

## Selected Papers on the uses of the NBO

1. Hawthorne, J. & Nicolau (in press). Health Professionals' use of the Newborn Behavioural Observations (NBO) system: benefits and opportunities for integration into practice. *Journal of Health Visiting*.

### Abstract

The Newborn Behavioural Observations (NBO) system is a relationship-building tool highlighting baby behaviours from birth to 3 months old. In this survey, we aim to evaluate the use of the NBO by practitioners (N=133), approximately 7 months after the NBO training course. The results show that most practitioners are: focusing on specific family needs and babies' behavioural states (using parts of the NBO), using it as a whole routinely, and/or using its principles (based on understanding baby development and parenting). Practitioners are particularly keen to focus on items related to baby's social/interactive skills and crying/consolability and 84% are using the NBO with both fathers and mothers. Practitioners reported that the most valued benefit of the NBO was an enhancement of practice and knowledge about baby behaviour. Opportunities for improvement were also identified: need for practice to become proficient using the tool, support on implementation and continued professional development.

### Key points

The NBO training has a great impact on upskilling practitioners working in infant and perinatal mental health. Not only are practitioners using this flexible tool after the course, but they are also mostly carrying it out with both fathers and mothers. The main benefits reported are improvements in professional knowledge and skills, and the need for support for an effective integration into daily practice was acknowledged.

2. Hawthorne, J. & Nicolau, S. (2016). PRACTITIONERS' USE OF THE NBO (NEWBORN BEHAVIOURAL OBSERVATIONS) SIX MONTHS AFTER THE TRAINING COURSE. Presented at the 15<sup>th</sup> World Congress of WAIMH, Prague, June, 2016.

## **Abstract**

### **Introduction**

There are currently more than 2000 health practitioners trained in the NBO in the United Kingdom and another 1000 will be taking courses in 2016. In this survey we aim to evaluate the on-going use of the NBO by these practitioners.

### **Method**

After an average of 7 months following the NBO training course, questionnaires were sent to trainees in the UK. These included both open and closed questions to enquire about their current use of the NBO with families. A total of 133 replies were received.

### **Results**

Practitioners are carrying out the NBO as a whole routinely, but are also using its parts and principles. They are particularly keen to help parents understand cues and enjoy their baby more, therefore they mostly prefer to focus on items related to baby's social/interactive skills and crying/consolability. Some are using the NBO at the new birth visit (while the father is usually on paternity leave), which possibly explains the high percentage (84%) of practitioners who are using it with fathers and mothers. Despite the fact that practitioners can perceive numerous advantages to carrying out the NBO with families, they reported some difficulties, most of them occurring initially due to the lack of experience with the NBO.

### **Conclusions**

This study has highlighted the impact that practitioners attribute to the NBO in supporting their work with families. Practitioners also

refer to their need for practice, support and continued professional development once they have completed the course. Since experience using the NBO seems to be crucial, further research after they have been using the NBO for 1-2 years is recommended.

3. Magalhaes, L., Dittz, E., Guimaraes, M. A. P., Lindgren Alves, C. (2016). The Newborn Behavioral Observation as relationships building tool In Brazil: the perspective of mothers and professionals. Presented at the 15<sup>th</sup> World Congress of WAIMH, Prague, June, 2016.

### **Abstract**

#### **Introduction:**

The Newborn Behavioral Observation (NBO) was introduced in a Brazilian hospital as the first step of a developmental follow up program for neonates biologically and/or socially at risk. Sofia Feldman's Hospital, located in a socially disadvantaged neighborhood, is a model hospital that both implements and generates policies for the Brazilian Unified Health System. The NBO was introduced as the first step in a one year follow program designed to reduce parental stress and strength the relationship with the infant as a means to promote better developmental outcomes.

#### **Aims or Purpose of the project:**

To present the profile of Brazilian infants and discuss the perceptions of the mothers and professionals regarding the NBO. The NBO was conducted when the mothers were getting ready for discharge from the hospital, a period in which they stay at "Casa do Bebê" (Baby's House), an intermediary facility set up as a house, where they wait for their babies' weight gains, phototherapy or any other procedure that can be done outside the hospital. The Casa provides a shared environment in which the NBO was used to initiate a long-term relationship with the families, which will be followed for a year.

**Description of the project:** Quali-quantitative research project in which over 125 NBO of preterm and full term infants were

conducted by trained clinicians, most of them within 1 month of the delivery. These observations were scored and a profile of the infants will be presented. The mothers filled out the NBO Parent Questionnaire and in a number of observations a second trained clinician was present and, afterwards, interviewed the mothers concerning their perceptions and experience with the NBO. The clinicians involved with the NBO were also interviewed, concerning their perceptions of the usefulness of the NBO as a relationship-building tool.

4. Greve, R., Braarud, H. C., Slinning, K. (2016). Feasibility and Acceptability of the Newborn Behavioral Observations (NBO) system in well-baby clinics. Presented at the 15<sup>th</sup> World Congress of WAIMH, Prague, June, 2016.

### **Abstract**

The Newborn Behavioral Observation (NBO) System is developed to promote a positive parent-child interaction and enhance parental efficacy. The NBO is relationship based, and emphasizes the infant's strengths and competence. In this study midwives and public health nurses conducted the NBO-intervention at home visits in families at risk for maternal postpartum depression. The study is conducted in cooperation with two municipalities in Norway. The data collection is not yet completed.

5. Appleton, J., Nickell, I., Nicolau, S. (2016) EVALUATING THE IMPACT OF PREPARATION FOR HEALTH VISITORS PRIOR TO ATTENDING THE NBO (NEWBORN BEHAVIOURAL OBSERVATIONS) TRAINING ON LATER USE WITH FAMILIES. Presented at the 15<sup>th</sup> World Congress of WAIMH, Prague, June, 2016.

### **Abstract**

#### **Introduction**

NBO trainees show different levels of preparation regarding Perinatal Mental Health (PMH) and knowledge of the Brazelton approach and,

with that in mind, some course organisers in the UK arranged additional training related to this subjects. The aim of this survey is to identify if knowledge, skills and confidence related to NBO and PMH are enabling health visitors to integrate the NBO into their clinical practice.

## **Method**

Three groups of Health Visitors were selected from NBO training courses according to preparation prearranged by their facilitator: Group A (n=17) had no previous preparation; group B (n=21) had a two-day training in PMH (including a one-hour introduction to the NBO) and group C (n=14) had a one-hour workshop introducing the NBO. Three questionnaires were used: 1) Pre-NBO Training; 2) Post-NBO Training; 3) Follow-up (6 months after the NBO course). Despite sending 4 reminders about the follow-up questionnaires, 22 replies were received.

## **Results**

General comparisons were made due to the small number of responses retrieved from the Follow-up Q. Group C stands out, showing higher levels of integration into practice possibly due to the introductory workshop but also due to their professional background in PMH. This could explain an increment in their confidence level about discussing baby behaviour with parents after the training in fewer skills than the other groups.

## **Conclusions**

The NBO training can be more effective for practitioners with a strong background in PMH, but short training preparation can also be beneficial. Other good practices with the NBO training support the idea that additional workshops and an introductory e-module could be implemented universally in order to benefit trainees.

6. Nugent, J .K. (2015). The Newborn Behavioral Observations (NBO) System as a Form of Intervention and Support for New Parents. *Zero to Three Journal*, 36, 1, 2-10.

### **Abstract**

The period covering the first 3 months of life consists of a series of pivotal, life-changing transitions for the infant, for the parents, and for the emerging parent–child relationship. The Newborn Behavioral Observations (NBO) system is a relationship-based tool that allows clinicians to offer individualized information to parents about their baby’s communication strategies and overall development, in order to strengthen the relationship between infants and parents. The content and uses of the NBO, the theoretical framework on which it is based, and the growing evidence for its effectiveness as form of support for parents and families will be discussed.

7. McManus, B. (2015). Integration of the Newborn Behavioral Observations (NBO) System into Care Settings for High-Risk Newborns. *Zero to Three Journal*, 36, 1, 11-20.

### **Abstract**

Research suggests that early self-regulatory difficulties among high-risk newborns can lead to poor interactional difficulties and negative long-term cognitive and social–emotional outcomes if not identified and treated early. This article describes why an individualized, developmentally supportive, relationship-based program, such as the Newborn Behavioral Observations (NBO) system, should be standard of care and how to implement such programming for high-risk newborns and their families. The NBO is an intervention that helps parents of newborns read their baby’s self-regulatory cues with the goal of promoting parent–infant interaction and infant development.

8. Hawthorne, J. (2015). Influencing Health Policy in the Antenatal and Postnatal Periods: the UK experience. *Zero to Three Journal*, 36, 1, 21-27.

### **Abstract**

Since 1997, the Brazelton Centre UK has offered courses to a wide range of professionals working with newborn infants and their families. In 2009, the Neonatal Behavioral Assessment Scale was recommended in the Healthy Child Programme by the Department of Health. Both the Neonatal Behavioral Assessment Scale and the Newborn Behavioral Observations system are recommended in the 2014/2015 National Health Visiting Service Specification to promote parent and infant mental health and secure attachment. Health visitors and midwives implement the Healthy Child Programme (2009) which promotes strong parent–baby relationships in pregnancy and in the postnatal period.

9. Nicolson, S. (2015). Let's meet your baby as a person: From Research to Preventive Perinatal Practice and Back Again with the Newborn behavioral Observations. *Zero to Three Journal*, 36, 1, 28-39.

#### **Abstract**

This article describes efforts of an Australian tertiary maternity hospital to translate infant mental health research into preventive perinatal and early parenting practice. Clinical practice confirms what is known in the literature: For expectant parents, there can be myriad obstacles to adapting successfully to parenthood and forming a relationship with the baby that best supports development. Research showing that even very brief interventions may make a difference prompted a search for something evidence-based, feasible, and potentially useful in hospital or community settings that warranted further research and led to the Newborn Behavioral Observations system (NBO). The hospital trained staff in its use and instigated a national training and research program via “NBO Australia at The Women’s.” The authors discuss the successes and challenges to date, effects for professionals and families, further research, and the interest generated around the country.

10. Slinning, K., Tranaas Vannebo, U. (2015). The Training of Infant Mental Health Practitioners: the Norway Experience. *Zero to Three Journal*, 36, 1, 40-45.

## Abstract

Today the infant mental health field includes a multidisciplinary team of practitioners with very different training and education needs. Implementation research has shown that appropriate training is a key factor for successful outcomes of an intervention and that supervision and coaching are crucial. All professionals who work with young children and their families need appropriate training to provide family-centered, diversity-informed, and developmentally appropriate services across the continuum of infant–family mental health. This article describes a comprehensive teaching and supervision model for mastering the core elements in the Newborn Behavioral Observations system that has been developed over the 2 last years in Norway.

11. Gibbs, D.P. (2015). Supporting the Parent-Infant Relationship: Using the Neonatal Behavioural Observation in the Neonatal Intensive Care Unit. *Journal of the Association of Paediatric Chartered Physiotherapists*, 6, 1, 26-34.

## Abstract

The birth of a preterm infant requiring admission to a neonatal intensive care unit (NICU) represents a major crisis for parents, in which they may struggle to establish meaningful and positive parent-infant interaction. The fragility of the infant and the level of care they require can serve to inhibit parent engagement with their infant. The incidence of parent stress in the NICU and its association with psychological distress can also impact on the development of a sensitive parent-infant relationship. Over a twenty year period, the proposal and adoption of family-centred care principles has aimed to provide supportive care for both preterm infants and their families and enhance opportunities to build the parent-infant relationship. However, barriers still exist which will impact on the sustainability of family-centred care principles within the neonatal setting. Building on the strengths of the Neonatal Behavioural Assessment Scale, the



Newborn Behavioural Observations (NBO) system was developed as an infant-centred and family-focused relationship building tool. The NBO is designed to help sensitise parents to their infant's competencies and capabilities, with a view to helping them read their infant's signals, understand their behaviour, and promote positive interactions between parent and infant. This paper aims to highlight the impact of a NICU admission on parenting and explore how the NBO may be implemented by therapists to promote positive parent infant interaction. It will also present a case study on the use of the NBO in the neonatal unit for high risk infants and their families as a process for supporting parents with anticipatory guidance as they increase their confidence in caring for their infant and prepare for discharge from neonatal unit to home.

12. Paul, C. (2015). "Seeing Things Through My Eyes": Understanding the Baby's Perspective and Contribution to Psychodynamic Couple and Family Work. *Couple and Family Psychoanalysis*, 5(1) 1–5.

### Abstract

To be an effective family therapist in work with babies, their siblings, and their parents, it is incumbent on the therapist to be able to develop their own capacity for embodied mentalizing, that is, to be able to read the baby's communication and respond thoughtfully and in a reciprocal embodied way. How can we build this capacity within us to connect with babies? There are two powerful training tools that can be very helpful in developing the therapist's capacity to effectively communicate with babies and parents: the Newborn Behavioural Observation system (NBO) (Nugent et al., 2007) and Infant Observation (Bick, 1964). As psychotherapists working with families with infants and very young children, we should extend our general skills and capacity for mentalizing to include establishing a real relationship with the infant as a person in order to understand the baby's symptom and inner experience. Each family is inexorably changed with the arrival of a new baby and sometimes this change may appear to be for the worse. However, even in dire

circumstances, the baby herself may be an agent of family growth; the baby thus becomes a significant therapist for her own family.

13. Holland, A., Watkins, D. (2015). Flying Start Health Home Visitors' views of implementing the Newborn Behavioral Observations (NBO): barriers and facilitating factors. *Community Practitioner*, 88, 4, 33-36.

### Abstract

**Introduction:** Investment in Early Intervention by health visitors to support parent-infant relationships is a Welsh government target. "Flying Start" employs health visitors to undertake intensive home visiting with families who have a new baby to promote positive interactions.

**Method:** As part of this program, FS health visitors utilize the Newborn Behavioral Observations (NBO) system to observe, assess, support and enhance relationships between parents(s) and child. A project was undertaken to evaluate implementation and make recommendations for future service improvement.

**Results:** revealed that a majority of practitioners felt NBO implementation benefitted parents and enhanced the parent-infant relationship. It was viewed as an important part of the Flying Start health visitors role. **Conclusion:** Recommendations are made to enhance NBO implementation that include the development of an NBO champion to support practitioners and provide further training.

14. Nugent, J. K., Dym-Bartlett, J., Von Ende, A., Killough, J., Valim, C., A Randomized Study of the Effects of the Newborn Behavioral Observations (NBO) System on Mother-Infant Interaction (Presented at the Society for Research in Child Development (SRCD) Biannual Meeting, Philadelphia, March 2015)

### Abstract

**Introduction:** The Newborn Behavioral Observations (NBO) system is

a neurobehavioral observation tool for use by health care professionals to provide information and guidance to parents about their infant's behavior and development, with the goal of promoting positive relationships between parents and infants and between practitioners and families. This study assessed the impact of the NBO on the sensitivity of mother-infant interaction in the first four months of life.

**Methods:** Primiparous mothers and their healthy full-term infants were randomized into experimental and control groups. The experimental group participated in the NBO in the hospital two days after birth and again in the home at one month postpartum. At four months, 17 control dyads and 19 experimental dyads were videotaped in their homes during a semi-structured play episode, which was coded using the CARE-Index Scoring System to measure the quality of parent-child interaction.

**Results:** The results showed that mothers who participated in the NBO were 2.5 times more likely to be classified as "sensitive" on the CARE-Index than were mothers who did not receive the intervention, but this difference did not reach statistical significance. However, infants of mothers who participated in the intervention were 2.8 more likely to be classified as "cooperative" in the context of mother-infant interactions compared to infants in the control group, a difference that was statistically significant. Adjusting for covariates, older mothers were slightly more likely to be rated as "sensitive."

**Conclusion:** The results of this study indicate that the NBO may be an effective, time-limited, cost-effective intervention for strengthening relationships between parents and infants beginning at birth.

15. Nugent, J. K., Dym-Bartlett, J., Valim, C. (2014). Effects of an Infant-Focused Relationship-Based Hospital and Home Visiting Intervention on Reducing Symptoms of Postpartum Maternal Depression: A Pilot Study. *Infants & Young Children*, 27, 4, 292–304.

### Abstract

**Introduction:** Relationship-based interventions are an effective means for reducing postpartum depression (PPD), but few cost-

effective tools that can be administered efficiently in medical and home settings are available or well-studied. This study examines the efficacy of the Newborn Behavioral Observations (NBO), an infant-centered relationship-based intervention, in reducing levels of postnatal maternal depression.

**Methods:** First-time mothers and their infants were recruited in the postpartum units of two New England hospitals and randomized into intervention and control groups. A total of 106 mothers participated in this study. At 1 month postpartum, symptoms of PPD were assessed using the Edinburgh Postnatal Depression Scale (EPDS).

**Results:** Ten of the 106 mothers reported elevated levels of depressive symptoms (EPDS score >12), with 4% in the intervention group and 16% in the control group. Results indicated that the NBO was associated with lowering the odds of depressive symptomatology by approximately 75%. **Conclusion:** These findings suggest that the NBO conducted in hospital and home settings may be an efficient, cost-effective, relationship-based method for reducing the likelihood of PPD.

16. Cheetham, N., Hanssen, T.A. (2014). The Neonatal Behavioral Observation System: A tool to enhance the transition to motherhood. *VÅRD I NORDEN*, 14, 48–52.

### Abstract

**Background:** Shorter hospitalisation after childbirth raises new challenges in the transition to parenthood.

**Aim:** This paper reports a study designed to identify first-time mothers' experience with The Neonatal Behavioral Observation System (NBO) as a guiding model.

**Method:** A phenomenological qualitative study sampling four first-time mothers who received guidance from the NBO-specialist nurse two days after delivery. Interviews were conducted using a semi-structured interview guide.

**Findings:** Analysis revealed three themes describing the mothers positive experience of the guidance model: a) a new understanding of the baby's communication abilities, b) an increased feeling of

competence and confidence in dealing with challenges in caretaking issues, and c) being treated as individuals encouraged to make their own decisions.

**Conclusion:** The NBO system can be used in clinical practice to enhance the transition to motherhood and family life and to provide support during the post-partum period. More research on the impact of NBO that includes fathers as well as different groups of at-risk parents is recommended.

17. Brandt, K. TRAINING AND USE OF THE NEWBORN BEHAVIORAL OBSERVATION (NBO) WITH MULTIDISCIPLINARY HOME VISITORS & OTHER CLINICIANS. **Presented at WAIMH, Edinburgh, 2014**

**Abstract**

**Introduction** Newborn Behavioral Observation training provides clinicians of many disciplines with a foundation for: 1) understanding infant behavior; 2) using infant behavior as a means of expanding their relationship with parents; 3) becoming comfortable and competent in interacting with and observing newborns; and, 4) developing and using this interdisciplinary strategy.

**Method** Regardless of discipline, clinicians working with families and their newborns have a unique opportunity to interface with parents when the family's system and relationships are open and changing, and opportunities exist for supporting both functional family relationships and a strong parent-provider working alliance. Whether trainees meet families in hospitals, clinics, private offices, or home visits, the NBO's 18 neurobehavioral observations can enhance engagement around the baby's capacities and mutual exploration of caregiving patterns that may best meet the baby's developmental needs. The exceptional venue that home visitors have for serial NBO use in the family's natural context will be discussed.

**Results** Over 400 providers have been NBO trained in Napa, CA since 2004. Trainees represent over 16 disciplines in settings that include public agencies, clinics, hospitals, non-profit entities, home visiting programs, private practice, early care, early intervention,

colleges/universities, and more. Such interdisciplinary and context diverse training requires attention to learning levels, history of newborn contact, comfort observing and handling newborns, variation in provider roles with families, and varying scopes of practice. Clinical support in use of the NBO among two subgroups of the trainees, including a group of home visitors, will be described along with training evaluation ratings from trainees.

**Conclusions** The NBO is a pan-disciplinary therapeutic strategy for supporting functional family relationships, parent-provider alliance, and parental caregiving patterns that meet the baby's unique developmental needs. Training and use can be accomplished with fidelity and with high levels of trainee satisfaction within groups from diverse disciplines and practice settings.

18. Saito, E. EFFECTIVENESS OF A NURSING INTERVENTION FOR RELATIONSHIP-BUILDING BETWEEN JAPANESE PARENTS AND THEIR PROBLEMATIC BREAST-FEEDERS, USING THE NEWBORN BEHAVIORAL OBSERVATIONS SYSTEM. **Presented at WAIMH, Edinburgh, 2014**

### **Abstract**

**Introduction** Most Japanese women want to initiate breastfeeding immediately after birth. If the baby has difficulty feeding, mothers may begin to doubt their ability as mothers. This study examined the effectiveness of a nursing intervention using the NBO on parents' understanding of their infants' behavior and their confidence as mothers.

**Method** This was a mixed methods study using quantitative and qualitative analyses. Participants were breastfeeding mothers of healthy newborns, whose babies who were not sucking well. 11 mothers and fathers agreed to participate. The NBO session was conducted with each mother and infant or mother, father and infant, in the hospital at 3-7 days and at home at 2 weeks, 1, 2 and 3 52 months. Parent's understanding of their baby's behavior was measured using the Brazelton Institute Parent Questionnaire and qualitative data were collected through semi-structured interviews.

**Results** Results showed that participation in the NBO was related to an increased understanding of their baby's behavior, closer ties between parents and their infants and an increase in parental confidence. When both fathers and mothers participated in the NBO together, compared with the participation of mothers only, as long as the mother's mental state had stabilized from the time of the first NBO intervention, both fathers and mothers enjoyed positive interactions with their infants.

**Conclusions** An early nursing intervention using the NBO was effective in increasing parent's understanding of their baby's behavior and promoting positive mother-child and father-child interaction in a Japanese setting.

19. Paul, C., Nicolson, S., Thomas, N., Chapman, M, Salo, F., Judd, F.

INTRODUCING THE NEWBORN BEHAVIORAL OBSERVATION INTO A MATERNITY HOSPITAL: THE POWER OF BABIES MEETING THEIR MOTHERS AND FATHERS. **Presented at WAIMH, Edinburgh, 2014.**

### **Abstract**

**Introduction:** A new training centre for the Newborn Behavioral Observation (NBO) has been established at a maternity hospital in collaboration with an affiliated paediatric hospital with the aim of enhancing the development of sustained healthy infant- parent relationships in the newborn period.

**Method:** The NBO is a structured interaction sensitively administered by a trained clinician, along with the parents of the newborn infant and is designed to identify the baby's unique behavioral capacities. The NBO training centre has commenced training maternity and neonatal staff with the aim of encouraging the administration of the NBO as a routine with most infants and their parents prior to discharge from hospital. It is anticipated that staff trained in the NBO will have an increased awareness of the infant's perceptual, self-regulatory and relationship capacities, and will be able to share this awareness with the baby's parents.

**Results:** The NBO training has been received enthusiastically by the

first groups of staff trained. Fathers especially seemed excited and moved to be able to meet their newborn infants in this supported way. Initial experience suggests that parents of infants in the paediatric neonatal intensive care unit found the NBO enabled a deeper understanding of the emotional experience of the premature or sick baby and that this supported the development of their relationships. The training will be made available to infant and perinatal health practitioners working with a broad range of families in the community, including those at high risk.

Conclusions: The Newborn Behavioral Observation method appears to have a high level of acceptance among staff and parents in the maternity and paediatric context and has the potential to significantly consolidate sensitive and responsive infant-parent relationships in the newborn period.

20. Savage-McGlynn, E., & Hawthorne, J. THE EFFECTS OF THE NEONATAL BEHAVIORAL OBSERVATION (NBO) ON PARENT PERCEPTION AND ENHANCEMENT OF THE PARENT-INFANT RELATIONSHIP. **Presented at WAIMH, Edinburgh, 2014.**

### **Abstract**

**Introduction** Early relationships between infant and caregiver are crucial for a child's healthy development. New parents can have difficulties understanding the needs of their baby and what their baby is trying to communicate. Programs aimed at improving parents' responsiveness and skills can result in positive outcomes in the short- and long-term.

**Method** The Neonatal Behavioral Observation (NBO) is a relationship-based tool designed to foster the parent-infant relationship by observing the infant's behavioral capacities and identifying the kind of support the infant needs for his successful growth and development. As part of their NBO training, practitioners asked parents to complete a questionnaire before and after the NBO administration (N=543). The questionnaire aimed to ascertain the extent to which the NBO had altered their feelings of connectedness with the baby, their comfort levels with the infant, and how well they



knew their infant. Pre-NBO questionnaire responses were compared with those post-NBO.

**Results** After the NBO assessment, parents reported feeling considerably closer to their baby, more confident in their parenting capacity and how to effectively respond to their infant, how to help their infant with sleep and crying, and felt they knew their baby significantly more. Parents viewed the NBO as an important learning experience that would contribute to their role as a parent. Overall, results suggest that NBO participation is a positive experience for parents in learning about their infant.

**Conclusions** Compared with pre-NBO parent questionnaires, parents are learning a great deal about their infant over the course of the NBO assessment. NBO can be seen as a tool that offers individualized information to parents about their baby, offering the opportunity to promote a positive bond between parent and child.

- 21. Alvarez, M. A. THE BABY AS A PERSON NOT AS A PATIENT: USING THE NBO IN PAEDIATRIC PRIMARY CARE IN AN URBAN SPANISH SETTING. Presented at WAIMH, Edinburgh, 2014.**

### **Abstract**

**Introduction** The quality of early relationships between parents and infants is critical to the socioemotional, cognitive and physical development of children. The baby's temperament and self-regulation are crucial for parent-infant interaction and though partially related to genetics, the epigenetic model suggests that environmental conditions in early life can modify it.

**Method** The NBO, an interactive relationship-based tool designed to promote positive parent-child relationship, was administered to 300 families during the first paediatric well-child visit. Unlike the traditional medical approach, where the baby is examined in isolation, the NBO requires the clinician to always observe the baby in the presence of the parents. The NBO "gives a voice to the baby"- by pointing out the individual characteristics of the baby, the baby's strengths and challenges and the capacity for self-regulation. The parents are actively involved as partners in the session, so that the

NBO “gives a voice to parents”.

**Results** Results showed that the NBO produced a significant increase in parent’s knowledge of child behavior ( $p = .0001$ ). It also helped the paediatrician communicate with parents and thus create a therapeutic alliance with them.

**Conclusions** The NBO is a useful tool that can enhance the parent-infant relationship and can be easily added to the traditional well-child visit in paediatric primary care.

22. McManus, B., Nugent, J. K. (2012). A Neurobehavioral Intervention Incorporated into a State Early Intervention Program is Associated with Higher Perceived Quality of Care Among Parents of High-Risk Newborns. *Journal of Behavioral Health Services & Research*, 41, 3, 381-389.

### Abstract

The purpose of this study is to compare two models of early intervention (EI) service delivery—a neurobehavioral intervention and usual care—on parents' perceived quality of EI service delivery. Families of newborns referred to EI were randomly assigned to a neurobehavioral intervention or usual care group and followed until the infant was 12 weeks corrected gestational age. The intervention group ( $n=25$ ) received a weekly neurobehavioral intervention. The usual care group ( $n=13$ ) received standard weekly home visits. Mothers completed the Home Visiting Index (HVI) measuring the quality of EI service delivery. Mixed linear regression was used to examine group differences in quality scores. The intervention group reported higher quality of care related to facilitating optimal parent–infant social interaction (mean difference=2.17, 95% CI: 0.41, 3.92). A neurobehavioral model of service delivery can be successfully integrated into EI programming and appears to be associated with higher parent-reported perceived quality.

23. McManus, B., & Nugent, J. K. (2011). Feasibility study of early intervention provider confidence following a neurobehavioural intervention for high-risk newborns. *Journal of Reproductive*

*and Infant Psychology*, 29:4, 395-403.

### Abstract

**Study purpose:** Early intervention (EI) can ameliorate neurobehavioural difficulties and parental psychosocial distress. Often, EI service providers are not trained to address the unique needs of the high-risk parent–infant dyad. The purpose of this study was to describe provider confidence and knowledge following delivery of a neurobehavioural intervention for high-risk newborns.

**Methods:** This feasibility study was a multi-site, randomised controlled trial of newborns referred to EI. The intervention group received weekly home visits by a service provider certified in the Newborn Behavioural Observation (NBO) – a neurobehavioural intervention. The control group received usual care. Eighteen EI providers completed the Index of Practitioner Knowledge and Skills (IPKS).

**Results:** EI providers did not differ on socio-demographic characteristics, discipline, or experience between the intervention and usual care groups. In mixed linear regression models, the NBO group demonstrated higher confidence scores (mean difference = 2.2, 95% CI: 0.54, 3.87).

**Conclusion:** Integrating a neurobehavioural intervention into EI service delivery may be associated with higher perceived confidence among service providers in their ability to work with high-risk newborns.

24. Hartblay, M. A Case-Study Probe of Relationship-Based Intervention as a Point of Entry with Families of Infants with Hearing Loss. Ab Initio International, 2010:  
<http://www.brazelton-institute.com/abinitio2010/index.html>

### Abstract

This case study implemented use of the NBO and video-analysis into typical referral and early intervention protocol used in the state of Massachusetts in the United States. Following referral on Universal Newborn Hearing Screening (UNHS), the infant boy was diagnosed

with moderate bilateral sensorineural hearing loss, and the audiologist referred the family to early intervention agencies and specialty providers in hearing loss. Initial intake and assessment took place in the home with an early intervention team and a specialty provider (Teacher of the Deaf) when the baby was 2 months old, and prior to fitting of hearing aids. Results showed that the mother evaluated her experience with the NBO as very positive. Through a written questionnaire, she indicated that she learned "a lot" about how her baby could communicate through his behavior, how she can respond to his behavior, how she can help him when he is crying, and how to interact with him. She rated her learning about her baby's competencies as "some." She scored her knowledge of her baby's behavior before the NBO as 5/10 (From a score of 1=Knowing very little to a score of 10= knowing a lot), and gave herself a score of 8/10 following the NBO. She chose the highest ratings on a scale of 1-4 indicating that she was able to share her ideas and participate in the NBO session, and had highest trust in the person conducting the NBO. The mother also chose the highest rating (4=a lot) in how much the NBO helped her to: feel closer to her baby, feel more confident as a parent, get to know her baby more, and to communicate with the person conducting the NBO. Her overall evaluation of the NBO using a 4- point scale of poor- to- excellent as learning experience was "excellent." As an independent example, this case study supports the efficacy for use of the Newborn Behavioral Observations (NBO) system as a point of entry to intervention with a family following diagnosis of permanent hearing loss (PHL) in early infancy. Although generalized conclusions regarding long-term effect are limited, the structured focus of the NBO on facilitation of parent-infant communication and provider collaboration provides a foundational basis for the parent-infant-provider triad and video-analysis supports sustained sensitive parent-infant communication.

25. Blanchard, Y., Keefer, C., Tynan, K., Nugent, J. K. The Newborn Behavioral Observation (NBO): Influencing Provider Confidence. *Ab Initio International*, Summer, 2008: <http://www.brazelton->

### **Abstract**

A total of 100 clinical professionals participated in 5 training seminars offered in 2005-2006 at the Brazelton Institute-Boston site and three off-site locations (California, Florida, New York). Participants represented the following professional backgrounds: NICU family support, health education, child development, social work, neonatal nursing, maternal child health nursing, speech pathology, occupational therapy, physical therapy, rehabilitation counseling, OB-GYN, neonatology, pediatrics. Of the 100 professionals who participated in training, 54 completed pre- and post-training questionnaires. All participants (n = 100) responded to an additional two questions on the post-training questionnaire. Results from the questionnaires suggest that the NBO is effective at increasing participants' level of confidence in their ability to offer parents child development information and guidance around caregiving. Whether the reported increase in confidence lead to increased provider competence in clinical settings remain to be demonstrated but, nevertheless, the results indicate that the NBO training is effective in giving participants new information on infant development, on communication strategies and on relationship-building with families. The qualitative data suggest that providers feel the NBO is an effective tool for communicating with families and sharing observations about a child's behavior, in the interest of establishing successful relationships with families. The NBO prompts a behavioral shift in professionals, moving them from just understanding that parents are experts to a clinical approach that is collaborative and inclusive of families' perspectives and skills. Data suggest that participants value a collaborative relationship with families. They appear ready to let go of their role as "teachers" and instead learn to guide and support the parent, as equal partners.

26. Fishman, J., Vele-Tabaddor, E., Blanchard, Y., Keefer, C., Minear, S., Johnson, L., Nugent, J.K. The Effect of the NBO on Caregiver Relationships. Ab Initio International, summer, 2007: <http://www.brazelton->

### Abstract

Parents and caregivers (n=233) were asked to complete a brief questionnaire about their knowledge of infant behavior and development and their response to the NBO following their participation in the NBO session. The majority of NBO sessions took place at home (n = 92). Using the data collected from the pre-post survey, paired sample t-tests were performed to compare caregivers' knowledge of their infant's development before and after the NBO session. Findings showed that caregivers knew significantly more about their baby's behavior after the NBO session (M = 8.91) than before the session (M = 6.77) [ $p < .001$ ]. Results from the study demonstrate that the NBO facilitates parent-provider relationships and strengthens parent-child relationships. Specifically, parents felt the NBAS experience helped them share more information and feel more confident with their child's provider. The NBO was also an effective educational and learning experience for families; parents reported increased knowledge of their infant's competencies and development, which helped them know their baby more. This new knowledge enabled families to respond to their infant's needs and manage infant behavior more effectively. In turn, parents felt more confident and successful as caregivers. It should be noted, that this study did not include a control group and data was collected using parent report therefore, results should be interpreted within the context of these limitations.

27. Sanders, L.W, Buckner, E.B.(2006). The Newborn Behavioral Observations system as a nursing intervention to enhance engagement in first-time mothers: feasibility and desirability. *Pediatric Nursing*, 32, (5), 455-9.

### Abstract

Engagement is the social process of maternal transition that enables growth and transformation and is linked to attachment and bonding. The feasibility and desirability of the Newborn Behavioral

Observations (NBO) system as a nursing intervention to enhance engagement in first-time mothers were examined. The NBO is an exploration of the newborn conducted with parents to increase their understanding of their infant's behavioral cues as well as how to respond. Perceptions of the NBO were obtained from mothers who participated in NBO sessions in the postpartum period and from unit nurses who had been given information on the NBO. Mothers (n= 10) rated the NBO high for increasing their knowledge of what their infants can do (m=3.7/4.0, SD=0.48), and how to interact with them (m=3.8/4.0, SD=0.63). Two of the activities of engagement, experiencing the infant and active participation in care, emerged as themes from the mothers' qualitative responses. Nurses (n=20) believed the NBO would be an effective intervention. Participants believed the NBO to be an effective nursing intervention for enhancing maternal engagement in the early postpartum period.

28. McQuiston, S., Kloczko, N., O'Brien, S. Training pediatric residents in the Newborn Behavioral Observations (NBO) system: a follow-up study. Ab Initio International, Summer, 2006: <http://www.brazelton-institute.com/abinitio2006summer/index.html>.

### Abstract

Forty-three residents were surveyed, twenty-one of whom (treatment group) had participated in a Newborn Behavioral Observations (NBO) system (formerly CLNBAS) training course. Pre- and post-training data were collected to examine the impact of the training program on residents' attitudes and practices in the context of their interactions with newborns and their parents. Comparing pre- and post-training data, significant improvement in residents' practices and attitudes followed NBO training ( $p < .001$ ). Positive change occurred in both content and interactional components of practice ( $p < .001$ ). Teaching pediatric residents to use the NBO resulted in positive changes in their assessments of newborn behavior and their interactions with parents of newborns. Residents applied the NBO tool in both nursery and outpatient settings. Time constraints were sighted as the factor which most interfered with

residents' use of the tool as a regular component of newborn primary care.

29. Nugent, J. D., Alhaffer, D. The effects of the NBO as an educational and emotional support system for parents of premature infants. *Ab Initio International*, Summer, 2006: <http://www.brazelton-institute.com/abinitio2006summer/index.html>

### **Abstract**

A sample consisted of 80 practitioners working in five March of Dimes NICU Family Support sites: Greenville, South Carolina; Oregon Health Sciences University Hospital, Portland, Oregon; Trenton, New Jersey; Shands Hospital, University of Florida Medical Center and Parkland Hospital, Dallas, Texas. The participants were made up of neonatal nurses, neonatologists, physical and occupational therapists and Child Life Specialists. All participants who filled out pre-and post NBO training questionnaires. Results showed that 100% of the pediatric professionals, who were trained on the NBO across the five March of Dimes sites, were either very satisfied or generally satisfied with the training in preparing them to use the NBO in their practices with parents of preterm infants. They felt very well prepared to use the NBO in their practices. They agreed that they learned a great deal about newborn behavior and development and 91% said they learned a great deal new about how to interact with parents of premature infants. In addition, they felt very confident to address a range of clinical topics with parents. However, 59% said they anticipated difficulties in implementing their NBO into their practices due to the physical environment in the NICU not being conducive to including families, while for others the language barrier constituted an obstacle to using it with certain families.



## Other Selected publications:

1. McManus, B., Magnusson, D., Nugent, J. K. RELIABILITY AND VALIDITY OF THE NEWBORN BEHAVIORAL OBSERVATION (NBO) SYSTEM TO IDENTIFY NEWBORN NEUROBEHAVIORS. (In preparation).

### Abstract

**Introduction** The NBO assists clinicians in identifying and interpreting newborn neurobehaviors with the goal of enhancing parent-infant relationships. Rooted in neurobehavioral theory, 18 observed and elicited maneuvers address autonomic, motor, state organization and responsivity with each item scored on a 3-point scale. This study explores the psychometric properties of the NBO.

**Method** The study sample was drawn from a clinical database of 210 caregiver-newborn dyads who participated in a NBO intervention as part of their typical clinical course. Complete NBO records and parent questionnaires were available for 186 newborns. Reliability was calculated for items within 3 of the 4 AMOR systems. The correlation between total NBO scores and gestational age was calculated to determine validity. Associations between parent reported knowledge about their baby's behavior gained from the NBO and parent-reported 1) ability to interact with their baby, 2) parenting confidence, and 3) maternal characteristics were examined.

**Results** Among 7 motor domain items, reliability was .79. Among 5 state organization domain items, reliability was .81. Among 5 responsivity items, reliability was .82. Greater gestational age was positively associated with NBO scores (beta =0.28, p=.0001). Greater knowledge about their infant's behavior post-NBO was positively associated with parent-reported ability to interact with their infant (beta = 0.21, p=0.003), confidence with parenting (beta = 0.22, p=.002), and was higher among non-English speaking (beta = 0.31, p=<.001) and primiparous mothers (beta = 0.20, p=.006). Less educated mothers reported greater ability to address their infant's crying after the NBO (beta = -0.19, p=.008).

**Conclusions** The NBO appears to reliably and validly identify

newborn behaviors within a theoretically sound neurobehavioral framework. The NBO has the potential to be an important tool for newborn clinical decision-making and outcomes research, yet more research is needed.

2. Halliday, J. (2017). A closer look. *Community Practitioner*, January, 2017.

#### **Abstract**

Having a newborn at home is arguably one of the most challenging times in parenthood. But Sheffield-based health visitor [Jessica Halliday](#) discovered how using the Newborn Behavioural Observation system can facilitate positive relationships between parents and infants.

3. Lee, P., Mee, C. (2015). The Tameside and Glossop Early Attachment Service: Meeting the emotional needs of parents and their babies. *Community Practitioner*, August, 31-35.

#### **Abstract**

Parent-infant emotional health is probably one of the most complex arenas in which mental health, maternity and health visiting services operate. This critical period can be highly emotionally charged, not only for the infant but also be for the parent. While most parents essentially “get it right”, severe ruptures in the parent-infant relationship can occur, and can have serious consequences. This paper describes a comprehensive and cost-effective parent infant mental health service based on a psychodynamic model. The service aims to meet the needs of all parents from those with a high level of need through to a universal provision. Strategic and theoretical underpinnings of the service model are described.

4. Kashiwabara, E. Effectiveness of the NBO with Japanese Parents with Breastfeeding Difficulties. *Ab Initio international*, 2013: <http://www.childrenshospital.org/centers-and->

services/programs/a\_-e/ab-initio-international/effectiveness-of-the-nbo-with-japanese-parents-with-breastfeeding-difficulties

### Abstract

Participants were limited to mothers who had initiated breastfeeding for their babies but who, after discharge, were concerned about breastfeeding and childcare because their babies did not suck well. The mothers had experienced either normal spontaneous or vacuum extraction delivery. Their neonates adapted normally after birth and remained healthy. Each participant provided informed consent prior to the study. Of the 16 pairs of infants and parents who were approached, 11 pairs agreed to participate; however, several fathers could not attend the NBO sessions because they were busy. Consequently, the participants consisted of 5 groups of infants with both parents and 6 pairs of infants and mothers only. Overall, participation in the NBO provided an opportunity for parents to establish closer ties with their infants, boosted their confidence as parents, and provided an opportunity to learn more about their infants. It also enhanced their relationship and confidence in the NBO clinician.

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