

BACKGROUND

READING

BEHAVIOURAL NEUROSCIENCE

Developmental consequences of oxytocin

Journal of [Physiological Behaviour](#). 2003 Aug; 79(3): 383-97

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Abstract: This paper examines the developmental effects of the mammalian neuropeptide, oxytocin. In adults, oxytocin is the most abundant neuropeptide in the hypothalamus and serves integrative functions, coordinating behavioural and physiological processes. Oxytocin has been implicated in parturition, lactation, maternal behaviour and pair-bond formation. In addition, oxytocin is capable of **moderating behavioural responses to various stressors** as well as the reactivity of the hypothalamic-pituitary-adrenal (HPA) axis. Neonates may be exposed to hormones of maternal origin, possibly including peptides administered to the mother in the perinatal period to hasten or delay birth and in milk; however, whether peptide hormones from the mother influence the developing infant remains to be determined. In rodents, endogenous oxytocin is first synthesized during the early postnatal period, although its functions at this time are not well known. Experiments in neonatal prairie voles have documented **the capacity of oxytocin and oxytocin receptor antagonists to have immediate and lifelong consequences for social behaviours, including adult pair bonding and parental behaviours**, as well as the reactivity of the HPA axis; most of these effects are sexually dimorphic. Possible mechanisms for such effects, including long-lasting changes in oxytocin and vasopressin, are summarized.

Effect of correct environment on newborn behaviour

Extract - References for the following see www.kangaroomothercare.com/references.htm

Bergman N. J. MB ChB, MPH, MD (Extract from CD Breastfeeding: A Lifelong Investment - Capers Breastfeeding Seminar, Newcastle NSW, 2006)

The animal studies have shown conclusively the paramount importance of an optimal environment for proper brain development. Though there are variations on the theme, mother's presence is an absolute pre-requisite for survival. Mother's presence is in this context not about breastfeeding: newborn mammals deprived of mother but given mother's breastmilk do badly. What is essential is the entire "maternal milieu", with the full spectrum of sensory stimulations this provides, this set of stimulations makes the brain cells fire together to create a secure platform for its future. At birth, the human being has sensory perceptions with no "filters" – it experiences all its sensations maximally. As it develops, it learns to "dampen down" sensory inputs. The fetus has well developed sensations for touch and position (tactile and kinesthetic sensations). After birth, "the infant actively seeks to adhere to as much skin surface on the mother's body as possible". Tactile stimulations "facilitate the flow of affective information from the infant...to the mother", and this determines the development of brain pathways. "The language of mother and infant consists of signals produced by the autonomic nervous system of both parties". This is the basis of healthy development! Just providing nutrition will make the brain grow (albeit not as well) but its function will be affected permanently. The neural development is directly dependant on the sensation and experiences of the fetus and newborn, and can be for better or for worse. Dysfunction expresses itself primarily in the sphere of relationships, and this sphere is anchored in the function of the right brain.

Neurobehavioural evidence of environmental deprivation

Prematures and newborns have a nervous system which lacks the ability to dampen down sensory signals. Over-stimulation of any of the senses will be experienced as PAIN by the newborn. Stress hormones increase the perception of pain. When the entire environment provides noxious stimuli to the developing brain, the effects of early abuse and neglect have catastrophic impact.

“Severe levels of stress associated with infant abuse and neglect are pathogenic to all immature human brains, and neglect may be even more detrimental than abuse.

“Caregiver induced trauma is qualitatively and quantitatively more potentially psychopathogenic than any other stressor ... “In human infancy, relational trauma, like exposure to inadequate nutrition during brain growth spurt, biological pathogens or chemical agents, and to physical trauma to the baby’s brain interferes with the experience dependent maturation of the brain’s coping systems, and have a long-enduring negative impact on the trajectory of developmental processes.

Birth complications ... affect personality, relationships, self esteem ... and behaviour patterns later on in life”. “The origins of many behavioural deviations are unknown ... can some be traced back to violations of an innate agenda?” Maternal rejection and lack of bonding combined gives a strong correlation to violent criminal behaviour. The Advent of hospital nurseries and early separations correlate with attachment disorders, maternal abandonment of baby and increased addictive behaviours (unmet oral needs).

Neurobehavioural understanding of breastfeeding

Biological research in all mammals has shown that the neural events in pregnancy are "highly conserved", that is they are almost identical in all species. The subsequent endocrine priming of pregnancy, again, is "remarkably similar across species". Once birth takes place, all mammals studied show a "set sequence of behaviours", which leads to the initiation and the sustaining of breastfeeding behaviour. These behaviours do differ, each species having its own set sequence. These "highly conserved neural events "can be understood as brain based programmes, and there are only three:

1. Nutrition programme (default mode, described above)
2. Defence programme
3. Reproduction programme.

Each programme is expressed through its own unique battery of hormones, its own unique expression of autonomic controls, and its own somatic behaviours. It is essentially only the last that is visible to us as outside observers, but it is the others that are more critical. In biological terms “initiation of breastfeeding might be a “reproduction” program behaviour, and the “maintenance of breastfeeding” a nutrition programme behaviour.

Biologists describe mammals as developing through a progression of habitats, (for example in the rat: from the uterus, to mother’s body, to nest of siblings, then the world). In each habitat, the developing organism is physically capable and neurobehaviourally equipped and programmed to behave in such a way as to provide for its own needs.

The key concept is that the developing organism is endowed with the behaviours required, those behaviours are specific for the habitat for which they are designed, and it is the habitat that provides the needs of the organism.

While it is stated that the human newborn biologically is “exceedingly immature”, it is a mistake to regard the human newborn as helpless and incapable. The immaturity is relative to ourselves and our habitat, in that the human newborn arrives extremely early into a habitat requiring abilities that are yet to develop. But “our” habitat is not the newborns habitat; when placed in the habitat for which it is designed, the human newborn exhibits some remarkable capabilities. The “habitat-niche” relationship described by Alberts and other biologists emphasises that the developing organism is fully equipped with the neurological circuitry to display behaviours which ensure the provision of its “basic biological needs”. Those needs are provided by the correct habitat, and the manner in which the organism through its own abilities exploits those resources earns the term “niche”.

A surprising and key finding in animal studies has been the finding that it is the newborn's behaviour that is determining or paramount, the newborn's actions elicit caregiving responses from the mother. Once initiated by the newborn, "breastfeeding is established through a set of mutual complex sensory stimulations". This behaviour is evident in the newborn domestic dog (illustrated in a series of photographs.) However, in all species, suckling "is a remarkably fragile and transient behaviour", and is easily disturbed by any intervention.

The human self-attachment behaviours described by Widstrom and Righard are now well known. In biological terms this is called “initiation”, and this is an innate neurobehaviour, and is distinct from the “maintenance of breastfeeding” behaviour. This has also been identified as a “critical period”, a unique period in time in which an event can take place and a behaviour can be fully expressed, and that period is vital for the optimal development of the organism.

What is critical to appreciate is that while the suckling we observe we have labelled as “breastfeeding”, this is only the physical expression of an innate and global neurobehaviour seen in a brief period. From a neurobehavioural perspective, breastfeeding is the entire “nutrition programme”, and it is dependent on being in the right habitat. Further, the nutrition programme requires the continuous and constant and uninterrupted habitat for which it is designed. The nutrition programme is expressed through specific hormones and the autonomic nervous system, and are on night and day. The behaviours observed between “breastfeeds” are also part of the nutrition programme. This can also be described under the label “state organisation”, and NIDCAP has taught us much about it, albeit in a technological context.

State organisation refers to the organism's level of alertness, and ranges from deep sleep through several stages to awake and at the extreme “hard crying”. Critical for the well-being of a newborn is the requirement of “cycling” appropriately between levels of sleep that is not too deep, and being awake for feeding, and avoiding crying and stress. Optimal synaptogenesis and wiring is related to normal sleep cycling. Electroencephalographic recordings have shown that the normal sleep cycling of a newborn is 60 to 90 minutes, and disruption of this cycling leads to stress and pathology. This kind of optimal state cycling is only observed in infants that are together with their mothers, and optimally so where there is maximal skin-to-skin contact.

The pattern of breastfeeding that results when an infant is never separated from the mother is very different from that we believe to be “normal” in our western culture. Firstly – the pattern is entirely determined by the infant and not the mother, and each infant is unique. An infant allowed to decide its own feeding pattern from initiation will settle in to “maintenance” feeding, and will feed every hour or two at most, will ingest the full ejection load of a single let down reflex, which just happens to be the comfortable maximum capacity of its stomach, and which happens to contain enough food and calories for one or two hours at most, and it will cycle its state organisation effectively. This is the pattern observed from almost all non-western cultures.

Early dyadic patterns of mother-infant interactions and outcomes of prematurity at 18 months

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OBJECTIVE: With the increased survival of very preterm infants, there is a growing concern for their **developmental and socio-emotional outcomes**. The quality of the early mother-infant relationship has been noted as 1 of the factors that may exacerbate or soften the potentially adverse impact of preterm birth, particularly concerning the infant's later competencies and development. The first purpose of the study was to identify at 6 months of corrected age whether there were specific dyadic mother-infant patterns of interaction in preterm as compared with term mother-infant dyads. The second purpose was to examine the potential impact of these dyadic patterns on the infant's behavioural and developmental outcomes at 18 months of corrected age.

METHODS: Mother-infant dyads with preterm infants and term infants were assessed at 6 months of corrected age during a mother-infant play interaction and coded according to the **Care Index**. This instrument evaluates the mother's interactional behaviour according to 3 scales (**sensitivity, control, and unresponsiveness**) and the child's interactional behaviour according to 4 scales (**cooperation, compliance, difficult, and passivity**).

At 18 months, behavioural outcomes of the children were assessed on the basis of a semistructured interview of the mother, the Symptom Check List. The **Symptom Check List** explores 4 groups of behavioural symptoms: **sleeping problems, eating problems, psychosomatic symptoms, and behavioural and emotional disorders**. At the same age, developmental outcomes were evaluated using the **Griffiths Developmental Scales**. Five areas were evaluated: **locomotor, personal-social, hearing and speech, eye-hand coordination, and performance**.

CONCLUSION: Among mother-preterm infant dyads, we identified 2 specific patterns of interaction that could play either a protective (cooperative pattern) or a risk-precipitating (controlling pattern) role on developmental and behavioural outcome, independent of perinatal risk factors and of the family's socioeconomic background. The controlling pattern is much more prevalent among preterm than term dyads and is related to a less favourable infant outcome. However, the cooperative pattern still represents almost 30% of the preterm dyads, with infants' outcome comparable to the ones of term infants. These results point out the impact of the quality of mother-infant relationship on the infant's outcome. The most important clinical implication should be to support a healthy parent-infant relationship already in the NICU but also in the first months of the infant's life. **Early individualized family-based interventions during neonatal hospitalization and transition to home have been shown to reduce maternal stress and depression and increase maternal self-esteem and to improve positive early parent-preterm infant interactions.**



The Polyvagal Theory: phylogenetic contributions to social behaviour

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Abstract: The scientific legacy of Paul MacLean provides important insights into the neural substrate of adaptive social behaviour in mammals. Through his research and visionary conceptualisations, current investigators can legitimately study social behaviour from a neurobiological perspective. His research and writings provided three important contributions.

First, he emphasized the importance of evolution as an organizing principle that shaped both the structure of the nervous system and the adaptive social behaviour.

Second, by defining the limbic system, he legitimised the biological perspective in the study of emotion.

Third, he recognized the important role of the vagal afferents in the regulation of higher brain structures.

The Polyvagal Theory is a new conceptualisation of the role of vagus and employs several features that MacLean emphasized including the importance of evolution, limbic structures and vagal afferents. It builds on these early findings and focuses on the link between phylogenetic changes in the autonomic nervous system and social behaviour. By focusing on the phylogenetic changes in the structure of the vagus and the role that the vagus plays in the neural regulation of visceral state, new insights regarding social behaviour emerge.

By articulating the phylogenetically organized hierarchy of neural circuits, insights into benefits of social behaviour become evident as do an understanding of the behavioural and physiological features associated with stress and psychiatric disorders.

Preventing Violence or Developing the Capacity to Love: Which Perspective? Which Investment?

www.birthpsychology.com/violence/odent1.html

(Summarised)

Michel Odent, MD, Primal Health Research 2(3) Winter, 1994

*Born in France in 1930, **Michel Odent** studied medicine at the University of Paris, qualifying in general surgery, obstetrics, and gynecology. Dr. Odent organized The Primal Health Research Centre and became an itinerant scholar-teacher to groups around the world. He has published more than 50 professional papers and ten books published in 19 languages. He is editor of Primal Health Research, a newsletter on the long-term health consequences of environmental conditions in utero, at birth, and the first year of life.*

In the life stories of great figures associated with love such as Venus, Buddha and Jesus, the manner in which they were born is presented as a critical phase. By contrast, the lives of famous politicians, writers, artists, scientists, business people and clergymen, their biographies often start with details about their childhood and education. Could this difference indicate that birth is a crucial time in the development of our capacity to love?

The biological sciences of the 1990s are now showing that the first hour following birth is a critical period in the development of the capacity to love. While a mother and her newborn baby are close to each other after birth they have not yet eliminated from their systems the hormones which both of them secreted during the birth process. The two are in a special hormonal balance that will last only a short time and will never recur. If we consider the properties of these different hormones and the time it takes to eliminate them, we will understand that each hormone has a specific role to play in the interaction between mother and baby.

These same hormones are involved in any aspect of love. Recent data drawn from different branches of scientific literature presents a new vision of sexuality. There is a hormone of love, and also a reward system that operates each time we, as sexual animals, do something that is necessary for the survival of the species.

Role in sexual arousal

Oxytocin's role during sexual arousal and orgasm has recently come to light. We now have scientific studies of oxytocin levels during orgasm among humans.

Mary Carmichael's team from Stanford University in California has published a study in which oxytocin levels among men and women during masturbation and orgasm were measured in blood samples collected continuously via indwelling venous catheters. Levels during self-stimulation before orgasm were higher amongst women than men. Indeed, they were higher during the second phase of the menstrual cycle than during the first phase. During orgasm, women reached higher levels of oxytocin than men, and multi-orgasmic women reached a higher peak during the second orgasm. During male orgasm, the release of oxytocin helps to induce contractions of the prostate and seminal vessels.

The immediate effect of the release of oxytocin during female orgasm is to induce uterine contractions which help the transportation of the sperm towards the egg.

Altruistic love hormone

Of course, a release of oxytocin is needed during the birth process: obstetricians have been aware of this for a long time. But until now they have not been interested in the peak of oxytocin that is released just after the delivery of the baby. The importance of this peak is highlighted when it is linked with the knowledge that oxytocin can induce maternal behaviour.

It can be claimed that one of the greatest peaks of oxytocin secretion a woman can have in her life is just after childbirth if the birth happens without intervention with hormone substitutes. It also seems that the fetus releases oxytocin which could contribute to the onset of labor, and this may shape the baby's own ability to release oxytocin.

We also know more about the release of oxytocin during **lactation**. It has been recently shown that as soon as a mother hears a signal from her hungry baby, her level of oxytocin increases. A parallel can be made with sexual arousal that starts before there is any skin stimulation. As the baby sucks, the levels of oxytocin released by the mother is about the same as it is during orgasm--another parallel between these two events in sexual life.

Furthermore, there is oxytocin in human milk. In other words, the breastfeeding baby absorbs a certain quantity of oxytocin via the digestive tract. Further, when we share a meal with companions, we increase our level of oxytocin: the only possible conclusion is that oxytocin is an altruistic hormone, a love hormone.

So, any episode of sexual life is characterized by the release of an altruistic hormone; it is also rewarded by the release of morphine-like substances. These "endomorphins" are hormones of pleasure as well as natural painkillers. During intercourse, both partners release high levels of endomorphins. Certain migraine sufferers know that intercourse is a natural remedy for headache.

The endomorphin release during copulation among different species of mammals is well documented. For example, beta endorphin levels in the blood of male hamsters after their fifth ejaculation was 86 times higher than those of control animals.

Today, the concept of physiological pain is accepted, but there is a compensatory system of protection in the release of natural opiates. This is the beginning of a long chain of reactions: For example, beta endorphins release prolactin, a hormone which adds the final touch to the maturation of the baby's lungs and is necessary for the secretion of milk by the breast. At the same time, oxytocin aids in milk ejection.

The system that protects us against pain is one that also gives us pleasure. Hormones of pleasure and attachment during the birth process, the baby releases its own endorphins: In the hour following birth, both a mother and her baby are impregnated with opiates. Since opiates create a state of dependency, when a mother and her baby are close to each other before they have eliminated their opiates, they are creating a mutual dependency or attachment relationship. When sexual partners are close to each other and impregnated with opiates, another kind of dependency is created: this dependency is chemically similar to the attachment relationship of a mother and her baby.

Since **lactation** is necessary for the survival of mammals, it is not surprising that a built-in reward system encourages a mother to breastfeed. When a woman is breastfeeding, her level of endorphins peaks in twenty minutes. The baby is also rewarded for nursing since human milk contains endorphins. This is why some babies behave as if they are "high" after they have been breastfed.

Our knowledge of endorphins is still new. Only 20 years ago, Pert and Snyder published a historic article in Science revealing the existence of opiate-sensitive cells in the nervous tissues of mammals. If the human nervous system contained cells which were sensitive to opiates, then it followed that the human body must be capable of producing a substance or substances very similar to those produced by the opium poppy.

When all the published scientific data is fully understood, we will have a new basis from which to consider such issues as the relationship between pleasure and pain, masochistic and sadistic behaviour, the philosophy of suffering, religious ecstasy, and substitutes for sexual gratification, to name but a few.

Oxytocin, the love hormone, and endorphins, the hormones of pleasure, are part of a complex hormonal balance. For example, in the case of a sudden release of oxytocin, the need to love can be directed in different ways according to the hormonal balance. For example, if a nursing mother has a high level of prolactin, she tends to concentrate her ability to love toward her baby. If a woman has a low level of prolactin, as is normal when she is not breastfeeding, she has a tendency to direct her love toward a sexual partner.

Prolactin, the hormone necessary for the secretion of milk, depresses sexual arousal. When a man has a tumor which releases prolactin, the first symptom is sexual impotence. Antiprolactin drugs can induce erotic dreams. It is well-known that among many species of mammals, a lactating mother is not receptive to the male. In most tribal societies, love-making and breastfeeding are considered to be incompatible. Since the advent of the Graeco-Roman model of strict monogamy, there has been a tendency to reduce maternal breastfeeding, using slaves, wet-nurses, animal milks, or formulas.

Adrenaline and eye-to-eye contact

Another aspect common to the different episodes of sexual life is that they are inhibited by the hormones of the adrenaline family--the hormones released when mammals are frightened or cold. These are the emergency hormones which give us the energy to protect ourselves by fighting or running away.

If a female mammal is threatened by a predator while she is in labor, the release of adrenaline tends to stop the birth process, postponing it in order to give the mother the energy to fight or to escape. Farmers know that it is impossible to milk a frightened cow.

The effects of adrenaline secretion are more complex during the birth process. During the very last contractions preceding birth, both a mother and her baby have a peak release of adrenaline hormones. One of the effects of this sudden adrenaline release is that the mother is alert when her baby is born. It is an advantage among mammals to have enough energy to protect the newborn baby.

Another effect of this adrenaline release by the fetus is that the baby is alert at birth, with wide-open eyes and dilated pupils. Mothers are fascinated by the gaze of their newborn babies. It seems that, for humans, this eye-to-eye contact is an important feature of the beginning of the mother-baby relationship. Let us stress that even the hormones of the adrenaline family--often seen as the hormones of aggression--have a specific role to play in the interaction between mother and baby in the hour following birth.

Not only are the same hormones involved in the different episodes of sexual life, but the same patterns, the same sort of scenarios are reproduced. The final phase is always an "ejection reflex" and terms such as "sperm ejection reflex," "fetus ejection reflex," and "milk ejection reflex" suggest this likeness.

I have adopted the term "fetus ejection reflex" (which had previously been used to refer to non-human mammals) to refer to the very last contractions before the birth of humans when the birth process has been undisturbed and unguided. During a typical "fetus ejection reflex," women have a tendency to be upright, have a need to grasp something or someone, and are full of energy. Some women seem to be euphoric, others seem to be angry, while others express a transitory fear. All of these behaviours are compatible with a sudden release of adrenaline. They are associated with two or three strong contractions.

This reflex is almost unknown in hospital delivery rooms, and it is seldom seen even at home births if another person takes on the role of "coach," "guide," "helper," "support person," or "observer."

The primitive brain

For human beings, the main gland at work during each kind of sexual conduct is the brain. In modern biological sciences, the brain is seen primarily as a gland that releases hormones. But only the primitive brain structures in and around the hypothalamus--those which we share with even the most primitive mammals--are active in mating, birthing, and lactating.

Humans have a neocortex--a recently-developed brain structure--which supports the intellect over and around the primitive brain structure. When this rational brain is overactive, it tends to inhibit the primitive brain. During the birth process, there is a time when a labouring woman behaves as if she were on another planet. To get to the "other planet," she has to change her level of consciousness by reducing the activity of her neocortex. Inversely, during the birth process and during any kind of sexual experience, any stimulation of the neocortex has an inhibiting effect: logical discussion, feeling observed, bright lights, etc. Few couples can make love if they feel observed or if their neocortex is stimulated by bright lights or by logical thinking.

It is ironic that non-human mammals, whose neocortex is not as developed as ours, have a strategy for giving birth in a state of privacy. A feeling of security is a prerequisite for a state of privacy. To feel secure, you have to feel protected. Let us remember that the original midwife was usually the mother of the woman who was giving birth. Other midwives were substitutes for the mother-figure who is, first and foremost, a protective person.

To look at sexuality as a whole has many implications. In societies where genital sexuality is highly repressed, women are less likely to have easy births. Conversely, routine over-control of the birth process, probably influences other aspects of our sexual life. We should need a whole article to study these correlations, which are found in many anthropological texts from the very beginnings of modern ethnology, like Malinowski's *The Sexual Life of Savages* and studies by Margaret Mead. We see the same correlations when we compare late 20th century childbirth statistics in European countries: births are easier in Sweden than in Italy.

Of course, love and sexuality are not synonymous. Nobody can define love, nor can anyone analyze different forms of love with any precision. There have been a few, albeit rare, cultures in which there were no excuses found for interfering with the first contact between mother and baby. In such cultures, the need to give birth in privacy was always respected.

A revolution will occur in our vision of violence when the birth process comes to be seen as a critical period in the development of the capacity to love.

Sleeping through the Night

by Katherine A. Dettwyler, Ph.D. Department of Anthropology, Texas A & M University

www.kathydettwyler.org/detsleepthrough.html

Author's Comment: This essay was originally directed to one person. It has been edited slightly to make it less specific.

I am an Adjunct (semi-retired) Associate Professor of Anthropology and Nutrition at Texas A&M University, and I do research on infant/child feeding beliefs/practices both cross-culturally and from an evolutionary perspective, as well as research on children's health and growth. I know from first-hand experience that being a new parent is a difficult time of adjustment, especially when expectations don't match reality, especially when our culture has taught us that children should have certain needs/wants/behaviors and then our children don't seem to fit that mold. This problem of a mismatch between expectations and reality can be very difficult for new parents to accept and adjust to.

Sometimes, some children can be encouraged/convincing/forced to fit the mold of cultural expectations, and they do fine. Othertimes, though they do eventually fit the mold, it is at the expense of their sense of who they are, their self-confidence, their view of the world as a safe and trusting place, sometimes, even, at the expense of their health or life. Probably nowhere do cultural expectations and the reality of children's needs conflict more than in the two areas of breastfeeding frequency and sleeping behaviors.

Human children are designed (whether you believe by millions of years of evolution, or by God, it doesn't matter) -- to nurse *very* frequently, based on the composition of the milk of the species, the fact that all higher primates (Primates are the zoological Order to which humans belong, higher primates include monkeys and apes) keep their offspring in the mother's arms or on her back for several years, the size of the young child's stomach, the rapidity with which breast milk is digested, the need for an almost constant source of nutrients to grow that huge brain (in humans, especially), and so on.

By very frequently, I mean 3-4 times per hour, for a few minutes each time. The way in which some young infants are fed in our culture -- trying to get them to shift to a 3-4 hour schedule, with feedings of 15-20 minutes at a time, goes against our basic physiology. But humans are very adaptable, and some mothers will be able to make sufficient milk with this very infrequent stimulation and draining of the breasts, and some children will be able to adapt to large meals spaced far apart. Unfortunately, some mothers don't make enough milk with this little nursing, and some babies can't adjust, and so are fussy, cry a lot, seem to want to nurse "before it is time" and fail to grow and thrive. Of course, usually the mother's body is blamed -- "You can't make enough milk" -- rather than the culturally-imposed expectation that feeding every 3-4 hours should be sufficient, and the mother begins supplementing with formula, which leads to a steady spiral downward to complete weaning from the breast. Human children are also designed to have breast milk be a part of their diet for a minimum of 2.5 years, with many indicators pointing to 6-7 years as the true physiological duration of breastfeeding -- regardless of what your cultural beliefs may be. I can provide you with references to my research on this topic if you wish to read more.

The same is true of sleeping. Human children are designed to be sleeping with their parents. The sense of touch is the most important sense to primates, along with sight. Young primates are carried on their mother's body and sleep with her for years after birth, often until well after weaning. The expected pattern is for mother and child to sleep together, and for child to be able to nurse whenever they want during the night. Normal, healthy, breastfed and co-sleeping children do not sleep "through the night" (say 7-9 hours at a stretch) until they are 3-4 years old, and no longer need night nursing. I repeat -- this is NORMAL and HEALTHY.

Dr. James McKenna's research on co-sleeping clearly shows the dangers of solitary sleeping in young infants, who slip into abnormal patterns of very deep sleep from which it is very difficult for them to rouse themselves when they experience an episode of apnea (stop breathing). When co-sleeping, the mother is monitoring the baby's sleep and breathing patterns, even though she herself is asleep. When the baby has an episode of apnea, she rouses the baby by her movements and touch.

This is thought to be the primary mechanism by which co-sleeping protects children from Sudden Infant Death Syndrome. In other words, many cases of SIDS in solitary sleeping children are thought to be due to them having learned to sleep for long stretches at a time at a very early age, so they find themselves in these deep troughs of sleep, then they may experience an episode of apnea, and no one is there to notice or rouse them from it, so they just never start breathing again. Co-sleeping also allows a mother to monitor the baby's temperature during the night, to be there if they spit up and start to choke, and just to provide the normal, safe environment that the baby/child has been designed to expect.

Is this convenient for parents? No!

Is this difficult for some new parents to adjust to? Yes!

No doubt about it, the gap between what our culture teaches us to expect of the sleep patterns of a young child (read them a story, tuck them in, turn out the light, and not see them again for 8 hours) and the reality of how children actually sleep if healthy and normal, yawns widely.

But the first steps to dealing with the fact that your young child doesn't sleep through the night, or doesn't want to sleep without you is to realize that:

- (1) Not sleeping through the night until they are 3 or 4 years of age is normal and healthy behavior for human infants.
- (2) Your children are not being difficult or manipulative, they are being normal and healthy, and behaving in ways that are appropriate for our species.

Once you understand these simple truths, it becomes much easier to deal with parenting your child at night. Once you give up the idea that you must have 8 hours of uninterrupted sleep at night, and view these nighttime interactions with your child as precious and fleeting, you get used to them very quickly.

Our children's early years represent the most important and influential time of their lives. It passes all too quickly. But meeting your child's needs during these first few years will pay off in many ways in the years to come.

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BRAIN DEVELOPMENT

Fetal neurodevelopment

References for the following see www.kangaroomothercare.com/references.htm

Extract: Bergman N. J. MB ChB, MPH, MD (Extract from CD *Breastfeeding: A Lifelong Investment* - Capers Breastfeeding Seminar, Newcastle NSW, 2006)

Many people feel that the human being with its massive forebrain and cortex cannot be compared to other animals. It should be noted however, that the cortex does not replace the more “primitive parts” of the brain, but is in fact utterly dependent on them. The understanding we can gain from biology can teach us much about our humanity.

A huge body of research on mammalian neurodevelopment and neurobehaviour exists, going back some 60 years. However, in the last 15 years, new techniques have allowed research on living human neurodevelopment, which confirms the conclusions from animal studies.

For the first 14 weeks of “post-conceptual life” the emphasis is on structural development, and the primary drivers are DNA instructions. Key processes include neurulation, neurogenesis and synaptogenesis. By 20 weeks all the structures in the brain are identifiable and in place.

From this point, structural development and functional development go hand in hand, and are parallel. Thus, at 23 weeks the fetus is aware and conscious. Stimuli and environment combine to stimulate brain growth and brain connections. Stimuli “fire” brain cells, and migration of cells, dendrification and axonal arborisation take place. Synaptogenesis continues, and “cells that fire together, wire together”, this creates neuronal pathways which eventually myelinate, (hardwire). At the same time, cells that are not used are pruned, “elimination of redundancy”, there is competitive elimination, unused brain parts are removed.

The total effect is described as neuronal plasticity. By 25 weeks the various layers in the brain are identifiable, and by 28 weeks the fetus has its full complement of neural cells, which have yet to grow for some years.

The autonomic nervous system, essential to this talk in its own right, illustrates in its development the above structure and function parallel. The first part to form is the “primitive unmyelinated vagus” (parasympathetic), which controls basic metabolism, and which responds to stress by “immobilisation behaviours”. However, after birth the sympathetic nervous system is developing, which controls the well known “fight or flight”, effectively the opposite behaviour of the vagal, it comes in to operation at about two months.

At about six months the vagus starts to myelinate, and this allows rapid regulation and the ability to choose between engagement and disengagement. Thus the structure, as in the vagal nerve, had a primitive function early in development, immobilisation; later fight or flight. Later still in development, myelination allows for the same structure to make choices, but only if correctly connected to the sympathetic system.

Basic mechanisms for brain growth

Schore presents a new slant with the same message in two recent in-depth reviews from developmental psychology, infant psychiatry and developmental neuroscience. The development, growth and function of the human brain has been studied extensively in the last decade, and in the following section some 40 pages are summarised in a few quotes (verbatim):

“Maturation of ... adaptive right brain regulatory capacities is experience dependent, and this experience is embedded in the attachment relationship between infant and primary caregiver...the environment affects the structure and function of the brain.

“...an early postnatal period represents a “critical period” of limbic–autonomic circuit development, during which time experience or environmental events might participate in shaping ongoing synapse formation.” (Bowlby)

The capacity to cope with change and stress is a right brain function, which is built up over time. After birth, the critical neural pathway that develops is the amygdala-orbitofrontal tract, and the salient stimulation or experience required is tactile:

“...skin-to-skin contacts come on line early...the infant actively seeks to adhere to as much skin surface on the mother’s body as possible” (Harlow)

“...areas of the amygdala...are in a critical period of maturation...through the first two months of human life, the earliest period of bonding.”

At eight weeks, visual parts of the brain develop dramatically, and the next tract to develop requires eye-to- eye contact, and maternal infant interactions. These interactions are vital to optimal development.

“The growth of the baby’s brain literally requires brain-brain interaction, and occurs in the context of a positive affective relationship” (Trevarthen).

“The early right brain capacities...are not only central to the origin of the self, they are required for the ongoing development of the self over the lifespan.”

Consequences of adverse environment on brain growth

Removed from the correct habitat, all mammals exhibit an identical pre-programmed response, referred to in biology as the "protest - despair response". This is the defence programme, and has its own set of hormones, autonomic controls and somatic expressions. The “protest” response is one of intense activity seeking reuniting with the habitat/mother, the “despair” response is a withdrawal and survival response of decreased temperature and heart rate, mediated by a massive rise in stress hormones. Reunited with the correct habitat (mother), there is a rapid rise in heart rate and temperature.

The "protest-despair response" was first described in humans, in orphans after WWII, it was subsequently studied in monkeys and then in many other mammals. Separation has been shown to cause maladaptive changes in brain structure and subsequent behaviour, and changes in the fundamental efficiency of all the body systems. Early separation produces major shifts in susceptibility to stress-induced pathology. The origins of many human behavioural deviations are unknown. It has been suggested that most of these can be traced back to “violations of an innate agenda”.

In current neurobehavioural studies in human beings, protest-despair is referred to as “hyperarousal and dissociation”. This work is summarised in the psycho-neurobiological review by Allan Schore:

“...the human infant’s psychobiological response to trauma is composed of two separate response patterns – hyperarousal and dissociation. (Perry et al)

“...(In hyperarousal) the sympathetic autonomic nervous system is suddenly and significantly activated, increasing heart rate, blood pressure, tone and vigilance, distress is expressed in crying then screaming...this state of “frantic distress”, or what Perry terms fear-terror, is known as ergotropic arousal...with excessive levels of major stress hormone releasing factor...resulting in a hypermetabolic state in the brain.

“(Dissociation) is a second later-forming reaction in response to terror, and involves numbing and avoidance...a state of conservation-withdrawal, a parasympathetic regulatory strategy that occurs in helpless and hopeless situations ... a hypometabolic process used throughout the lifespan, in which the individual passively disengages “to conserve energies” ... to foster survival by the risky posture of feigning death.

“In this passive state of profound detachment, pain numbing and blunting endogenous opiates are elevated, instantly triggering analgesia and immobility and inhibition of cries for help ... vagal tone increases dramatically, decreasing blood pressure and heart rate ... in this state both the sympathetic energy-expending and parasympathetic energy-conserving components of the infant’s developing brain are hyperactivated ... (creating) chaotic biochemical alterations, a toxic neurochemistry in the developing brain

“ ... the psychotoxic contexts of early relational trauma ... intense relational stress alters calcium metabolism, a critical mechanism of cell death ... result in permanent alterations in receptors ... (causing) high risk for developing severe psychopathologies at later stages of life.”

The Effects of a Secure Attachment Relationship on Right Brain Development, Affect Regulation, & Infant Mental Health

Dr Allan N Schore (Department of Psychiatry and Biobehavioral Sciences, University of California at Los Angeles School of Medicine)

Originally published in: *Infant Mental Health Journal*, 2001, 22, 7-66

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Abstract:

Over the last ten years the basic knowledge of brain structure and function has vastly expanded, and its incorporation into the developmental sciences is now allowing for more complex and heuristic models of human infancy.

In a continuation of this effort, in this two part work I integrate current interdisciplinary data from attachment studies on dyadic affective communications, neuroscience on the early developing right brain, psychophysiology on stress systems, and psychiatry on psycho-pathogenesis in order to provide a deeper understanding of the psycho-neurobiological mechanisms that underlie infant mental health.

In this paper I detail the neurobiology of a secure attachment, an exemplar of adaptive infant mental health, and focus upon the primary caregiver's psychobiological regulation of the infant's maturing limbic system, the brain areas specialized for adapting to a rapidly changing environment. The infant's early developing right hemisphere has deep connections into the limbic and autonomic nervous systems and is dominant for the human stress response, and in this manner the attachment relationship facilitates the expansion of the child's coping capacities.

This model suggests that adaptive infant mental health can be fundamentally defined as the earliest expression of flexible strategies for coping with the novelty and stress that is inherent in human interactions. This efficient right brain function is a resilience factor for optimal development over the later stages of the life cycle.

The fundamental importance of the psychological as well as the biological health of the infant has long been held as a cardinal principle by every clinical discipline that deals with young children - infant psychiatry, behavioural paediatrics, child psychology, developmental psychoanalysis, and more recently the emerging fields of developmental psychopathology and infant mental health.

And yet a more precise characterization of the concept of infant mental health, like the definition of "mental health" itself, has been elusive. Theoretically, it is clear that there must be links between infant and adult mental health, yet these too have been ill-defined. Although there is a large body of clinical knowledge in psychiatry, abnormal psychology, and psychoanalysis affirming the centrality of early relational experiences on enduring adaptive and maladaptive aspects of personality, there has been some question as to the structural mechanisms by which such events positively or negatively influence the process of development as it continues over the life span. In other words, how do the earliest interactions between a maturing biological organism and the social environment influence infant mental health, what are the central functions that define infant mental health, and how does it influence mental health at later stages of development?

HUMAN RIGHTS

Global health policies that support the use of banked donor human milk: a human rights issue

International Breastfeeding Journal 2006

Lois D.W. Arnold (milkbank@capecod.net)

Abstract

This review examines the role of donor human milk banking in international human rights documents and global health policies.

For countries looking to improve child health, promotion, protection and support of donor human milk banks has an important role to play for the most vulnerable of infants and children. This review is based on qualitative triangulation research conducted for a doctoral dissertation. The three methods used in triangulation were 1) writing as a method of inquiry, 2) an integrative research review, and 3) personal experience and knowledge of the topic.

Discussion of the international human rights documents and global health policies shows that there is a wealth of documentation to support promotion, protection and support of donor milk banking as an integral part of child health and survival.

By utilizing these policy documents, health ministries, professional associations, and donor milk banking associations can find rationales for establishing, increasing or continuing to provide milk banking services in any country, and thereby improve the health of children and future generations of adults.

Full Text Article: <http://www.internationalbreastfeedingjournal.com/content/1/1/26>

GENDER EQUITY

Demographic challenge: Gender equality pays! About Norway's family, gender equality and labour market policy

Minister Karita Bekkemellem, The Norwegian Ministry of Children and Equality (28th Session of the Conference of European Ministers Responsible for Family Affairs. Portugal, 16-17 May 2006)

(Summarised)

I am delighted to have this opportunity to tell you about some areas of Norwegian family and equality policy.

Europe faces two main challenges in the years ahead. The first is to ensure that more children are born. The second is to ensure that more people work and that more people work longer. The solution to these challenges lies in viewing family and equality policy in close conjunction with labour market policy.

We must both increase the birth rate and achieve an inclusive working life. It is very important that we fully include cohabitants and partners of the same sex in our family policies, as many of these couples also are parents.

Norway is in a fairly good position compared with many other countries in terms of fertility. We top the list in Europe for female employment. Norwegian men are increasingly involved in child care, although still far less than women.

We have a long period of paid parental leave and a father's quota which is five weeks now, and will be six weeks from 1 July this year. From January next year it will be easier for parents to combine part time work with paid parental leave. Parents are entitled to flexible working hours and reduced working hours. Each parent can be at home on paid leave for ten days per year if a child (up to the age of 12) or a child carer is ill.

It is impossible to exploit the workforce potential represented by women unless men take their share of child care. Workplaces must notice that men are parents! We will therefore increase the father's quota to ten weeks by extending the total period of paid leave. This may hopefully, in the longer term, promote somewhat more equal distribution of care responsibilities and more equal distribution of work and care between women and men. I am also proud to inform you that my Cabinet, during 2007, will present a White Paper to the Parliament on 'Men and Gender Equality'; I believe, the first in its kind in the world.

Equal parenthood is the key to equality at work. Equality at work, where both women and men take part in the labour force and contribute their expertise, experience and skills is, in turn, the key to increased productivity and economic growth. These are not just fine words; they are harsh realities that we must accept.

Women in Development and Decision Making: where does breastfeeding fit in?

Commission on the Status of Women 2006 Theme: an enabling environment for achieving gender equality and for the advancement of women, with equal participation of women and men in decision making processes at all levels Women stand at the crossroads between production and reproduction, between economic activity and the care of human beings, between economic growth and human development.

Women are workers in both spheres—the most responsible and therefore with the most at stake, those who suffer most when the two spheres meet at cross-purposes, and those most sensitive to the need for better integration between the two.

Gita Sen, Development Alternatives with Women for a New Era (DAWN)*

Women play a triple role in development

1. Through participation in the workforce, women contribute to the growth of the economy. Women's *workforce involvement* has been increasing for decades.
2. Women are the primary providers in *social reproduction*, the care and maintenance of human beings, yet in almost all countries this contribution to the nation's economic well-being is still being overlooked in national economic accounts.
3. Women bear all but a tiny part of the *physical* load of *reproduction*. A woman makes a significant investment of nutrients and energy over the nine months of pregnancy, the intense mental and physical effort of childbirth, the healing weeks of post-partum recovery, and the 24-hour-a day process of producing and delivering milk to protect, nourish, and nurture her infant for months or years after birth.

All three of women's economic roles offer opportunities to achieve gender equality. *Maternity Protection* includes an adjustment of a woman's workload during pregnancy, birth/recovery, and lactation; it is a basis for gender equality at work. Since 1919, the ILO has set global standards for maternity protection for women in the workforce, most recently in Convention 183, adopted in 2000. ILO has called maternity protection "a precondition of genuine equality of opportunity and treatment for men and women."

Enabling mothers to feed their children optimally means supporting exclusive breastfeeding for six months and continued breastfeeding with appropriate and adequate complementary foods until age two or beyond. Breastfeeding is a contribution to social reproduction that only women can make, but they do not make it alone. Fathers, grandparents, other relatives, co-workers, employers, and health policy-makers have key roles to play. Optimal feeding—which is gender-neutral for the recipient child, provided that girls and boys have equal access to their mothers' milk—can prevent 19% of deaths in children under five around the world, or 1.9 million every year.

The gender roles that a culture assigns to women affect a mother's power to decide how to use her own time and energy. Many times in each 24-hour day, a lactating mother of an infant or young child makes a decision whether to give the breast, or to care for herself and her child in some other way. In an enabling environment that respects her decision to breastfeed, she is free to make that choice based on her needs and her child's needs.

Breastfeeding may look like a private activity, yet during the months or years when women are lactating (producing milk) they can and should fulfill a variety of public roles in addition to their role as mother. The world needs to hear the voices of breastfeeding women in committee rooms and boardrooms, in union halls, in parliaments, in town meetings, at debates and rallies. For some communities this will require a broadening of acceptance and support when lactating women, sometimes accompanied by their babies, appear in the public forum, especially when the babies require care and comfort at the breast.

The civic decision-making process must be open to women and men with family responsibilities. Childcare facilities would make it possible for people with young children to participate more fully in decision-making. Meetings should be held at times of day when family demands are low. Quiet babes in arms should be welcomed with their parents. If nursing mothers are not accompanied by their babies, they need regular breaks and a place to express milk. Technology that allows people to participate from remote locations can also facilitate breastfeeding women's involvement in public life. Breastfeeding must not be permitted to be an excuse for systematically excluding women from the important policy discussions that affect all of our lives.

In 2002 the World Health Organization and UNICEF developed the *Global Strategy for Infant and Young Child Feeding*** and identified sub-optimal child growth and development as a barrier to development. The *Global Strategy* spells out remedies, with a role for almost every institution of government and civil society, as well as for individual family members and women themselves. Everyone benefits when babies and young children receive optimal feeding, and there is no longer any excuse to ignore breastfeeding, or to tell a woman that it's *her* problem and she should just "get on with it."

* quoted by Naila Kabeer <http://www.unescap.org/esid/committee2003/genderequality.pdf>

Ethics in the Neonatal Intensive Care Unit

Copyright 1999 Deborah K. Davies, Ph.D.

As a psychologist specializing in perinatal bereavement and ethical issues in the NICU, I have worked with and written about many parents who decided to turn away from aggressive medical intervention.

On the danger of drawing lines:

Some people argue that we should draw a line whereby babies above the line are resuscitated and babies below are not. This is an attempt to make situations black and white in order to avoid gray areas and the attending difficult decisions. But drawing lines increases errors because it erases judgements. Any line will never be reasonable for every baby. Every situation is unique. Difficult decisions require delicate judgements, not lines drawn in an attempt to make these decisions easy. They will never be easy. They shouldn't be easy.

On the absurdity of slippery slope arguments:

For many babies, life or death decisions don't arise because there's no question about what is best. When a baby has a significant chance for healthy survival, then initiating and continuing medical intervention is unquestionably best for the baby. Likewise, when the prognosis is clearly grim, it is reasonable for docs to gently inform the parents that medical intervention would hold no benefit for the baby. In both of these situations, the way to go is clear; only one option is reasonable. There is no decision to make.

The slippery slope argument that we should not let parents make decisions because "Next thing you know, they'll be denying medical intervention to a baby who is missing a thumb", is absurd. Or the opposite, that "Soon they'll be demanding that we try to resuscitate embryos" is equally absurd. Not every situation poses a choice between options or demands decisions to be made. But there is a gray area, where the best option isn't clear, and these difficult decisions require thoughtful, heartfelt judgements by the parents.

On why parents should make life & death decisions in the NICU:

When the prognosis is uncertain, and particularly when it is most likely to be dismal at best, questions (should) arise among medical staff - "Do we resuscitate or not?" or "Do we continue artificial life support or not?" In these precarious cases, where the prognosis or treatment outcomes are uncertain, when there are options and the best option isn't clear, PARENTS should be the primary decision-makers. If medical staff had all the answers or could accurately predict the future, then I'd say let them decide. But they don't and they can't. Parents don't and can't either, but when informed and given time to ponder the realities, they are in the best position to decide which path they and their baby should go down. After all, it is THEIR journey. Whether to rely on the guidance of medical opinions, their religion or community standards should be up to them. Whether to be swayed by the grimmest statistics or to grasp for the dimmest rays of hope, should be up to them.

It is natural for every doc and nurse to have a personal bias. But it is presumptuous, proprietary and self-righteous for health care providers - or anyone else - to claim they know what is the right decision for another family in these uncertain situations. This is true whether our bias is toward saving every baby, or letting nature take its course with every baby who's under a certain weight or gestational age. If we have an opinion, we are entitled to surmise what we might have done for our own baby, but to stop there. We are not entitled to demand that others obey our own intuitions, instincts, morals or opinions. It is also not our job to protect parents from feelings of responsibility by excluding them from the decision-making process. Parents have strong nurturing instincts and it is so very meaningful for them to be able to express their love through making important, compassionate decisions. It is true that most parents have doubts about their decision, but this is a normal and natural part of the grieving process, whether they grieve for a baby who died or for a child who is severely disabled. Wrestling with second thoughts is also a way for parents to evaluate, solidify and embrace the beliefs and principles that guided their decisions.

You can encourage parents by reminding them that they feel badly, not because they made a bad decision, but because the decision was so very painful to make. When the best path is unclear, fully informed parents are the best decision-makers. No one is closer to that baby in blood, body and spirit than the mother and father. Their best guess is the best one of all. No one else can decide for their baby as carefully, thoughtfully, purposefully and solemnly as they do. No one else can be more agonized, calculating and soul-searching. This is a decision that must be made with the mind, gut and heart. Your own baby would want you to make this decision, not strangers.

On parents who turn away from aggressive medical intervention:

In my work with bereaved parents and parents of premature babies, the predominant concern parents have is about the suffering that their tiny babies and children endure. For the parents who decided to let nature take its course, either in the NICU or years later, it was apparent to them that the suffering far outweighed the current or potential benefits. The prospect or experience of living with a handicapped child concerned them NOT because of the hassle that entails for them, but because of the misery that their child would or did have to bear.

On what I tell grieving parents:

Part of being a parent is discovering those remarkable feelings of devotion to your child's well-being and happiness. And part of being a devoted parent is to gradually let go.

Normally, letting go is a drawn-out process of trusting the child to find her own path through life, giving her room to grow into a responsible, independent person. Most parents have many years to give their child both roots and wings. But when the letting go involves death, particularly so soon after birth, it can be incredibly difficult. It's just too soon. As such, deciding to turn away from aggressive medical intervention can be the ultimate act of parental devotion. The urge to protect and hold onto your baby at all costs can be so strong, and yet, your sense of "what is best for my child" prevails upon you to give your child wings. This takes a lot of courage, faith and love.

Respectfully, Deborah L. Davis, Ph.D.

(Author of *Empty Cradle, Broken Heart: Surviving the Death of Your Baby* (Fulcrum, 1991; 1996) and *Loving and Letting Go: For Parents who Decided to Turn Away from Aggressive Medical Intervention for Their Critically Ill Newborns* (Centering, 1993); co-author of *Neonatal Guidelines for the Colorado Collective for Medical Decisions*, 1997.)

KANGAROO MOTHER CARE

A little help from my friends

Heather Harris, *International Breastfeeding Journal* 2007, 2: 3:10

<http://www.internationalbreastfeedingjournal.com/info/instructions/>

Abstract

This paper is a narrative of some aspects of my work as a midwife with Médecins Sans Frontières (MSF) in West Africa. I was situated in an isolated north-western regional hospital in an area under rebel military control in 2004-2005 in the Côte d'Ivoire during the civil war which divides the north and south of the country. Access to health care is severely curtailed in this politically unstable environment resulting in much avoidable illness including many premature births. It is a short account of methods used to care for premature babies in a resource poor setting. Equipment was basic, necessitating a creative use of available resources. Providing warmth, oxygen and adequate feeding were often sufficient for a successful outcome for many premature babies. This paper is a combination of descriptions of health care interspersed with case studies.

Review

Côte d'Ivoire is in West Africa and has a population of over 17 million. It was a former French colony so the official language of the educated population is French though many indigenous languages are spoken in the villages away from the main cities. This beautiful country has been gripped by civil war since late 2002, with one result the collapse of the health care system particularly in the northern and western region, which is effectively cut off from government control.

The World Health Organization (WHO) lists Côte d'Ivoire as 79/95 on the Human Poverty Index scale with 15.5% earn less than \$US 1 a day [1]. The Gross National Per Capita Income is estimated at US\$770 per annum [2].

Life expectancy for men is 37.6 years and for women 41.3 years [1]. Skilled birth attendants assist with 62.5% of births (2000) compared with 99.3% in Australia. The Infant Mortality Rate is 118/1000 of live births [2], while in Australia it is 5/1000 [3].

Child mortality rates for children under 5 is even higher – 162/1000 for girls and 225/100 for boys [1]. Breastfeeding is considered the global “gold standard” for all babies less than six months of age, but in a poverty-stricken, isolated setting with few reliable health structures in place, it can be a stark choice between life and death.

Almost all births occurred in the villages with the more difficult births brought to the hospital. These resilient people rarely seek medical assistance unless they are extremely ill. Treatment with indigenous medication was their first recourse and if that failed, they would present for western medical care.

The author spent much of 2004 and 2005 working as a midwife with Médecins Sans Frontières (MSF) in the far west of the country which is under the control of the breakaway rebel group, the Forces Nouvelles. MSF provided primary health care at a rural hospital in Danané and from daily mobile clinics. Most of the population lives in small villages scattered throughout the bush. The mobile clinics went out every day to these isolated sites to give care to those who made their way to the clinic. During the wet season tracks are often difficult to negotiate when parts of the road or makeshift bridges are washed away. Most people walk, use a pushbike, take a bush taxi if they can afford it or hitch a ride on a passing truck. It was not unusual to see very ill people being wheeled into the clinics in a wheelbarrow or being carried on someone’s back.

Falciparum malaria is endemic in this area and was a big killer of children and often resulted in premature births in infected pregnant women. Almost half of the pregnant women seen in the clinics tested positive for malaria and many others suffered concurrent opportunistic infections including STDs (sexually transmitted diseases) and were often chronically anaemic. Malaria was detected using a simple blood test, but most other infections were diagnosed symptomatically and treated with relevant antibiotics.

Many primigravidas were in their early teens and it was not unusual for a 30 year old to be carrying her tenth pregnancy. We had access to corticosteroids for pregnant women who arrived with ruptured membranes if they were less than 34 weeks gestation or in threatened premature labour. Whenever this was given, invariably the baby survived if labour could not be stopped using salbutamol. It is difficult to know the numbers of births in the countryside as not all are registered. However of the 160 or more births per month at the hospital – caesarian rate of 15 - 17% – at least six or more per month who survived their birth were significantly premature – weighing less than 1500 grams, with a number around 1000 grams or less. This number is only those women and babies who presented

to the hospital for care. It is unknown how many premature babies or other pregnancies were dealt with in the villages, nor the outcomes but if we look at the national mortality rates, it is reasonable to assume there are many deaths of both mothers and babies which are never recorded. Multiple pregnancies are very common and in the time the author worked there, three sets of triplets and a set of quadruplets were born at the hospital, all of whom survived their birth, and a number who went home alive.

The survivors of premature births became known as “Les Petites Princesses” as almost without exception they were girls. (See Case study 1. Initiating feeding regime for premature baby).

Case study 1. Initiating feeding regime for premature baby

A tiny bundle arrived swathed in a colourful cloth wrap one morning. The baby girl inside weighed 800 grams and was so cold her temperature did not register. But she was pink, active and had a little rib retraction. We warmed her by wrapping her in a foil blanket and surrounding her with gloves filled with warm water. We inserted an IV (intravenous line) and her 15 year old mother was encouraged to express breast milk every few hours. We fed it via the baby's naso-gastric tube every two hours, starting off with 1 or 2 mls and increasing it as supply and her tolerance increased. Oxygen and intravenous antibiotics were started as her lungs were crackly and infection was a strong possibility. She was the first of our "Petites Princesses" and was crowned "Queen of the Maternity" when she reached 1000 grams. She went home weighing 1500 grams, tied securely onto her mother's back, cuddled safely into the base of her spine and a perky cap on her tight black curls. (One of the most precious gifts received by the author is a t-shirt with "Mere des Princesses" printed across the front.)

Most premature babies who survived their birth were around 29 to 33 weeks gestation based upon clinical assessment. When I arrived in Danané there was little effort to resuscitate them as the general expectation was that they would die. However as we adopted a more proactive approach, the survival rate increased. As staff became more empowered their efforts increased accordingly, sometimes to heroic proportions. With robust resuscitation, prompt provision of oxygen and efforts to maintain body temperature these babies began to survive.

Kangaroo care

Thermoregulation was a major challenge. Côte d'Ivoire is a tropical country and swaddling newborn babies is not a routine practice. It is normal for babies to be only loosely wrapped at birth, allowing significant cooling. For the robust term baby it was never a great problem, but for premature babies, it was critical. Each premature baby was wrapped from birth in a gold foil "space" blanket, readily available from MSF – it is similar to aluminium foil and after wrapping, these babies looked like a small, shiny Christmas present. Even so, it was difficult to maintain their temperature until we initiated kangaroo care.

At first the staff, mother and attendant family were extremely skeptical about this and needed much reassurance that it would do no harm. When it was demonstrated how dramatically baby's temperature could be raised with skin to skin care (1°C in 1 hour) staff became enthusiastic. (See Case study 2. Thermoregulation of newborn.) Women reluctant to adopt kangaroo care would often remove their baby after 30 - 60 minutes and leave it wrapped on the bed beside them. Eventually they were persuaded to do K. Care in 2 - 3 daily "treatments."

Case study 2. Thermoregulation of newborn

One of the nursing aides, Diakite, is concerned about a premature baby who has been admitted after a village birth. The little boy's temperature is unrecordable and he weighs less than 1000 grams. With great deliberation, Diakite removes his shirt, lays the tiny boy spread-eagled across his chest, and then covers him with a bright towel. They both lie back on the sheetless, vinyl covered ward bed, Diakite grinning broadly and within 15 minutes the grunting respirations of the baby have receded and he lies sleeping peacefully as his body warms. We insert a naso-gastric (NG) tube and oxygen flows from the air concentrator into his large face mask. The first precious mls of colostrum are expressed from the unconscious eclamptic mother and are fed down his NG tube. With magnesium sulphate treatment, the mother regained consciousness next day, was able to resume care of her baby and both eventually went home after some weeks.

Sometimes surgical gloves filled with warm water were placed around the baby. In a busy ward of twelve mothers and babies and only one nursing aide to give all their care, this was very time consuming and not workable.

Finally large hard plastic water filled bricks normally frozen and used for the maintenance of the cold chain were used. Instead of freezing,

I immersed them in very hot water until warm, then laid cotton wool over them, placed the baby on top of that and all were wrapped together. It worked very well and keeping premature and sick babies warm when kangaroo care was not possible became a far less difficult task. Flies were a constant hazard so babies' faces were protected by draping a piece of dressing gauze across them or often the whole baby was cocooned in a bright cotton wrap so that finding them was like carefully unwrapping a precious parcel. There is a fly called the Tumbu fly which lays its eggs on exposed skin and a daily inspection was necessary to ensure they were not playing host to larvae.

Stabilising and feeding premature babies

This was the next challenge. The objective was to avoid/treat initial hypoglycaemia, maintain hydration, minimize weight loss and ensure weight gain. After birth most babies were cannulated as soon as possible (see Case study 3. Initial stabilization) as the possibility of infection requiring antibiotics was high. Also many were too small to take oral feeds and we had to keep them hydrated parenterally.

Case study 3. Initial stabilization

A premature baby needs an IV. I don't have the skills and nor do any of the staff on today. We don't have any intra-osseous needles. I radio for Jayeo, a very large, highly experienced young ex-Benin Army nurse. He arrives, prepares everything and ties the rim of a glove around the minute arm as a tourniquet. His big hands expertly search for a tiny vein to cannulate in an arm the diameter of a biro barrel. He is an expert and invariably finds a vein. Slowly he inserts the cannula, easing it gently along the hair-thin vein and checking it is patent by tenderly flushing with normal saline. After each success he exclaims triumphantly "Aha c'est ca Edda!" claps his hands and then fashions a tiny arm board out of half a wooden tongue depressor covered in cotton wool. Minutes later, all is done, arm is stable and we can start fluids.

Breast expression was started immediately when baby was too small to suckle and expressed breast milk given two hourly via the naso-gastric (NG) tube. Expressing breast milk is not a normal activity for these mothers and like many women in the industrialized world many found it confusing and difficult to master initially. However with encouragement small amounts were extracted and stored beside the mother's bed. There was no refrigeration available but as the colostrum was used within a short time this was not an issue.

I often considered milk banking, but there were no refrigeration or sterilization facilities so it remained only a dream. If there was insufficient expressed breast milk, 10% dextrose was given orally until the milk came in. Premature infant formula was unavailable and in fact infant formula was never used as we wanted the baby to be fed human milk exclusively to safeguard its health. If we had used infant formula, it may have given a message that formula is safe, that there is no need to try hard with breastfeeding as a large international non-government organization (INGO) will supply formula and that this was acceptable and even preferable to mother's milk.

Intravenous antibiotics were commenced if there were any signs of infection (usually respiratory) and IV dextrose 10% if baby was unable to tolerate oral feeding. This was combined with Ringers Solution to achieve some electrolyte balance. Staffing levels were minimal and skill levels not as high as trained nursing staff, so much supervision was needed in the early days to avoid the potential danger of regurgitation and inhalation of gastric contents when feeding very low birth weight babies early with breast milk.

Alternatively, breast milk was a more balanced nutrition and I tried to initiate it as soon as was practicable. Infant multivitamin drops although scarce, were used when available and appeared to improve the infant's condition markedly. Staff instructions were simple - "Keep the baby warm, pink and sweet, that's all you have to do."

Maintaining oxygenation

For premature babies requiring extra oxygen there was an air concentrator and some bottled oxygen available. The concentrator extracts oxygen from the ambient air and delivers it via a mask, giving a limitless supply. It is a machine often used in resource poor settings. It depends upon electricity to function, and if there was an electrical blackout – not uncommon – oxygen was then given from the precious cylinders. Even the smallest infant oxygen masks were too big, covering the entire little face from forehead to chin, so a piece of gauze was packed around the edges to stop the oxygen escaping. No oxygen head box or nasal prongs were available.

Feeding methods

If they survived the first 4 to 5 days, most premature babies were able to breastfeed very early. My midwifery training had always emphasised this was not possible but the reality is very different. Many were partially breastfeeding at 1100 to 1200 grams and certainly by 1400 to 1500 grams were fully breastfed. We enabled maximum milk transfer at the breast very early by teaching mothers breast compression during a breast feed. As the mother squeezed and held her breast, she pushed a bolus of milk down to the nipple, where it dripped into the baby's mouth and encouraged another surge of suck/swallowing activity. This simple form of assisted breastfeeding was enthusiastically adopted once the mother saw how easy and effective it was.

Expressed breast milk was given either by cup or finger feeding. There were very few receptacles small enough to use as a cup so usually we finger fed. This involved the mother putting her clean little finger into the baby's mouth, pad uppermost touching the palate to stimulate a sucking reflex, waiting for the baby to start sucking and then staff slowly giving milk via a syringe nozzle inserted beside the finger. Finger feeding is a highly effective, simple and mother-inclusive way to feed. All mothers and staff who learned this method were fascinated to watch how well it worked and how effective it was. There was not a bottle or teat in the hospital as we did not want to model a western form of infant feeding in an environment where it is virtually impossible to do safely.

The average hospital stay for premature babies was around three weeks and most went home weighing around 1700 - 1800 grams. Many of the mothers of these premature babies had other small children back in their village and the longer they were absent, the more potentially precarious their other children's survival became. It was a juggling act for these women, trying to balance the needs of this tiny one against the needs of their other offspring. Other family members assumed responsibility for the children's welfare in the mother's absence, but it put an added strain upon the often meagre resources available to these families.

The local method for increasing milk supply is to massage the breasts with a sugar mixture which leaves a shiny sticky film on the skin. It was a very common remedy although I am unsure of the basis for its use. I could never really see any increase in lactogenesis from this method but it was used frequently. Access to galactogues such as metoclopramide was possible from the hospital pharmacy. This was given as a 10 mg tablet 3 times a day for 7 days then slowly reduced as milk supply increased. There was no domperidone in the pharmacy and using metoclopramide was a previously unheard of way to stimulate milk production there. It was usually successful if the mother was basically well, but those who were already in poor health understandably did not increase milk production particularly well.

Two meals a day were provided at the hospital for all patients, though often not eaten as it was food donated from World Food Program and was not their usual fare, so was not always popular. Every effort was made to enable the mother to rest as much as possible. There was infant formula in the hospital pharmacy but very rarely prescribed. We even had some “follow-on” formula which had arrived from somewhere and which was never used, so to prevent it being wasted by going out of date, I sent it off to the kitchen to be included in the general cooking. The cost of a can of formula in the town pharmacy was more than a day’s wages. In this setting infant formula is a death sentence and if our efforts to increase supply were not successful, a message would be sent to the family to find someone else to donate breastmilk or arrange a wet nurse. Sometimes this was easy, at other times, very difficult. This was due at times to reluctance to suckle a baby which was not “family” or because the breastfeeding mother was afraid that she could not supply enough for two, or that her own baby would be disadvantaged or that she may fall ill herself or that the family could not afford the cost of hiring a wet-nurse. When one was found, there was always the chance they may suddenly leave the village to travel elsewhere and the baby again had no-one to feed it. A number of grandmothers I met were breastfeeding their orphaned grandchild. (See Case study 4: Feeding multiples.)

Case study 4: Feeding multiples

A young mother arrived one day accompanied by a female relative. Each carried two babies – one each tied on their backs and another balanced on their hips. Three babies were 3 months old and the largest was 5 months old. This courageous young woman had adopted her sister’s triplets after their mother had died. I never could find out why she died as no-one seemed to know, but orphans were quite common. All these babies were thriving at this stage but she was having difficulty supplying sufficient breast milk for all of them. We initiated a system where she came every month and we weighed her babies and gave her enough infant formula to supplement the children. At the time I left the project, all babies were alive and well.

Conclusion

The survival of many of these very small babies is a tribute to the dedication of the national staff – particularly in a setting where there is virtually no technology and survival depends on close monitoring, commitment and innovative thinking. All staff are “untrained” but are intelligent, caring, responsible and highly skilled at their work. There are many “princesses” alive today who would not be here without the care of these wonderful men and women. In conclusion, the care of these babies and their mothers was challenging but also exhilarating whenever there was a successful outcome. I learned much about premature baby care in this environment and it is always amazing to see how resilient very premature babies can be when faced with what may at first appear to be insurmountable obstacles.

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Clinical Lactation Practice: 20 Years of Evidence

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Lactation consultants depend on a vast multidisciplinary knowledge base to support their practices. To coincide with the 20-year anniversary of the International Lactation Consultant Association, the authors sought to highlight the knowledge base to demonstrate how practice has been affected.

Using standard databases, they extracted English-language scientific literature related to breastfeeding and maternal and infant health outcomes; factors associated with breastfeeding initiation, exclusivity, and duration; lactation physiology; common breastfeeding challenges; breastfeeding practices within vulnerable populations; health professional support of breastfeeding; and breastfeeding practices in developing countries of Africa. Summaries of research are provided to demonstrate scientific method and knowledge evolution.

As the knowledge of the biological, behavioural, and environmental factors that affect breastfeeding continues to grow, researchers and lactation consultants will identify additional research areas. Thus, the cycle of describing and explaining phenomena, testing interventions to improve practice, and ultimately improving breastfeeding outcomes worldwide will continue.

The International Board Certified Lactation Consultant: Scope of Practice and Education Guidelines

Introduction

The purpose of this document is to inform consumers, health care professionals, employers, healthcare policy makers, third party payors, educators and students regarding the basic knowledge, skills, and competencies of an International Board Certified Lactation Consultant*. It also serves as the framework for evaluation and accreditation of International Board Certified Lactation Consultant education programs.

Role Definition

The International Board Certified Lactation Consultant is a health care professional whose scope of practice encompasses working collaboratively with primary care providers to assure appropriate clinical/practical management of breastfeeding and lactation in order to protect, promote and support breastfeeding. Such practice includes providing education, counseling and clinical/practical management to allow breastfeeding to be seen as the expected way in which healthy newborns are to be fed as well as to prevent and solve breastfeeding problems. Education efforts extend to the community as well as to breastfeeding families and health care colleagues.

***Note:** The International Lactation Consultant Association (ILCA) recognizes the International Board Certified Lactation Consultant (IBCLC) credential as the appropriate certification for lactation consultants.

The role of the International Board Certified Lactation Consultant is dynamic and changes as the theory and practice of breastfeeding support and lactation management evolve to incorporate research findings and to adapt to societal needs. Practice is based on the principles outlined in this document, on the *Standards of Practice for IBCLC Lactation Consultants* and on the *International Board Certified Lactation Consultant Examiners (IBLCE) Code of Ethics*.

Certification

Lactation consultants who are certified by the IBLCE have the professional responsibility to maintain the IBLCE credential. Certification is evidence that the individual has achieved and maintains the knowledge, skills and wisdom required for the provision of competent breastfeeding care and services. International Board Certified Lactation Consultants are accountable for the outcomes of their practice and are responsible for complying with the laws within their practice jurisdictions.

Framework for Education and Practice

The theoretical framework for International Board Certified Lactation Consultant education derives from the health, biological and social sciences. Clinical/practical preparation involves acquiring the knowledge, judgment, and skills necessary to provide optimal, safe care for the breastfeeding mother and child. Acceptable clinical/practical practice and educational curricula are based on a foundation of fundamental principles, professional responsibilities, core knowledge, and competencies.

Fundamental Principles

- Breastfeeding is a normal physiologic and developmental process for the majority of mothers and infants.
- Breastfeeding promotes optimal child health as well as optimal maternal health and is a vital component of public health policy.
- Every child has the right to receive human milk, and every woman has the right to breastfeed her child unless there is a medical contraindication.
- Every woman has the right to receive accurate, evidence-based information, support, and clinical/practical management for herself and her child.

- Mothers and infants have the right to receive, when needed, skilled assistance and clinical/practical management to breastfeed effectively.

Professional Responsibilities

- International Board Certified Lactation Consultants have a professional responsibility to:
- Recognize that breastfeeding provides a foundation for optimal health outcomes and nurturing behaviors.
- Strive to support women to make informed decisions and take responsibility for their own well-being and that of their children.
- Work in respectful partnership with women and their chosen support systems.
- Advocate for the health and well-being of children by providing information about infant needs to guide mothers in informed decision-making about infant and child feeding.
- Integrate observation, knowledge, and intuition in assessing mothers and children and in developing breastfeeding management strategies.
- Demonstrate clinical/practical competency, professional accountability, and legal responsibility.
- Facilitate the collaborative care of the mother and infant.
- Critically evaluate and incorporate research findings to provide and maintain evidenced-based practice.
- Participate in self-evaluation, peer review, continuing education, and other activities to ensure quality practice.
- Engage in professional conduct and practice in an ethical manner.
- Promote and protect breastfeeding through community outreach.
- Stay informed about the national and international issues and trends in maternal/ newborn care and women's health.

Core Knowledge Outline (Subject areas from the IBLCE Examination Blueprint)

A. Anatomy

Mother – General, Breast and nipple (specific to lactation)

Infant – General, Head, Oral, Neck and shoulders, Gastrointestinal

B. Physiology and Endocrinology

Mother – General, maternal hormones, Milk synthesis and production, Fertility/family planning, Induced lactation and re-lactation

Infant - General infant hormones, Neuro-endocrine-gut reactions, Sucking, swallowing and breathing, Digestion, Elimination

C. Nutrition and Biochemistry

Mother - Principles of nutrition for women of childbearing age, Weight loss and gain, Cultural diet issues/ritual foods during post-partum period, Milk composition Effect of maternal diet on milk composition

Infant - Guidelines for infant feeding, Comparison between human milk and artificial feeding products, Complementary and supplementary foods, Food sensitivities, Weaning/introduction of solids

D. Immunology and Infectious Disease

Protective properties of human milk, Immune system factors, Cells, antibodies and other immunoglobulins in human milk, Non-antibody factors — lactoferrin, bifidus factor, enzymes, hormones, growth factors, oligosaccharides, etc., Decreased risk of infections and some chronic illnesses, Etiology, Manifestations, Prevention, Management, Decreased risk of allergies, Etiology Manifestations, Prevention, Management

E. Pathology

Maternal - Labor and birth complications, Breast problems, Engorgement, Sore nipples, Yeast infections, Mastitis/abscesses, Plugged ducts, Insufficient glandular development, Breast surgery Breast implants, Breast cancer, Acute illnesses, Chronic illnesses, Physical disabilities

Infant - Birth trauma, Inability to coordinate breathing/sucking/swallowing, Respiratory distress, Sucking problems, Swallowing difficulty, Preterm birth, Hyperbilirubinemia, Slow weight gain, Failure to thrive, Congenital anomalies/birth defects, Acute illnesses, Chronic illnesses, Oral pathology, Neurological impairment

F. Pharmacology and Toxicology

Pharmacology

Role of lactation consultant:

Resources, Pharmacokinetics, Effects of drugs and substances commonly used during lactation,, Over-the-counter medications, Alcohol, Tobacco, Management of lactation during drug therapy, Contraindications for breastfeeding, Pharmacologic family planning, Galactagogues/milk suppressants, Recreational/street drugs, Complementary therapies, Herbs, Homeopathic remedies, Acupuncture

Other: toxicology, Environmental pollutants

G. Psychology, Sociology, and Anthropology

Adult learning, Counseling skills:

Mother issues: Incorporating breastfeeding into ones lifestyle, Breastfeeding outside the home, Maternal empowerment, Employment, Post partum depression/psychosis, Domestic violence/sexual abuse

Parenting role: Mother-infant relationship, Father-infant relationship, Sibling-infant relationships

Other family roles: Single parenting, Adolescent parenting, Alternative family styles, Cultural beliefs and practices, Support systems

H. Growth Parameters and Developmental Milestones

Social, adaptive, psychosocial and physical assessment of the child, Prenatal growth, Feeding cues, Infant needs and temperament, Feeding patterns and normal growth curves throughout breastfeeding, Developmental milestones of the early years, Small and large motor development, Cognitive development, Markers of developmental delays, Developmental issues throughout breastfeeding, Feeding and sleeping patterns, Breastfeeding toddler, Tandem breastfeeding, Weaning

I. Interpretation of Research

Critical reading and interpretation, Study design, Human rights issues, Results, Application to lactation consultant practice, Lactation measurement tools, Research terminology, Basic statistics, Data collection for research purposes

J. Ethical and Legal Issues

Medical-legal responsibilities:

Standards of Practice for IBCLC Lactation Consultants and other pertinent documents, *IBLCE Code of Ethics* and other pertinent documents, *Evidence-based Guidelines for Breastfeeding Management During the First Fourteen Days*

Confidentiality:

Informed consent, Referrals, Charting and report writing, Ethical practice, Remaining current

Interdisciplinary relationships:

Neglect, maternal/infant abuse cases, Expert witness role, Rental and sale of equipment, Evaluating practice

K. Breastfeeding Equipment and Technology

Identification of breastfeeding devices and equipment, Appropriate use of breastfeeding equipment, Alternatives to high technology solutions, Milk collection, storage and use, Donor milk banking

L. Techniques

Breastfeeding techniques, Positioning, Latching on, Feeding management skills, Evaluating effectiveness of milk transfer, Typical feeding patterns, Multiple birth infants, Manual expression

M. Public Health

Community education: Health promotion activities, Work place issues, IBCLC lactation consultant as change agent, Creating and implementing protocols, *International Code of Marketing of Breast-milk Substitutes* and other resolutions, The Innocenti Declaration, The Baby Friendly Hospital Initiative, Affecting public policy, Nutrition programs providing for vulnerable populations, International Labor Organization (ILO) recommendations

International Board Certified Lactation Consultant Competencies

The International Board Certified Lactation Consultant demonstrates multiple competencies. It is essential that the International Board Certified Lactation Consultant:

- think critically and reflectively in order to affect the clinical/practical management of the mother-baby dyad
- sustain an evidence-based practice.
- collaborate effectively with the client and in multidisciplinary health care teams.
- continually update knowledge and skills.
- maintain awareness of the need to promote breastfeeding.

Practice Guidelines

Client Care Competencies

In order to provide appropriate care, a systematic process of assessment, management, and evaluation is used by the lactation consultant to:

- Obtain an appropriate breastfeeding history for the mother and child.
- Perform a comprehensive breastfeeding assessment of mother-infant dyad.
- Evaluate all assessment data to develop a plan of care that is both appropriate for specific problems and acceptable to the client.

- Function as a member of the interdisciplinary health care team by collaborative systematic problem solving.
- Effectively coordinate breastfeeding care by providing written reports of consultations and making appropriate referrals to other healthcare providers and community service/support resources.
- Identify the need for and provide client teaching and anticipatory guidance appropriate to the client's age, developmental status, (dis)ability, culture, religion, ethnicity and support system.
- Evaluate results of management using accepted outcome criteria; revise the plan accordingly and consult and/or refer when needed.
- Maintain comprehensive client records.
- Provide safe care and understand the principles of universal precautions.

Lactation Consultant-Client Relationship Competencies

In order to establish a collaborative and supportive relationship with the client, the International Board Certified Lactation Consultant:

- Promotes client autonomy, dignity, and self-determination by providing care that is non-judgmental and sensitive to client needs.
- Establishes a partnership with the client to provide individualized optimal care consistent with the client's health belief system, and facilitates informed decision-making and self-care.
- Acknowledges personal values and cultural differences and recognizes their impact on the provider/client relationship.
- Uses effective communication and counseling skills.
- Provides a physically safe and confidential environment for care.
- Offers comfort and emotional support to clients and their families.
- Functions as an advocate for the mother and child within the family.
- Advocates for the mother and child within the healthcare system.

Health Education and Counselling Competencies

In order to plan, develop, coordinate, and provide appropriate breastfeeding education and counseling in response to the needs of clients, including breastfeeding families, healthcare professionals, and the community, the International Board Certified Lactation Consultant:

- Provides information that meets client needs, promotes informed choice, and is appropriate to culture, language, and literacy.
- Uses adult learning principles when providing educational experiences for clients.
- Shares current evidence-based information.
- Evaluates teaching strategies and effectiveness.
- Demonstrates techniques and appropriate use of equipment according to the needs of the client.
- Works collaboratively with others providing support and assistance ie paraprofessionals, volunteers with community breastfeeding support groups, peer counselors, etc

Professional Role Competencies

In order to contribute to the practice of lactation consulting and the advancement of the profession, the International Board Certified Lactation Consultant:

- Maintains IBLCE certification.
- Adheres to these Guidelines, the *ILCA Standards of Practice for IBCLC Lactation Consultants*, and the *IBLCE Code of Ethics*.
- Practices within the scope of the *International Code of Marketing of Breast-milk Substitutes* and subsequent relevant resolutions.
- Works within the policies and procedures of the institution where employed, or if self-employed, has identifiable policies and procedures, including informing clients about fees, obtaining informed consent, protecting confidentiality, and maintaining appropriate client records.
- Uses breastfeeding equipment in an appropriate manner, including discussing benefits and risks, assuring cleanliness and maintaining an awareness of conflict of interest when/if profiting from the rental or sale of breastfeeding equipment.
- Maintains and expands knowledge and skills for lactation consultant practice by participating in continuing education programs and professional development activities in addition to reading current literature.
- Evaluates own practice periodically and systematically in order to strive for improvement of care.
- Supports and promotes well-designed research in human lactation and breastfeeding and bases clinical/practical practice on such research whenever possible.
- Serves as a role model, preceptor, and mentor to other lactation consultants and students.
- Seeks information about ethical, legal, and political issues regarding client advocacy and health care.
- Participates in legislative and institutional policy-making activities related to breastfeeding.
- Acts as an advocate for breastfeeding women, infants, and children in the community (including the media), the workplace, and within the health care system.
- Interprets and promotes the role of the International Board Certified Lactation Consultant to consumers, other health care professionals, and the community.
- Develops, uses, and maintains collaborative relationships with health care professionals to strengthen the role of the International Board Certified Lactation Consultant.
- Maintains membership and participates in JLCA and local affiliate, if available. Education Guidelines

Philosophy and Objectives

An International Board Certified Lactation Consultant education program is based upon a clearly articulated philosophy of what constitutes quality care for the breastfeeding mother-child dyad and the role of the lactation consultant in the provision of that care.

An International Board Certified Lactation Consultant education program emphasizes individualized family care, client autonomy with informed decision-making, and optimal health care through a collaborative, supportive relationship with clients and primary care providers. In order to provide care, support and services for breastfeeding families, practitioners must be able to clearly define both the necessary services and the role of the International Board Certified Lactation Consultant as the service provider.

The first objective of an International Board Certified Lactation Consultant education program is to prepare an individual for entry-level practice with emphasis on clinical/ practical support and the management of normal breastfeeding and lactation. A secondary objective may be to provide continuing education opportunities for practicing International Board Certified Lactation Consultants.

Such education is based upon understanding the interrelationship of many academic subject areas including:

- Maternal and infant anatomy; physiology and endocrinology; nutrition and biochemistry; pathology; psychology, sociology, and anthropology; public health; normal growth and development; ethics and law; and evidence-based management principles.
- The body of scientific knowledge that forms the basis for the field of breastfeeding and human lactation results from a comprehension of the interrelationships between these subject areas and their impact on the care of a mother- infant dyad.
- ILCA believes that the profession of lactation consulting is responsible for setting and maintaining the standards for the educational preparation of International Board Certified Lactation Consultants.
- ILCA further believes that professional education is a lifelong endeavor.

The expanding body of knowledge of human lactation and breastfeeding coupled with corresponding changes in health care and society present a continuing challenge to International Board Certified Lactation Consultant educators and create a mandate for ongoing review of educational processes and outcomes.

Program Organization

Evaluation of any International Board Certified Lactation Consultant education programs is based on the following criteria:

The program has defined goals, measurable objectives, and adequate resources, in addition to appropriate curriculum, program design and faculty.

- A complete International Board Certified Lactation Consultant education program includes at least 190 didactic hours of lactation/breastfeeding content and at least 250 hours of supervised clinical/practical practice for the student who has extensive experience and 500 hours for those with less experience, as required by the International Board of Lactation Consultant Examiners. Those students who are health care professionals must complete at least 45 hours of didactic lactation education and at least 250 hours of supervised clinical/practical practice. Students may attend a course offering a complete program or compile the same hours by attending several courses or partial programs.
- The faculty of an International Board Certified Lactation Consultant program will offer expertise in breastfeeding and human lactation. It is also desirable that they be multidisciplinary and, where appropriate, culturally diverse. To serve as both mentors and role models, the majority of the faculty will possess current IBLCE credentials and maintain their competence through regular clinical/practical practice. The director of the program will be an International Board Certified Lactation Consultant prepared at the master level of formal education or higher in the USA or the equivalent in other countries.

- Clinical/practical preceptors are qualified by education and experience in the management of the breastfeeding mother and child. They are also competent in clinical/practical instruction. The use of IBCLC practitioners as preceptors is preferred, whenever possible. A faculty/student ratio of no greater than 1:10 for supervised clinical/practical practice or a preceptor/student ratio of no greater than 1:2 is recommended.
- The International Board Certified Lactation Consultant education program has clear admission criteria that may include specific content courses recommended by IBLCE for eligibility for certification. Qualified applicants are admitted without regard to gender, race, disability, marital status, ethnic origin, creed, age, or sexual orientation. Selection and admission criteria are established by the sponsoring institution and its Lactation consultant education faculty. Programs encourage enrollment and retention of students from culturally diverse populations.
- Adequate classroom and clinical/practical teaching facilities, administrative support, and teaching aids are designated for the program. Students have access to adequate library resources. Technology support is sufficient to maintain distance learning programs, where offered. Student records and program data are maintained in a manner that ensures confidentiality, retrievability and permanence. Transcripts are available upon student request.

Program Curriculum

Evaluation of an International Board Certified Lactation Consultant education program curriculum is based on the following criteria:

- Curriculum content prepares students to meet standards of practice and prepares students in total or in part to be eligible for international certification.
- Teaching strategies are based on currently accepted theories and principles of adult education.
- The curriculum content includes the fundamental principles, professional responsibilities, core knowledge, and competencies, as outlined in this document under *Framework for Education and Practice*, pages 2—10.

Program Evaluation

Assessment of International Board Certified Lactation Consultant education programs is based on the following criteria:

- The program employs a variety of evaluation strategies to measure student achievement of IBCLC lactation consultant competencies. These strategies may include written tests and reports; observation of the student in the classroom, laboratory, and clinical/practical settings; conferences with the faculty and/or clinical/practical mentors; peer review and self-assessments.
- Evaluation is ongoing, and students review their progress regularly with a faculty mentor.
- There are written policies regarding expected levels of achievement, probation, dismissal, and withdrawal. These policies include expectations for mentor/preceptorship and any time limits for completion of the program
- A formal student grievance procedure exists.

- There is a regular, formal evaluation of the total educational program. Evaluation is an integral part of the planning process and allows for timely revisions. Formative and summative evaluations are suggested and could include the following: program philosophy and goals, curriculum objectives and content, clinical/practical settings and experience, student-to-faculty ratios, faculty and clinical/practical mentor/ preceptor performance, and student outcomes.
- Surveys are conducted on both a short- and long-term basis to assess the impact of the program on career development and role satisfaction, as well as the impact of the graduates on the provision of breastfeeding/human lactation support and services. Sources of data and feedback to the program may include the following: students, preceptors, faculty, graduates, employers, funding sources, clients, and records of certification examination performance.
- Accreditation is a voluntary external review process. It recognizes lactation consultant education programs that have achieved a level of quality that deserves the confidence of the student consumer and the public. Accreditation often is used as a criterion in decision-making by funding organizations, state regulatory bodies, employers, third party payors, student loan/scholarship granting agencies and potential students.
- Because accreditation status is reviewed periodically, it encourages continuous self- study and improvement.

This document outlines the basic knowledge, skills, and competencies of a practitioner and provides the basis for evaluation and approval of International Board Certified Lactation Consultant education programs by an official accreditation body.

Acknowledgements

The Professional Education Council of the International Lactation Consultant Association acknowledges the assistance of the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) and the National Association of Nurse Practitioners in Reproductive Health (NANPRH). Their jointly prepared document, *The Women's Health Nurse Practitioner: Guidelines for Practice and Education* served as a general model of clear, unified guidelines for practice and education. The Professional Education Council also thanks the North Carolina Nurses Association for their helpful discussion of multiple competencies in their North Carolina Nurses Association Position Paper, *Registered Nurse Education in the 21st Century*.

Nature's own is optimal formula for your bub (*Newcastle Herald*, 14 Feb 2007)

ON December 6 last year the Federal Government announced a new parliamentary inquiry to "examine how the Australian Government can take a lead role to improve the health of the population through support for breastfeeding".

My 20 years of supporting mothers and babies -10 years voluntary and 10 professional - have given me time to think about the issues that impact on our rates of breastfeeding. Since I qualified in 1993 as a lactation consultant, the profession has gradually become recognised as a valuable addition to our health system, but that "acceptance" still has many sacred cows blocking access to the big paddock.

Despite initiatives in recent years by both government and non-government organisations to improve breastfeeding rates, ours have remained more or less the same since 1995. Although we have one of the highest initiation rates (90 per cent) in the world, they fall dramatically to about 33 per cent at six months. As reported recently in *The Herald*, our region has one of the lowest initiation rates: 25 per cent of mothers not breastfeeding at all.

Whether or not you believe in the right to make that choice, from my experience it is not usually an informed one. Personally I think a lot of people are "over" hearing about the benefits of breastfeeding, especially those who believe there is nothing "wrong" with formula and have healthy children to validate that belief.

Being able to place value in such a belief depends largely on whether you give birth in a first-world country like Australia or a third-world country. We "know" that the water we use to mix with powdered milk is clean and easy to sterilise and we trust the "authorities" to prevent any potentially harmful ingredients being added.

The "conflicting advice" I have heard so many mothers complain about has arisen, in part, from the associated "language" of infant-feeding protocols once believed to be rational. The language makes its way into our culture and becomes the popular belief. With the advantage of hindsight, I have seen that it takes a couple of generations to recognise different values and adjust the beliefs to suit.

I say first things first. We are mammals. Along with the 4000 or so other species on the planet we are biologically pre-programmed to do best when born into a habitat that provides our immediate needs. In simple terms, the mother is the optimal habitat and breastmilk the optimal food. Unnecessary separation of the mother and baby during the first hours following birth is like shooting ourselves in the proverbial... before we even take our first steps.

The closing date for the Government's inquiry is February 28; anything from a hand-written letter to an elaborate document is acceptable. A society is the sum of its individuals: your opinion counts as much to the whole as anyone else's. Submissions close February 28:

www.apf.gov.au/house/committee/haa/breastfeeding/index