic review of the predictive validity of neurobehavioral assessments during the preterm period. Physical & Occupational Therapy in Pediatrics, 1-16.
7. Dunsirn et al. (2016). Defining the nature and implications of head turn preference in the preterm infant. Early Human Development, 96, 53-60.

Neonatal Test and Measures

HINE (Impairment Measure)

Purpose: Prognostic information regarding motor outcome, identify infants who may benefit from therapy

Age Range: 2-24 months Areas Tested: 26 items assessing cranial nerve function, posture, quality, and quantity of movements, muscle tone, and reflexes and reactions

Training required: Nationwide Children’s Hospital (free) Cost: score sheet available http://dx.doi.org/10.1016/j.pediatrneurol.2016.09.010

Optimality score for the neurologic examination of the infant at 12 and 18 months of age

Haataja, Leena et al.The Journal of Pediatrics , Volume 135 , Issue 2 , 153 - 161

Implementation of the Hammersmith Infant Neurological Examination in a High-Risk Infant Follow-Up Program http://www.sciencedirect.com/science/article/pii/S0887899416305653

Training Video https://www.dropbox.com/s/6goyj19tie8rtga/video.mp4?dl=0

NIDCAP (Impairment Measure/Activity Measure)

NEONATAL INDIVIDUALIZED DEVELOPMENTAL CARE AND ASSESSMENT PROGRAM (NIDCAP) (www.nidcap.org)

■ Provides training and information on developmentally appropriate care for the preterm and term infants. Information on NIDCAP certification and certification in NONB. http://nidcap.org/en/about-us/faq/

Purpose: Used to determine the infant’s physiological and behavioral responses to the environment to assist parents and caregivers.

Age Range: Neonates to 4-weeks post-term

■ Areas Tested: Criterion-referenced assessment of physiological and behavioral responses in the areas of autonomic, motor and attention.

Training required: 1-2 years.

NBO (Participation Measure)

The Newborn Behavioural Observations (NBO)

Purpose: not an assessment tool per se but a relationship-building tool designed to help clinicians sensitize parents to their child’s competencies and uniqueness, and support the development of positive parent-infant and clinician-parent relationships. It consists of a structured set of 18 neurobehavioral items observed with the parents as partners. Professionals guide the observation, discuss the baby’s abilities and behaviors with parents, encourage parent insights and questions, and suggest specific ways to support the child’s development. (Appropriate use of the NBO tool in clinical practice requires training through the NBO training program.)

Age Range: birth to 3 months

Areas Tested: Training required: Two day offsite

Fee: cost/person

http://products.brookespublishing.com/Understanding-Newborn-Behavior-and-Early-Relationships-P211.aspxThe Newborn Behavioral Observations (NBO) System Training Workshopshttp://www.brazelton-institute.com/clnbas2.html

NNNS (Impairment Measure )(NICU Neonatal Network Scale) Purpose: examines the neurobehavioral organization, neurological reflexes, motor development - active and passive tone, and signs of stress and withdrawal of the at-risk and drug-exposed infant. It was designed to provide a comprehensive assessment of both neurological integrity and behavioral function.

Age Range: 34 weeks-45 weeks

Areas Tested:

The examination includes 3 parts:

1) neurologic items that assess active and passive tone and primitive reflexes as well as items that reflect CNS integrity

2) behavioral items including state and sensory and interactive responses

3) stress/abstinence items particularly appropriate for high-risk infants.

Training required: Training seminars are structured to meet the specific needs of those being trained. Training is intensive, didactic and very hands-on. The preferred approach is to arrange

two training sessions several weeks apart to allow for a period of time between sessions during which the trainee(s) can practice administering and scoring the exam. However, with adequate preparation, most examiners can complete the training within a single 5-day training session. \* Some examiners with extensive infant experience and pre-visit preparation, can achieve certification in less than 5 days.

https://www.brown.edu/research/projects/children-at-risk/sites/brown.edu.research.projects.children-at-risk/files/uploads/NNNS%20Training%20Program%20FAQ\_0.pdf

Cost: cost associated per trainee (+ travel expenses for the trainee or trainer)

■ Cost is associated per trainee for NNNS kit, which includes 1 NNS manual, 2 head supports, 1 flashlight, 1 bell, 1 ball, 1 rattle. This fee includes domestic shipping only.

https://www.brown.edu/research/projects/children-at-risk/about/nnns-training-and-certification-program-0

https://www.brown.edu/research/projects/children-at-risk/sites/brown.edu.research.projects.children-at-risk/files/uploads/NNNS%20Procedures.pdf

TIMP (Activity Measure)

TEST OF INFANT MOTOR PERFORMANCE (TIMP)

Purpose: To identify infants with deficits in postural control and to document the effects of developmental therapy to improve postural control needed for functional movement in early infancy

Age Range:34-weeks gestational age through 4-months post-term (or full term to 4-months)

Areas Tested: 13 observed behaviors and 25 elicited behaviors assessing the ability to orient and stabilize the head in space and in response to auditory and visual stimulation in supine, prone, side lying, upright, and during transitions from one position to another, distal selective control of the fingers and ankles, antigravity control of arm and leg movement.

Training required:approximately 14 hours of study plus a minimum of 10 hours practice testing infants.

Cost: includes self-instructional DVD, User’s Manual and TIMP test forms or $500 for e-Learning course with User’s Manual, TIMP test forms, and age calculator

Authors: Suzann K. Campbell, Gay L. Girolami, Thubi H.A. Kolobe, Elizabeth Osten, and Maureen Lenke

Publisher: Infant Motor Performance Scales, LLC, 1301 W. Madison St. #526, Chicago, IL. 60607-1953 http://thetimp.com

GMA General Movement Assessment (Impairment Measure)

Purpose: A quick, non-invasive, non-intrusive with high reliability and high validity for the early detection of neurological anomalies.

Age Range:Birth to 20 weeks post term.

Areas Tested:

Training required: BASIC COURSE: Four-days-course is to provide an introduction Prechtl's Method on the Qualitative Assessment of General Movements in young infants. Cost: $900.00

ADVANCED COURSE: This four-days-course is for participants who are already engaged in applying Prechtl's Method on the Qualitative Assessment of General Movements. This training will deal with the details of the assessment, the proper terminology and technique as well as with the application of individual developmental trajectories. Cost $900.00

Prechtl's Method on the Qualitative Assessment of General Movements in

Preterm, Term and Young Infants. Christa Einspieler, Heinz FR Prechtl, Arend F Bos, Fabrizo Ferrari & Giovanni Cioni ISBN 1 898683 40 9 2004.

Publisher: Cambridge University Press, Journals Fulfillment Department,100 Brook Hill Drive, West Nyack, New York, NY 10994-2133

Cost: $ 65.00. Includes a DVD giving 15 cases selected from the book

■ http://general-movements-trust.info/51/papers

■ http://general-movements-trust.info/5/home

■ General Movement Trust video

■ https://www.dropbox.com/scl/fi/42wcqbyom0tv64y/Spontaneous%20Motor%20Activity.mp4?dl=0&oref=e&r=AAc4jPjcfgoIF0YbN0jpu7SOa2RG94vgx\_IG397Sp2GEOYVLAUKQx7dn3iji-LdA32wZSDWuY-tGx07NUEM\_1BZnN-JqXpCzQGBJeigT201LiKnyC9JydAlCrtdQ01jggT8\_1EWq0A8Y1iUlqxgNoP75VuowQtbQZOi0XFgmUcwXCq4cbHHBlTsc1NWXFBr5n-k&sm=1

Finnegan (Impairment Measure)

NEONATAL ABSTINENCE SCORING FORM

Purpose: 21 items scored on a 1-5 point scoring system to quantify severity of neonatal exposure of term infants to toxic substances.

Areas Tested: Central nervous system, gastrointestinal, metabolic, vasomotor, and respiratory disturbances.

Cost: Available online

Publisher: Current therapy in neonatal-perinatal medicine. 2ed. Ontario: BC Decker: 1990. Available through Western Australia Centre for Evidence Based Nursing and Midwifery, January 2007. http://www.lkpz.nl/docs/lkpz\_pdf\_1310485469.pdf

https://www.neoadvances.com/authors.html

Pain Scales of Neonates and Infants

NPASS

CRIES

NEONATAL INFANT PAIN SCALE (NIPS)

Purpose: To measure pain in preterm and full term infants

Age Range: Birth to 1-year

Areas Tested: Scored on 6 parameters: facial expression, cry, breathing patterns, arms, legs, and state of arousal.

Cost: Available online.

Author: J. Lawrence, D. Alcock, P. McGrath, J. Kay, S.B. MacMurray, C. Dulberg Publisher: Neonatal Network. 1993;12(6):59-66.

Lawrence J, Alcock D, McGrath P, Kay J, MacMurray SB, Dulberg C. The development of a tool to assess neonatal pain. Neonatal Network. 1993;12:59–66. [PubMed] https://com-jax-

emergency-pami.sites.medinfo.ufl.edu/files/2015/02/Neonatal-Infant-Pain-Scale-NIPS-pain-scale.pdf

THE PREMATURE INFANT PAIN PROFILE (PIPP)

Purpose: A behavioral measure of pain for premature infants.

Age Range: < 28 weeks to >= 36 weeks gestation

Areas Tested: Behavioral observation as an indication of pain. Cost: Available on line

Author: Bonnie Stevens, Celeste Johnson, Patricia Petryshen, and Anna Taddio Publisher: (1996). Premature infant pain profile: development and initial validation. Clinical Journal of Pain, 12: 13-22.

FACE, LEGS, ACTIVITY, CRY, AND CONSOLABILITY BEHAVIORAL PAIN SCALE (FLACC)

Purpose: To quantify pain behaviors in children who are not able to verbalize pain

Age Range: Birth to 18-years

Areas Tested: Observation of facial expression, leg movement, activity, cry and consolability.

Cost: Available online.

Authors: Sandra I. Merkel, Terri Voepel-Lewis, Jay R. Shayevitz, Shobha Malviya Publisher: Pediatric Nursing. 1997 May-Jun;23(3):293-7.

http://wps.prenhall.com/wps/media/objects/3103/3178396/tools/flacc.pdf

● Prevention and Management of Procedural Pain in the Neonate: An Update

COMMITTEE ON FETUS AND NEWBORN and SECTION ON ANESTHESIOLOGY AND PAIN MEDICINE Pediatrics Jan 2016, peds.2015-4271; DOI: 10.1542/peds.2015-4271

http://pediatrics.aappublications.org/content/early/2016/01/22/peds.2015-4271

SAFE AND EFFECTIVE INTERVENTIONS

Please refer to essential reading before going further

Global

● Res Dev Disabil. 2017 May;64:108-117. doi: 10.1016/j.ridd.2017.03.009. Epub 2017 Apr Occupational therapy, physical therapy and speech-language pathology in the neonatal intensive care unit: Patterns of therapy usage in a level IV NICU.Ross K1, Heiny E1, Conner S2, Spener P2, Pineda R3. https://www.ncbi.nlm.nih.gov/pubmed/28384484

● Age-Appropriate Care of the Premature and Critically Ill Hospitalized Infant http://nann.org/uploads/Education/Age-Appropriate\_Care-FINAL.pdf

● Hughes et al. (2016). Motor development interventions for preterm infants: A systematic review and meta-analysis. Pediatrics, 138(4)

● Spittle et al. (2016). The role of early developmental intervention to influence neurobehavioral outcomes of children born preterm. Seminars in Perinatology, 40(8), 542-548.

● Dusing et al. (2016). Supporting mother-infant interaction in the NICU may enhance oral motor skills, weight gain, and feeding volume: A pilot study. Developmental Medicine & Child Neurology, 58, 13-14.

● Dusing et al. (2016). Initial efficacy of SPEEDI: A developmental intervention provided for 15 weeks in the NICU and community improves motor abilities in infants born very preterm or with brain injury. Developmental Medicine & Child Neurology, 58(S5), 14-15

Positioning To Support Alignment And Movement

1. King, C., & Norton, D. (2017). Does therapeutic positioning of preterm infants impact upon optimal health outcomes? A literature review. https://doi.org/10.1016/j.jnn.2017.03.004
2. Madlinger-Lewis L, Reynolds L, Zarem C, Crapnell T, Inder T, Pineda R. The Effects of Alternative Positioning on Preterm Infants in the Neonatal Intensive Care Unit: A Randomized Clinical Trial. Research in developmental disabilities. 2014;35(2):490-497. doi:10.1016/j.ridd.2013.11.019.https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3938096/
3. McCarty (2017) Dolichocephaly in Preterm Infants: Prevalence, Risk Factors, and Early Motor Outcomes. American Journal of Perinatology. ttps://www.thieme-connect.com/products/ejournals/html/10.1055/s-0036-1592128
4. Malusky S, Donze A. Neutral head positioning in premature infants for intraventricular hemorrhage prevention: an evidence-based review. Neonatal Netw. 2011 Nov-Dec;30(6):381-96.
5. Nakano H, Kihara H, Nakano J, Konishi Y. The influence of positioning on spontaneous movements of preterm infants. Journal of Physical Therapy Science 2010;22(3):337-45.
6. Sweeney J, Gutierrez T. Musculoskeletal implications of preterm infant positioning in the NICU. J Perinat Neonat Nurs. 2002 Jun;16(1):58-70.
7. SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment

TASK FORCE ON SUDDEN INFANT DEATH SYNDROME

1. Pediatrics Oct 2016, e20162938; DOI: 10.1542/peds.2016-2938

Adv Neonatal Care. 2012 Jun;12(3):172-5. doi: 10.1097/ANC.0b013e318256b7c1.Positioning after feedings: what is the evidence to reduce feeding intolerances?Elser HE1.

Handling

1. Gunn Kristin Øberg, Yvette Blanchard & Aud Obstfelder. Therapeutic encounters with preterm infants: interaction, posture and movement. Physiotherapy Theory and Practice Vol. 30 , Iss. 1,2014
2. Ludington-Hoe S. (2011) Evidence based review of physiological effects of kangaroo care. Women’s Health Reviews. 7(3), 243-253. ● Charpak N, Ruiz JG, Zupan J, Cattaneo A, Figueroa Z, Tessier R, Cristo M, Anderson G, Ludington S, Mendoza S, Mokhachane M and Worku B . 2005. Charpak et al 2005 Kangaroo Mother Care 25 years after Acta Paediatrica 94: 514-522 (DOI: 10.1080/08035250510027381)
3. Hilderman CGE, Harris SR. Early intervention post-hospital discharge for infants born preterm. Phys Ther 2014;94:1211-1219 ● White-Traut RC, Nelson MN, Silvestri JM, Vasan U, Littau S, Meleedy-Rey P, Gu G and Patel M . 2002. Effect of auditory, tactile, visual, and vestibular intervention on length of stay, alertness, and feeding progression in preterm infants. Developmental Medicine and Child Neurology 44: 91-97.
4. Valizadeh L, Sanaeefar M, Hosseini MB, Jafarabadi MA, Shamili A. Effect of early physical activity programs on motor performance and neuromuscular development in infants born preterm: A randomized clinical trial. J Caring Sci 2017;6:69-81.
5. Fucile S, Gisel EG. Sensorimotor interventions improve growth and motor function in preterm infants. Neonatal Network 2010;29(6):359-366
6. Ustad T, Evensen KAI, Campbell SK, Girolami GL, Helbostad J, Jorgensen L,Kaaresen PI, Oberg GK. Early parent-administered physical therapy for preterm infants: A randomized controlled trial. Pediatrics 08/2016;138(2). DOI:10.1542/peds.2016-0271.
7. Stalnaker & Poskey (2016). Osteopenia of prematurity: Does physical activity improve bone mineralization in preterm infants? Neonatal Network, 35(2), 95-104.

Massage

1. Diego MA, Field T, Hernandez-Reif M. Preterm Infant Weight Gain is Increased by Massage Therapy and Exercise Via Different Underlying Mechanisms. Early human development. 2014;90(3):137-140. doi:10.1016/j.earlhumdev.2014.01.009.
2. Niemi A-K. Review of Randomized Controlled Trials of Massage in Preterm Infants. McClafferty H, ed. Children. 2017;4(4):21. doi:10.3390/children4040021. ○ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5406680/

Environmental Modifications

1. Filippa, M., Panza, C., Ferrari, F., Frassoldati, R., Kuhn, P., Balduzzi, S. and D'Amico, R. (2017), Systematic review of maternal voice interventions demonstrates increased stability in preterm infants. Acta Paediatr, 106: 1220–1229. doi:10.1111/apa.13832
2. Pineda RG, Stransky KE, Rogers C, et al. The Single Patient Room in the NICU: Maternal and Family Effects. Journal of perinatology : official journal of the California Perinatal Association. 2012;32(7):545-551. doi:10.1038/jp.2011.144. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3790962/
3. Single-Family Room Care and Neurobehavioral and Medical Outcomes in Preterm Infants Barry M. Lester, Katheleen Hawes, Beau Abar, Mary Sullivan, Robin Miller, Rosemarie Bigsby, Abbot Laptook, Amy Salisbury, Marybeth Taub, Linda L.Lagasse, James F. Padbury Pediatrics Oct 2014, 134 (4) 754-760; DOI: 10.1542/peds.2013-425 http://pediatrics.aappublications.org/content/134/4/754.long
4. Auditory Exposure in the Neonatal Intensive Care Unit: Room Type and Other Predictors The Journal of Pediatrics, Volume 183, Issue null, Pages 56-66.e3
5. Roberta Pineda, Polly Durant, Amit Mathur, Terrie Inder, Michael Wallendorf, Bradley L. Schlaggar http://www.sciencedirect.com/science/article/pii/S0022347616315670?showall%3Dtrue%26via%3Dihub ● Newborn and Infant Nursing Reviews Volume 16, Issue 4, Pages A1-A8, 173-348 (December 2016) Special Issues on NICU Design and Infant Mental Health in the Intensive Care Unit and Beyond Edited by Joy V. Browne, Robert White and Ayelet Talmi http://www.sciencedirect.com/science/journal/15273369/16/4?sdc=1 ● Differential Effects of the Single-Family Room Neonatal Intensive Care Unit on 18- to 24-Month Bayley Scores of Preterm Infants. Vohr B, et al. J Pediatr. 2017.

Developmental Care

1. NANN Developmental Care Modules This purchase gives you access to all 27 modules, with 38.0 CNE contact hours. Included in this set is a PDF overview for each module as well as a post-test and evaluation the learner will complete to receive the designated contact hours. The modules are an aid and do not include an in-depth description of the subject matter. Instead, they are study guides that augment and build on what learners are reading and studying or upon their professional experiences in developmental care as a means to promote understanding and retention.

http://apps.nann.org/store/product-details?productId=390

Splinting

1. Protocol Development for Infants with Orthopedic Complications in the Neonatal Intensive Care Unit: Brachial Plexus Injuries and Clubfoot Kari J. Tanta PhD OTR/L FAOTA, Kari Gunsolus, Nicole Harley MOT OTR/L, Kara Grosvenor OTR/L, Janalynn Garcia OTR/L & Tracy Jirikowic PhD OTR/L Journal of Occupational Therapy, Schools, & Early Intervention Vol. 5 , Iss. 3-4,20

Wound Care

1. Blume-Peytavi U, Hauser M, Stamatas GN< Pathirana D, Garcia Bartels N. Skin care practices for newborns and infants: Review of the clinical evidence for best practices. Pediatr Dermatol. 2012;28(3):241-54.
2. Lund CH., Osborne JW., Kuller J., Lane AT., Lott JW., and Raines DA.: Neonatal skin care: clinical outcomes of the AWHONN/NANN Evidence-Based Clinical Practice Guideline.

Association of Women's Health, Obstetric and Neonatal Nurses and the National Association of Neonatal Nurses. J Obstet Gynecol Neonatal Nurs 2001; 30: 41 [PubMed]

Ness, Dawn, Davis, Carey. Neonatal skin care: a concise review. International Journal of Dermatology. 2013, 52, 14-22 http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3985526/pdf/wound.2013.0477.p

● Fox, MD. Wound Care in the Neonatal Intensive Care Unit. Neonatal Network. 2011;30(5):291-303

Determining The Need For And Completing Oral Motor Or Feeding Readiness Assessments And Providing Oral Motor Intervention In Preparation For Oral Feeding

1. Shaker CS. Perspectives on swallowing and swallowing disorders (dysphagia). Oct. 2010, (19):68-74
2. Arvedson J, Clark H, Lazarus C, Schooling T, Frymark T. Evidence-Based Systematic Review: Effects of Oral Motor Interventions on Feeding and Swallowing in Preterm Infants. Am J Speech Lang Pathol. 2010 Nov;19(4) 321- 340A.
3. Thoyre SM, Shaker CS, and Pridham KF. The early feeding skills assessment for preterm infants. Neonatal Netw. 2005 May–Jun;24(3):7–16.
4. Garber, J. Oral–Motor Function and Feeding Intervention. Physical and Occupational Therapy in Pediatrics 2013 (DOI:10.3109/01942638.2012.750864)
5. Crowe L, Chang A, Wallace K. Instruments for assessing readiness to commence suck feeds in preterm infants: effects on time to establish full oral feeding and duration of hospitalisation. Cochrane Database of Systematic Reviews 2012, Issue 4. Art. No.:CD005586. DOI: 10.1002/14651858.CD005586.pub2.
6. Fucile S, Gisel EG, McFarland DH and Lau C. Oral and non-oral sensorimotor interventions enhance oral feeding performance in preterm infants. Developmental Medicine and Child Neurology 53: 829-835 (DOI:10.1111/j.1469-8749.2011.04023.x)
7. Fucile S, McFarland DH, Gisel EG, Lau C. Oral and non oral sensorimotor interventions facilitate suck-swallow-respiration functions and their coordination in preterm infants. Early Human Development 2011 (DOI:10.1016/j.earlhumdev.2011.09.007)
8. Lau C . 2013. Is there an advantage for preterm infants to feed orally in an upright or sidelying position? Journal of Neonatal Nursing 19:28-32 (DOI:10.1016/j.jnn.2012.03.013)
9. Lau C, Smith EO. A novel approach to assess oral feeding skills of preterm infants. Neonatol 2011;100:64-70.

Feeding Books

1. Ross ES, Philibin MK. SOFFI: AN evidence-based method for quality bottle-feeding of preterm, ill, and fragile infants. J Perinat Neonatal Nurs. 2011 OCt-Dec; 25(4): 349-359.
2. Philibin MK, Ross ES. The SOFFI Reference Guides: Text, Algorithms, and Appendices: A manualized method for quality. Bottle Feedings. J Perinat Neonatal Nurs. 2011 Oct-Dec; 25(4):360-380.
3. Shaker CS. (2010) Improving feeding outcomes in the NICU: Moving from volume-driven to infant-driven feeding.
4. ASHA Perspectives on Swallowing and Swallowing Disorders(Dysphagia). October 19, 68-74.

Purpose: This book provides a comprehensive, interdisciplinary approach to feeding and swallowing management of infants. Topics include anatomy, embryology, physiology, pediatric and neurodevelopmental evaluation, nutrition, feeding assessment, tone and positioning.

1. Feeding and Swallowing Disorders in Infancy: Assessment and Management

Authors: Robin Glass and Lynn Wolf

Publisher: Therapy Skill Builders a Division of Psychological Corporation, 555 Academic Court, San Antonio, Texas 78204-2498.

Purpose: This text provides a comprehensive description of infant feeding, evaluation and intervention from a medical perspective. This book provides detailed descriptions of individual infant case presentations and treatment strategies to address feeding impairments. Evidenced based references are provided at the end of each chapter. Topics include specific diagnostic categories, comprehensive approach to feeding evaluations, diagnostic tests and procedures, and treatment strategies for feeding dysfunction.

Feeding /Assessments

NEONATAL ORAL-MOTOR ASSESSMENT SCALE (NOMAS)

Author: Murray A. Braun and Marjorie M. Palmer

Purpose: To screen for oral motor dysfunction in the neonate, distinguish infants with normal sucking from those with disorganization, identify infants with poor feeding abilities, and distinguish inefficient from efficient feeders.

Age Range: Neonate to 3-months of age

Areas Tested: 26-items divided into 2 categories: jaw movements and tongue movements: rate, rhythmicity, consistency of degree of jaw excursion, direction, range of motion, timing of tongue movement, Tongue configuration

Cost: $875.00 for three day comprehensive training for certification. Contact NOMAS International, 1528 Merrill Road, San Juan Bautista, Ca. 95045 for course dates.

http://www.nomasinternational.org/index.php

NOMAS on line training:

The 11 talks in this online course focus on feeding difficulties in term and preterm infants, evaluation and treatment of sensory and motor-based feeding problems after discharge from NICU or special care nursery, videofluoroscopic studies of infants and children showing examples, procedure and diagnosis, and weaning from tube to oral feeding using a sensory-based protocol. Each talk runs about one hour.

Certification not available. Cost: Order all 11 talks in Series One for $375 Introductory, intermediate and advanced material ($850 if taken individually)

Series 2 The 12 talks in this online course focus on the etiology, diagnosis, and treatment of feeding difficulties in the term and preterm infant. Evaluation and treatment strategies for the “difficult to feed” infant both in the NICU or special care nursery are discussed as well as those feeding issues that persist after discharge. Series 3: The full course is made up of all 12 talks. Each talk runs about 1 hour. Cost: Order all 12 talks in Series Two for $375 Introductory, intermediate and advanced material

<http://www.nomasinternational.org/about_training.php>

● EARLY FEEDING SKILLS ASSESSMENT (EFS)

Author: Catherine Shaker, Suzanne Thoyre, and Karen Pridham

Publisher: Neonatal Network. 2005 May-Jun; 24 (3): 7-16.

Purpose: a checklist for assessing infant readiness for and tolerance of feeding and for profiling the infant's developmental stage regarding specific feeding skills: the abilities to remain engaged in feeding, organize oral-motor functioning, coordinate swallowing with breathing, and maintain physiologic stability.

Age Range: Infants

2 day training workshop on how to use the tool. Contact Catherine Shaker: pediatricseminars@gmail.com;

http://shaker4swallowingandfeeding.com

PRODUCTS DEVELOPED FOR NICU

● http://www.usa.philips.com/healthcare/solutions/mother-and-child-care/infant-positioning

○ Positioning Products including gel positioning aids, snuggle up, Frederick T Frog, Prone plus, Bendy bumper

● www.dandlelionmedical.com

○ Positioning products including dandleRoo, DandleRoo Lite, Dandle Wrap, Dandle Pal

● www.resqwedge.com

○ Wedge positioner and sling for reflux.

● www.sundancesolutions.com/neonatal/

○ Positioning products including fluidized products

● http://www.nurturedbydesign.com/en/thezaky/

○ Positioning tool that can use mother's scent and be used for boundaries and containment

● http://tortlemedical.com

○ The positioning system includes the tortle air and tortle midliner for head positioning.

● http://www.halosleep.com/in-hospital-sleepsack-program/

○ supplier of sleep sacks and hospital sleep sack program

● https://www.catapult-products.com/

○ Swaddle bathing product TurtleTub

COMMUNICATION AND COLLABORATION

1. Developing And Implementing Parent/ Caregiver Education Programs For Adult Learners With Diverse Backgrounds/ Providing Family Education In A Culturally Sensitive Manner
2. Dusing SC, Murray T, Stern M. Parent preferences for motor development education in the neonatal intensive care unit. Pediatr Phys Ther 2008;20:363-368.
3. Goldstein LA, Campbell SK. Effectiveness of the Test of Infant Motor Performance as an educational tool for mothers. Pediatr Phys Ther. 2008;20:152-159.
4. Aydon, L., Hauck, Y., Murdoch, J., Siu, D. and Sharp, M. , Transition from hospital to home: Parents perception of their preparation and readiness for discharge with their preterm infant. J Clin Nurs. Accepted Author Manuscript. doi:10.1111/jocn.13883http://onlinelibrary.wiley.com/doi/10.1111/jocn.13883/abstract;jsessionid=357E4A9EAF53825F8416D367FF63882C.f02t03
5. Boykova. (2016). Transition from hospital to home in preterm infants and their families. Journal of Perinatal & Neonatal Nursing, 30(3), 270-272.
6. Martin et al. (2016). Racial differences in parental satisfaction with neonatal intensive care unit nursing care. Journal of Perinatology, 36(11), 1001-1007
7. Skeens et al. (2016). Health literacy and preferences for sources of child health information of mothers with infants in the neonatal intensive care unit. Advances in Neonatal Care, 16(4), 308-314.
8. Adama et al. (2016). Parents’ experiences of caring for preterm infants after discharge from neonatal intensive care unit: A meta-synthesis of the literature. Journal of Neonatal Nursing, 22(1), 27-51.
9. National Association of Neonatal Nursing NANN offers several resources for neonatal families. As part of the Advances in Neonatal Care: Family Teaching Toolbox. <http://nann.org/education/educational-products/family-patient-education-products>
10. Transitioning Newborns from NICU to HOME: A Resource Toolkit, Agency for Healthcare Research and quality <https://www.ahrq.gov/professionals/systems/hospital/nicu_toolkit/index.html>
11. Consulting With Other Professionals ¤ Collaborating As Part Of An Interdisciplinary Developmental Team/Communicating With Physicians, Occupational Therapists, Speech Language Pathologists, Respiratory Therapists, Child Life, Social Workers, And Other Professionals
12. Barbosa V ,, Teamwork in the NICU Physical & Occupational Therapy in Pediatrics, 33(1):5–26, 2013 ⃝C 2013 by Informa Healthcare USA, Inc.Available online at http://informahealthcare.com/potpDOI: 10.3109/01942638.2012.72955 <http://www.rheapaul.com/Files/Teamwork%20in%20NICU.pdf>
13. Rapport MJ, Sweeney JK, Dannemiller L, Heriza CB. Student experiences in the neonatal intensive care unit: addendum to neonatal physical therapy competencies and clinical training models. Pediatr Phys Ther. 2010;22(4):439-440.

Planning For Discharge, Including Community Resources, Car Seats, And Other Equipment Or Therapy Needs

1. Safe Transportation of Preterm and Low Birth Weight Infants at Hospital Discharge Marilyn J. Bull, William A. Engle Pediatrics May 2009, 123 (5) 1424-1429; DOI: 10.1542/peds.2009-0559 <http://pediatrics.aappublications.org/content/123/5/1424>
2. Early Therapy Services Following Neonatal Intensive Care Unit Discharge Odochi Nwabara, Cynthia Rogers, Terrie Inder & Roberta Pineda Physical & Occupational Therapy In Pediatrics Vol. 37 , Iss. 4,2017 Send your article selections to Article Search@apta.org to receive full text copies of the articles. ● Spittle A, Orton J, Anderson PJ, Boyd R, Doyle LW. Early developmental intervention programmes provided post hospital discharge to prevent motor and cognitive impairment in preterm infants. Cochrane Database of Systematic Reviews 2015, Issue 11. Art. No.: CD005495. DOI: 10.1002/14651858.CD005495.pub4.

<https://www.ncbi.nlm.nih.gov/pubmed/26597166>

Regional Referrals for Early Intervention Services IDEA legislation

1. Early intervention services to eligible children and families are federally mandated through the Individuals with Disabilities Education Act. The Part C program mandates a state-wide, comprehensive, multidisciplinary service system to address the needs of infants and toddlers who are experiencing developmental delays or a diagnosed physical or mental condition with a high probability of an associated developmental disability in one or more of the following areas: cognitive development, physical development, language and speech development, psychosocial development, and self-help skills. Commonly cited factors that may put an infant or toddler at risk of developmental delay include prenatal exposure to toxins through maternal substance abuse, respiratory distress as a new-born, low birth weight, brain haemorrhage, and infection.
2. National Dissemination Center for Children with Disabilities State Resources at http://www.nichy.org/state-organizations-search-by-state Pick a state and this site will take you to your local EI provider

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