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BREAST CRAWL

INITIATION OF BREASTFEEDING BY BREAST CRAWL

breastcrawl.org

Compiled and Edited by

Prashant Gangal... MD, DCH
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(This document to be used as an insert with Breast Crawl Video)

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Initiation of Breastfeeding by Breast Crawl
(Insert with Breast Crawl Video)

First Edition

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The named authors alone are responsible for the views expressed in this publication.

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REVIEWS

As someone who has spent the last decade trying to help protect parents from the aggressive marketing of breastmilk substitutes, this timely initiative is a welcome reminder of the miracle of childbirth, and the natural process of nurturing that follows. As part of an integrated strategy to protect, promote and support breastfeeding, the Breast Crawl will clearly contribute to a substantial reduction in the 1.3 million annual child deaths that could be avoided through exclusive breastfeeding. And apart from that - the video is such a joy to watch!

David Clark
Legal Officer, Nutrition Section
UNICEF, New York

The magnificent power of the baby crawl is beautifully and systematically illustrated and explained in this presentation. It shows the power of nature fostering breastfeeding and adding to the medicinal, nutritional and bonding between mother and child in what can only be described as magical!

Anwar Fazal
Chairperson Emeritus
World Alliance for Breastfeeding Action (WABA)

This is a most timely and useful publication - combining an evidence-based review and a practical video of a topic of newly recognized importance - how a baby takes its first breastfeed. This was the subject of "World Breastfeeding Week" in the year 2007.

The material is a much needed tool for trainers in Infant and Young Child Feeding programmes. None of the existing infant feeding courses cover the topic with sufficient accuracy and detail. It is also a valuable advocacy tool and can be used to educate people from policy makers to communities about "breast crawl" so that mothers can be prepared for this wonderful experience ahead of time.

Felicity Savage
Honorary Senior Lecturer, Institute of Child Health, London
Director "Breastfeeding Practice and Policy" Course, ICH, London

ACKNOWLEDGEMENT

UNICEF Maharashtra office would like to specially acknowledge the contribution of Dr. Prashant Gangal, Dr. Sanjay Prabhu and the team of BPNI (Maharashtra) who made this path breaking video on nature's miraculous way of initiating breastfeeding by the "Breast Crawl". Special acknowledgement is also due to the mother and the child from Nandurbar who allowed us to document this miracle.

The Government of Maharashtra in collaboration with UNICEF and BPNI took up an ambitious plan for improving infant and young child feeding practices in the state as a critical strategy to prevent malnutrition in young children.

Nandurbar district in Maharashtra is one of the most backward tribal districts with high rates of malnutrition in young children due to poor feeding and caring practices. This district was selected as a pilot to test the Infant and Young Child Feeding (IYCF) training programme before scaling it up in the entire state.

This miracle of Breast Crawl was first filmed in a government hospital in Nandurbar as part of the IYCF counselling training. The response was excellent. It moved the mothers, caregivers, functionaries, community volunteers and policy makers which encouraged us to create a specific video on the "Breast Crawl" as the method to promote early initiation of breastfeeding.

I congratulate Dr. Prashant Gangal of BPNI who has made tireless efforts to bring this video along with the technical dossier to the world.

I also take this opportunity to acknowledge the contributions made by our partners - Mrs. Vandana Krishna, Secretary - Department of Women and Child, Mr. V. Ramani, Director General - the State Nutrition Mission, Mr. Ujjwal Uke, Commissioner - Integrated Child Development Schemes, Mrs. Anna Dani, Secretary - Public Health, Dr. Anblagan, CEO, ZP, Nandurbar, Dr. Nipun Vinayak, CEO, ZP, Jalna and the entire team of trainers, facilitators from Nandurbar. This video was filmed by Mr. Saptarshi Pratim who participated in the entire training programme to understand the context.

We specially thank Dr. Marshall Klaus and Ms. Phyllis Klaus, the pioneers of this technique of initiation of breastfeeding, for having patiently reviewed our effort and for writing a wonderful preface.

We would also thank all our pioneers in the field of infant and young child feeding, i.e. Dr. R. K. Anand, Dr. N. B. Kumta and Dr. G. S. Hathi and Dr. Felicity Savage of the Institute of Child Health, London.

We would like to thank Dr. Werner Schultink, Chief, Child Development and Nutrition, UNICEF, Mr. David Clark, Legal Officer, Nutrition Section, UNICEF and Dato Anwar Fazal, Chairperson Emeritus, World Alliance for Breastfeeding Action (WABA) for their technical contribution. I would like to acknowledge the contribution made by Ms. Rajlakshmi Nair, Child Development and Nutrition Officer, UNICEF – Maharashtra who has been instrumental in facilitating the entire process jointly with the key partners.

We appreciate all the contribution made by our reviewers, trainers, community volunteers, NGOs and key training institutes of the government.

Last, but not least, special thanks to Mr. Nand Wadhwani, who has been instrumental in technically supporting the reviewing and for developing a special website: breastcrawl.org for communicating this 'miracle' worldwide.

We hope that this video and the dossier would create a demand for endorsing 'Breast Crawl' as the method for initiating breastfeeding by the nature's way.

Gopinath Menon
State Representative, UNICEF (Maharashtra)

PREFACE

Ever since the exciting observations of the human infant's ability to crawl to his or her mother's breast shortly after birth, latch on, and suckle all on its own, mothers and fathers have been entranced by this amazing feat.

To think that for many decades both caregivers and parents believed that in order to breastfeed, a baby would not know what to do to feed and was usually pushed onto the breast. The baby would just look and lick and often balk at the intrusion. Actually at birth the infant may know more than the mother.

We are now aware that a number of other interventions also interfere with the infant's natural ability to explore, seek, and find the breast all on his or her own. Narcotic medication either injected or as agents used in epidurals given to the mother during labor can transfer via the placenta to the infant and cause difficulty for the infant to latch on; and also the mother's discomfort from an episiotomy can interfere. Over hydration from intravenous fluids may cause edema around the areola, and gastric suction by catheter causes distress to the infant. Interestingly suctioning is no longer recommended for 90% of babies who are breathing, have good color, and no meconium at birth, since it is so aversive to the baby's comfort with sucking, and often with touching the back of the throat causes a severe lowering of the heart rate. Even the bulb suction is unnecessary and the nose and mouth can just be wiped gently with a cloth.

What is especially important now is to provide the information to parents and birth attendants so they can create the quiet, calm unobtrusive environment to allow this event of the "breast crawl" to occur.

There is something special about the first hour of life. Parents have waited many months to see their baby and surprisingly when the baby is born, he or she is in a special state of alertness- called State Four, the quiet state of consciousness, ready to meet its parents, and is especially interested in the mother's and father's face.

In this special state, the baby's eyes are wide open, the baby is quiet. The baby has heard and remembers the mother's voice from uterine life and will distinguish her voice from other women's voices, and 80% of babies remember the father's voice. The baby is warmed by the mother's chest and soothed by the mother's touch. This quiet time together helps the transition from uterine life to the outside world.

This special state in the infant lasts for 30 to 45 minutes or longer. All sorts of exchanges between the mother and infant are going on. The baby is taking- in the mother through many senses as is the mother learning about her baby. The baby is becoming familiar with the mother's smell and within a few days will pick out his or her mother's breast pad from other women's breast pads. This is related to the particular smell of one's own mother not her milk.

As the baby gazes in the mother's face he is recording a memory of her face so that if he is tested with a picture of his mother's face and other women's faces four hours later, he will choose his mother's face over and over again.

The mother is taking in her baby also, by touch, smell, as well as sight. Curiously, if she is tested a few hours later to pick out her baby from two others, she will know her baby by touch and smell within one day.

In this early period of the first breastfeeding the baby and mother are giving each other numerous other benefits. Oxytocin is secreted by both the mother and baby. Oxytocin has many effects; it activates the production of prolactin for the milk letdown; it helps production of special GI hormones some of which are growth hormones and aid the absorption of food by elongating the intestinal villae. Oxytocin raises the pain threshold, creates calm in both the mother and baby, causes a feeling of sleepiness, and draws them closer together since it is the cuddle hormone, the hormone of love.

As the baby pushes up on her little elbows, sucks on her hand to get the taste of amniotic fluid, a property of which is similar to one secreted by the breast, she uses smell and taste as an additional guide to the nipple.

Other benefits of this early breastfeeding experience include helping the infant feel more secure, reducing infant mortality through the numerous immunological properties of human milk, and encouraging a longer period of breastfeeding.

Little behaviours that have been rehearsed in utero are used here. The baby has an ability to reach at birth, although reaching does not occur developmentally until four months, and curiously this reaching behaviour touches the mother's breast, and massages and elongates the nipple for a good placement. Each touch of the nipple creates a surge of oxytocin in both the mother's brain and baby's brain. The stepping movements the infant practiced as a foetus help the baby climb to the breast, and stepping on the abdomen over the uterus helps the uterus clamp down, decreasing the bleeding and expelling the placenta.

Many subtle events occur in this early period and can be observed, but more would be missed unless understood. In this special quiet time the mother and baby are becoming acquainted, the baby hardly cries at all, and they are laying the foundation of secure attachment on the baby's part and more confidence in the mother for her ability to nourish and nurture her baby in the growing bond between them.

Dr. Prashant Gangal and colleagues from BPNI Maharashtra with support from UNICEF and Government of Maharashtra have created a beautiful video and one of great importance to the health of India's children.

Phyllis Klaus,
MFT, LCSW

Marshall Klaus
MD

Marshall Klaus, MD is Professor Emeritus of Pediatrics, University of California, San Francisco. He is an internationally known neonatologist and researcher, and has focused his research on how mothers develop a bond to their normal, sick, malformed, or premature infants. In addition, his research has involved the remarkable effects of continuous emotional and social support for the mother by a skilled labor support woman (the doula) on decreasing the complications of labor, changing the psychology of the mother and improving her behaviour with her infant. His early research also demonstrated the importance of the infant's early contact with the mother after birth which encouraged or led to longer and more sustained breast feeding. This research helped create three of the major tenets of the UNICEF Baby Friendly Hospital Initiative. He is the author or co-author of numerous articles and books, including *Care of the High-Risk Neonate, The Doula Book, Bonding, Your Amazing Newborn*, and co–editor for 10 years of *The Neonatal/ Perinatal Yearbook*.

Phyllis Klaus, MFT, CSW, is a licensed psychotherapist, clinical social worker, and Approved Consultant and Trainer of EMDR.. She teaches and practices at the Milton H. Erickson Institute in Santa Rosa, California, and also practices in Berkeley, California, providing psychotherapy, hypnotherapy, counseling, and EMDR to individuals, couples, families, children, and groups. She has been working with the concerns of families in the perinatal period for the past 30 years, and has been involved in research and training of doulas and maternity caregivers since 1980. She consults and presents workshops nationally and internationally and is co author of several articles as well as the following books: *The Doula Book; Bonding; Your Amazing Newborn*; a video, *The Amazing Talents of the Newborn;* and *When Survivors Give Birth*: *Understanding and Healing the Effects of Child Sexual Abuse on Childbearing Women*.

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Every facility providing maternity services and care for newborn infant should:

1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within a half-hour of birth.
5. Show mothers how to breastfeed and how to maintain lactation, even if they should be separated from their infants.
6. Give newborn infants no food or drink other than breastmilk, unless medically indicated.
7. Practice rooming-in – allow mothers and infants to remain together – 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic

This is a mother and baby friendly document. Hence it starts with 'Ten Steps to Successful Breastfeeding' which also form the basis of 'Baby Friendly Hospital Initiative'. This document aims at strengthening 'Step 4' by focussing on nature's miraculous way of initiating breastfeeding by a phenomenon called 'Breast Crawl' i.e.

"*Every newborn, when placed on the mother's abdomen soon after birth, has the ability to find her mother's breast all on her own and to decide when to take the first breastfeed.*"

This method is evidence based and has been field tested by us. A documentary on the 'Breast Crawl' has been prepared for training, advocacy and for wider dissemination. The video has created a very high level of sensitivity among all the levels of functionaries and was officially endorsed by senior policy makers as the right approach for initiating breastfeeding. This dossier provides the background and a scientific overview to the documentary.

Initiation of breastfeeding by the Breast Crawl is a critical component of the IYCF (Infant and Young Child Feeding) initiative for the state of Maharashtra, India. IYCF deals with nutrition of children from birth to 3 years of age, and also takes into consideration the nutrition of pregnant and lactating mothers. Two critical components of IYCF are breastfeeding and complementary feeding. Improved IYCF practices promote optimal growth and development, prevent malnutrition and improve child survival. With 40% of the children in the state undernourished, this initiative becomes extremely critical.

UNICEF has facilitated partnerships with all stakeholders including the State Government, State Nutrition Mission, the Integrated Child Development Services (ICDS), Public Health Department, BPNI (Breastfeeding Promotion Network of India), NGOs, Community Based Organisations (CBOs) and several academic institutions, for this major initiative. These partnerships are aimed at creating a revolution in the state promoting IYCF practices.

Maharashtra is a state privileged to have IYCF specialists trained by experts such as Dr. Felicity Savage, Ms. Helen Armstrong, Dr. R. K. Anand, Dr. N. B. Kumta, Dr. G. S. Hathi and Dr. Armida Fernandez. The breastfeeding initiative in the state acquired momentum through the concerted efforts of these leaders. They have created a second line of advocates and trainers who are now aggressively promoting IYCF through Maharashtra State Branch of BPNI.

We are sure that this documentary and dossier will greatly help similar initiatives worldwide. It is our strong desire that this information helps every mother and baby to experience the miracle of Breast Crawl. If we all could achieve early initiation of breastfeeding, we will be able to prevent 22% of all deaths among babies below 1 month.

This can be achieved by training all health care providers to initiate breastfeeding, by Breast Crawl, to give infants the best start in life.

UNICEF, WHO and WABA along with the scientific community strongly recommend initiating breastfeeding within half an hour of birth. Evidence shows that early initiation can prevent 22% of all deaths among babies below one month, in developing countries. However, the scientific community has not widely recommended any specific method of initiation of breastfeeding. In the current scenario, the prevalent rate of under-nutrition in young children is a high 46 %, in India, according to 3rd National Family Health Survey (NFHS III). This coupled with high morbidity and mortality, led to a felt need, in Maharashtra (India), for the identification of an evidence–based, workable method which is easy, replicable and cost effective.

It is also known that even human babies can initiate breastfeeding on their own, like the young ones of the animals, provided they are kept in skin-to-skin contact between their mother's breasts. This is known as the 'Breast Crawl'. The Government of Maharashtra, Nutrition Mission, ICDS (Integrated Child Development Services) and BPNI (Breastfeeding Promotion Network of India) Maharashtra, jointly with UNICEF have initiated an ambitious programme to train government / NGO functionaries in the basics of IYCF (Infant and Young Child Feeding). The miracle has moved one and all, from grass-root health workers to the highest bureaucrats and they have accepted it as the answer for early initiation of breastfeeding.

Soon after delivery and after the baby has cried & started breathing well

- The baby should be thoroughly dried (except for the hands) with a soft cotton cloth.
- Hands must be properly washed with soap and water before touching the baby.
- Then the baby is to be shown to the mother and kept close to her and held briefly in cheek-to-cheek contact. This enables the mother to kiss the baby and also facilitates the custom of saying a holy message in the baby's ear.
- The baby is then placed prone in between the mother's breasts. The baby and the mother's chest are both naked, so that the baby has full skin-to-skin contact with the mother. The baby and the mother should be covered together with a cloth, so that they keep warm while continuing with skin to skin contact.
- Care should be taken to prevent the baby from falling.
- The baby is very alert and responsive soon after delivery and hence is at her best instinctive level.
- The baby is kept warm by being in skin-to-skin contact with the mother. Touch is also a strong stimulus for neurodevelopment.
- The baby's risk of infection is reduced because safe germs (bacteria) from the mother start to colonise her skin and intestines, and prevent harmful germs from growing.
- This position ensures early instinctive stimulation and gives warmth, love, security and food. It also initiates the bonding process between the baby and the mother.
- Whenever possible, raise mother's head on a pillow to facilitate mother-baby visual contact.
- Kicks from the baby will give tender firm jerks to the womb stimulating it to contract. This will help to expel the placenta and reduce bleeding.
- Once the baby realizes that food is in close proximity, she starts salivating.
- Breast odour is a strong stimulus which drives the baby toward the nipple. The baby's sense of smell is well developed. The odour of a substance secreted by the nipple is similar to the smell of a substance in the amniotic fluid which surrounds the baby in the womb.
- Nipple Massage by the baby makes it protract. This helps attachment. Nipple massage also releases a hormone called oxytocin in the mother. This helps to contract the uterus, reduce bleeding and prevent maternal anaemia.
- The baby starts to make mouthing movements. The baby's hands should have amniotic fluid on them, as it guides the baby to the nipple.
- The baby's shoulder, hip and neck muscles are sufficiently developed to help her move.
- Even with her limited vision, the baby can see the areola. If the baby raises her head, she can also see her mother's face.
- The baby then reaches the nipple, raises her head and gets nicely attached onto the nipple with her mouth wide open to take a mouthful of breast.

❖ This first skin-to-skin contact must continue until the baby finishes her first breastfeed.

What a beautiful moment of joy, for the mother and the child! This baby has reached its destination in just over 10 minutes. The majority of babies will successfully complete the Breast Crawl in about 30-60 minutes.

Like all other gifts of nature this gift comes free of cost. However, the health and nutrition benefits offered will save millions of lives and will save billions in terms of health cost. They will create a generation which will reach the highest human potential of growth and development.

We request you to carry this message to all future mothers and their families to prepare them to experience this miracle. Train every health worker in the maternity service to help every baby and mother to initiate breastfeeding, the nature's way.

2.1 We have neither heard of nor seen this happen before. How did you discover the 'Breast Crawl'?

We have been aware of scientific articles describing this phenomenon for many years. About two years ago (2005), we read about the 'Breast Crawl' in a textbook of neonatology 'Care of the High-Risk Neonate' by Dr. Marshall Klaus and Dr. Avroy Fanaroff. It was the first time that we found 'a textbook' recommending 'Breast Crawl' as a method to initiate breastfeeding. The vivid description and good scientific explanation influenced us greatly. The Breast Crawl was originally described in 1987 by Dr. Ann-Marie Widström, Dr. Anna-Berit Ransjo-Arvidson, Dr. Kyllike Christensson, Ms. Ann-Sofi Matthiesen, Dr. Jan Winberg and Dr. Kerstin Uvnäs-Moberg from Karolinska Institute (Sweden).

The recommendation was discussed with Obstetricians Rachna and Kartik Bhagat, who readily agreed to try it out at their maternity service 'Grace Maternity & Nursing Home' at Kandivali (Mumbai). The Breast Crawl was seen exactly as described in the textbook. It was a thrilling experience not only for the parents but for the entire staff, who felt that they had witnessed a miracle. The Breast Crawl generated such excitement and motivation that the method continued to be used routinely. This was in sharp contrast to the great efforts that were required to introduce any new routines in the past. The Breast Crawl seemed to be the best and easiest method to implement the recommendation to 'Initiate breastfeeding within half an hour of birth' (4th Step). We were convinced that the Breast Crawl had tremendous potential to change initiation practices.

Subsequently, BPNI Maharashtra adopted the Breast Crawl as a recommended method for the initiation of breastfeeding. The demonstration of the Breast Crawl became a part of our 3 day IYCF Workshops. A video recording done during a workshop at Nandurbar (Maharashtra) in December 2005 was subsequently used for a one day-sensitization programme of grass-root health workers, advocacy to senior government officers and pre-delivery counselling sessions for pregnant mothers. The response everywhere was overwhelming.

This motivated us to convert the video clip into a documentary. We felt that the Breast Crawl deserved world wide dissemination for improving initiation rates, breastfeeding success and ultimately reducing neonatal, infant and under-five morbidity and mortality.

2.2 If the Breast Crawl is evidence based, why is it not being practised?

Many health personnel in maternity services are probably not aware of implementing the recommendation to 'Initiate breastfeeding within half an hour of birth'. Routines and procedures established on the grounds of efficiency or for supposed scientific reasons may also interfere. As a result, the initiation of breastfeeding is often delayed. In these circumstances, awareness and practice of the Breast Crawl is next to impossible.

Even in those places where health professionals are well informed and keen to initiate breastfeeding within half an hour of birth, awareness of the Breast Crawl is lacking. Few textbooks, other than the book by Dr. Klaus, mention this phenomenon or vividly describe the techniques of initiation. The Breast Crawl is not a part of standard medical or health curriculum.

WHO and UNICEF BFHI documents that recommend initiating breastfeeding within half an hour of birth subtly

describe the process of the 'Breast Crawl'. However, a precise method needs to be described with clarity. The Breast Crawl will bridge this gap and strengthen the recommendation.

Even in accredited 'Baby Friendly' maternity services; the 4th Step is not often being practised in its true spirit. It is thought to be met as long as the baby is put to the breast within half an hour of birth, irrespective of the duration and the extent of skin-to-skin contact and the duration of the first breastfeed. Liberty is also taken by maternity services to extend the 'half an hour' limit to 'half to one hour' or 'one hour' (supported by literature at places).

However, a few places do initiate breastfeeding by the 'Breast Crawl' or by a similar process which amounts to the 'Breast Crawl', without giving it this label.

2.3 In many places, if initiation is not being practised by the Breast Crawl or a similar process, how is it practised?

To understand this, we need to know various routines which may be practised before or soon after delivery (birthing practices). Some routines are necessary, some must be delayed and some are not recommended anymore.

For Mother:

- Drugs for pain relief
- Episiotomy: a small incision to widen the vaginal outlet which needs to be sutured immediately after birth.
- Moving mother out of the labour room

For Baby:

- Oropharyngeal suction
- Drying the baby thoroughly
- Clamping the cord
- Weighing
- Passing the orogastric tube to empty the stomach contents
- Injection of vitamin K
- Baby bath
- Wrapping the baby (dressing)

Most of these labour room routines hamper the first natural contact between the baby and the mother. Section 2.5 discusses the guidelines.

Most of the time, the baby is given to the mother in the labour room itself or in the ward, already wrapped up, for her to feed in the sitting or sleeping position (turned on one side).

Naked skin-to-skin contact between the baby and the mother may be partial or absent. The period of skin-to-skin contact and suckling (first breastfeed) is also extremely variable.

2.4 What advantages does early initiation offer? How is the 'Breast Crawl' superior to other patterns of initiation in terms of getting these advantages?

Early initiation offers several advantages to the baby and the mother.

- Helps to keep the baby warm
- Leads to faster and effective achievement of feeding skills by the baby
- The baby starts getting colostrum as the first feed. Colostrum has high concentration of antibodies (immunity). Baby starts getting colonized by safe germs (bacterial flora) from the mother. Both these offer protection against infections and hence are important for the baby's survival.
- Helps uterine contraction, faster expulsion of the placenta, reduces maternal blood loss and prevents

anaemia.
- ❖ Leads to better sugar levels and other biochemical parameters in the first few hours of birth.
- ❖ Earlier passage of meconium (first blackish-green stool) and hence decreased intensity of normal (physiological) newborn jaundice.
- ❖ Early and long term breastfeeding success.
- ❖ Better mother-infant bonding.
- ❖ May have a role in boosting development of baby's nervous system.

There is evidence that many of these are better achieved with the Breast Crawl, which also offers proper acclimatization from the intrauterine to the extrauterine environment. This is also a natural instinctive process with other mammals. Hence, the maximum benefits of early initiation are best achieved with the Breast Crawl.

2.5 Do all babies move like this? We would like to try this in our maternity service. Can you give us some tips?

The Breast Crawl is natural and instinctive. A majority of babies would reach the breast all by themselves and start suckling spontaneously. The technique has been shown in the accompanying video. This is simple, easily replicable and does not require a complex learning process by the staff.

To achieve optimal results

- ❖ Discuss the Breast Crawl during Pre-delivery counselling sessions. Tell the mother about the need to wear clothes that make skin-to-skin contact possible.
- ❖ Orient staff to the technique.
- ❖ Use drugs for labour analgesia judiciously.
- ❖ A baby who has cried well does not need oro-nasal suction.
- ❖ Dry the baby thoroughly except for the hands
- ❖ Baby bath is best delayed beyond 24 hours.
- ❖ Do not pass orogastric / nasogastric tube or do gastric suction as a routine for the baby.
- ❖ Delay Injection vitamin K, weighing, routine measuring and dressing (wrapping) of the baby till after the first breastfeed
- ❖ The baby and the mother should be covered together with a cloth, so that they keep warm while continuing with skin to skin contact.
- ❖ Raise mother's head on a pillow to facilitate mother-baby visual contact.
- ❖ Do not wash / wipe breast before feeding.
- ❖ Continue the first skin-to-skin contact, until completion of the first breastfeed.
- ❖ Most babies would finish the Breast Crawl in 30-60 minutes. Hence, if a baby has already been in skin-to-skin contact for an hour or more, and has not reached the breast, or has tried to attach several times and has not succeeded, then it can be gently moved nearer to the breast and helped to attach.
- ❖ Do not move the mother out of labour room until completion of the first breastfeed.
- ❖ The child's father or a close female relative should be a part of this entire emotional interaction. However, if this is not possible at the outset, then they should be called in at the earliest feasible and acceptable time.

2.6 What is the significance of 'cheek to cheek contact' shown in the video?

We are promoting this natural instinct because mothers want to see and touch the baby at a very close distance (as much as the baby needs to see mother's face). They also show a desire to kiss the baby. In India there is also a custom of a mother saying a holy message in baby's ears (practised in some communities). To facilitate all this, we discovered 'cheek to cheek contact'. All mothers enjoy these early moments. Many become extremely emotional, some burst out crying with joy and some have even licked their babies. (In a fashion similar to what a cow would do to a calf.)

After allowing this interaction we place the baby in a position to do the Breast Crawl. Cheek to cheek contact is not a substitute for full skin-to-skin contact.

2.7 Why make the baby go through the entire process of breast crawl? It might be logical to help the baby to take the first breastfeed as soon as it shows readiness to suckle.

Mother-baby interactions at any time are not restricted to nutritional needs alone. The transition from the intrauterine to the extrauterine environment is made most comfortable by the Breast Crawl. Initiating early skin to skin contact offers many advantages which have been listed. Hence, focussing on the initiation of suckling alone is not justified.

Should the Breast Crawl be interrupted when a baby shows readiness to suckle? Will it be appropriate at this juncture to help the baby to attach? This needs further discussion and research. However, we feel that interrupting a natural instinctive process may not be beneficial. Continuing with the process, may provide early optimal natural stimulation to the various sensory organs and the brain. This may offer an advantage for better sensory-neural development. The baby reaches out to the nipple in a massaging movement. This not only protracts the nipple and makes it more prominent, but also releases a hormone called oxytocin. This helps the first breastfeed.

2.8 If the baby has successfully completed the Breast Crawl and taken the first breastfeed, does it ensure successful establishment of breastfeeding?

The Breast Crawl is a wonderful method to initiate breastfeeding. Proper initiation does not necessarily mean successful establishment of breastfeeding. It is the first giant step, no doubt, of a process which ultimately ends with establishment of lactation in a few days.

In this period mothers need to recognize and respond to early infant feeding cues and confirm that the baby is being fed at least 8 times in each 24 hours. Frequency of feeding and skin-to-skin contact is the key to success. Rooming-in, demand feeding, proper techniques of attachment, positioning and expression of breastmilk coupled with appropriate support to the mother is crucial to establishment of successful lactation.

2.9 Have you tried the Breast Crawl with premature or low birth weight (LBW) babies? What are the contraindications?

If the preterm / LBW baby does not have respiratory distress, the baby may Breast Crawl. However, contact time may be limited in babies needing transfer to the premature / intensive care unit care. At this juncture, if the baby is showing readiness to suckle, we help it take the first breastfeed. Those babies not needing a transfer continue the Breast Crawl. Most babies complete it successfully. However, we do not have exact figures. We have not come across a study published on this subject.

Respiratory distress can be considered as a contraindication for the Breast Crawl. Even in these cases we ensure that the baby is shown to the mother and she is encouraged to kiss, touch and cuddle the baby before transfer.

2.10 Is the ‘Breast Crawl’ possible if the baby is born by Caesarean Delivery?

The standard Breast Crawl is obviously not possible in caesarean deliveries. However, since the majority of caesarean sections are now performed under spinal anaesthesia, the mother is fully conscious. The baby is shown to the mother and given to her for ‘cheek to cheek contact’.

The baby is then placed on the mother’s chest from the head end, by the side of the anaesthesiologist, even while the surgery is going on. The mother requires help in positioning and holding the baby. We assist the baby in attaching to her mother’s breast as soon as she shows a readiness to suckle, allowing the first breastfeed for as long as feasible in the operation theatre itself.

If the mother or the baby's condition does not permit this, the baby is given to the mother at the earliest opportunity. There are no specific observations as yet or nothing to recommend in particular.

2.11 There are many people around the mother in this video. Is it right?

Delivery and first contact are times during which a mother and infant need privacy. Hence, nobody apart from the minimum necessary health personnel, the child's father and / or a close female relative should be present in these emotional and private moments.

The video was taken during one of our training workshops conducted for 30 delegates. We had allowed a few participants in the labour room, to learn the technique of Breast Crawl. The issue was discussed earlier with the mother and her family.

1. Introduction
2. How many babies successfully complete the Breast Crawl?
3. What makes a baby capable of the Breast Crawl?
4. Advantages offered by the Breast Crawl
5. Hindering Factors

1. Introduction

Every newborn, when placed on her mother's abdomen, soon after birth, has the ability to find her mother's breast all on her own and to decide when to take the first breastfeed. This is called the 'Breast Crawl'. It was first described in 1987 at the Karolinska Institute in Sweden (Widström et al, 1987). The description of the Breast Crawl, compiled from the article, is as follows:

'Immediately after birth the child was dried and laid on the mother's chest. In the control group a regular behavioural sequence, previously not described in the literature, was observed. After 15 minutes of comparative inactivity, spontaneous sucking and rooting movements occurred, reaching maximal intensity at 45 minutes. The first hand-to-mouth movement was observed at a mean of 34± 2 minutes after birth and at 55+ minutes the infant spontaneously found the nipple and started to suckle.

These findings suggest that an organized feeding behaviour develops in a predictable way during the first hours of life, initially expressed only as spontaneous sucking and rooting movements, soon followed by hand-to-mouth activity together with more intense sucking and rooting activity, and culminating in sucking of the breast.'

Excellent photographs were included in the article & the word 'crawl' appeared in the description of the photographs: '*The baby has crawled by itself towards the nipple*'

Many studies with different aims were published subsequently in relation to the 'Breast Crawl'

- Study the effect of other hindering factors (Righard and Alade, 1990)
- Biological mechanisms for homing in on the nipple (Varendi et al, 1994; Varendi et al, 1996; Varendi and Porter, 2001)
- Advantages of the Breast Crawl (Widström et al, 1990; Christensson et al, 1992; Christensson et al, 1995; Matthiesen et al, 2001)

Klaus reviewed many of these studies and gave a beautiful description of the Breast Crawl (Klaus 1998, Klaus and Kennel 2001). This inspired us to include the Breast Crawl in our 'Lactation Management' curriculum and to prepare this documentary. The credit for using the word 'Breast Crawl' as a 'noun' for the first time should be given to Klaus (1998). All previous studies have used it as a 'verb'. The starting position for the 'Breast Crawl' has been specified by Varendi et al (1994, 1996) i.e. nose in the midline of the mother's chest, eyes at the level of the nipples.

2. How many babies successfully complete the 'Breast Crawl'?

The table below summarizes results from various studies about number of babies completing the Breast Crawl.

Table 1

Study	Total babies under study	Completing Breast Crawl	Reaching the nipple but needing help to attach	Not moving or not reaching the nipple
Widström, 1987	21	20	1	0
Righard, 1990	17 (Controls)	17	0	0
Varendi, 1994	30	25	5	0
Varendi, 1996	31	22	8	1

Babies completing the Breast Crawl with spontaneous attachment is instinctive and almost a rule with very few requiring assistance.

3. What makes a baby capable of the 'Breast Crawl'?

A baby is born with many instinctive abilities which enable her to perform the Breast Crawl. With all these innate programmes, the infant seems to come into life carrying a small computer chip with the set of instructions. It appears that young humans, like other baby mammals, know how to find their mother's breast (Klaus and Kennel, 2001). The Breast Crawl is associated with a variety of sensory, central, motor and neuro-endocrine components, all directly or indirectly helping the baby to move and facilitate her survival in the new world.

3.1 Sensory Inputs

Smell, vision and taste all help the newborn to detect and find the breast. Auditory inputs and touch make her comfortable and help to create a suitable environment.

Olfactory / Visual / Taste / Auditory / Touch

3.1.1 Olfactory

This is the most studied input for the Breast Crawl and is believed to be the most important. Babies preferred their mother's unwashed breast to her washed breast, soon after birth. (Varendi et al, 1994). Besides secreting milk and colostrum, the nipple and areola are dense in glands that perhaps secrete attractive odours. Washing could have reduced or eliminated such odours. This is consistent with a previous study (Makin and Porter, 1989) where infants preferentially moved towards a gauze pad impregnated with the breast odour of a lactating woman.

Later Varendi et al (1996) showed that within the first hour after birth, significantly more babies spontaneously selected a breast treated with amniotic fluid than the alternative untreated breast. This attraction appears to be based on olfactory cues. Thus, amniotic fluid augments or overrides the attractiveness of the natural scent of the mother' breast. They postulated that observed attraction to amniotic fluid odour may reflect foetal exposure to that substance (i.e. prenatal olfactory learning). They also suggested that throughout the evolution of our species it was probably common for women to handle their babies themselves during and following delivery. Immediately after parturition, the mother's hands soiled with birth fluids would transfer the amniotic fluid to her breasts when she first attempted to nurse her neonate. This may be observed currently amongst non-human primates. The data presented illustrates the importance of maternal odours for newborn infants. Aside from guiding a neonate's overt behavioural responses, such olfactory stimuli also appear to have a calming effect on the infant and provide a basis for early individual recognition of the mother.

In 1998 Wineberg and Porter stated that about 1-2% of the human genome is allocated to production of receptors for the olfactory epithelium - a hint as to the possible importance of this chemical sense. Breast odours from the mother exert a pheromone-like effect at the newborn's first attempt to locate the nipple. Olfactory recognition may be implicated in the early stages of the mother-infant attachment process, when the newborns learn to recognize their own mother's unique odour signature - a process possibly facilitated by the high norepinephrine release and the arousal of the Locus Coeruleus at birth.

The mother is the source of an array of olfactory, visual, auditory and tactile stimulation that the infant may perceive and respond to when placed on her bare chest. In an attempt to elucidate further the role of olfaction per se in early orientation to the breast, babies were observed when additional maternal cues (e.g. voice, skin temperature and texture, body form, heart & respiratory sounds and movement) were not available (Varendi and Porter, 2001). A total of 22 babies were observed during the two trials on a warming bed. In one trial, a pad carrying the mother's breast odour was placed 17 cm in front of the baby's nose. In the other trial, a clean pad was used. More babies moved towards and reached the breast pad than the clean pad. It was concluded that natural breast odours unsupported by other maternal stimuli are sufficient to attract and guide neonate to the source of odour.

It appears that amniotic fluid contains some substance that is similar to a certain secretion of the breast, albeit not the milk. The baby uses the taste & smell of amniotic fluid on its hands to make a connection with a certain lipid substance on the nipple related to the amniotic fluid. (Klaus and Kennel, 2001)

3.1.2 Visual

Illingworth (1987) reviewed a number of studies of the visual abilities of the newborn. They are listed as follows:

- Within minutes after birth, the infant follows a face like pattern more than other patterns of similar brightness.
- It will look at a black on white drawing of a face longer than three black dots on a white background.
- 40 newborn babies, at a median age of 9 minutes, turned their heads and eyes towards a moving stimulus. There was a greater response to a proper picture of a face than to a scrambled one.

The above studies indicate that organized visual perception is an unlearned capacity.

Newborns can recognize their mother's face (Bushnell et al, 1989) and can follow it for a short distance (Brazelton and Cramer, 1990).

In the past, most caretakers believed that the newborn needed help to begin breastfeeding. So, immediately after birth, the baby was given to the mother with its lips placed near or on the mother's nipple. In this situation, some babies do start to suckle, but the majority just lick the nipple or peer up at the mother. They appear to be much more interested in the mother's face, especially her eyes, even though the nipple is right next to their lips. If kept in between the mother's breasts, the infant usually begins with a time of rest and quiet alertness during which she rarely cries and often appears to take pleasure in looking at her mother's face. There is a beautiful interlocking of gazes, at this early time, with the mother's interest in the infant's eyes and the baby's ability to interact and to look eye to eye. Visual interaction during the first few hours may explain the significantly reduced incidence of abandonment later among babies who were given early contact with suckling and who were roomed in. This may be partly due to the special interest that mother's have, shortly after birth, in hoping that their infant will look at them and to the infant's ability to interact during the prolonged period of their quiet alert state in the first hour of life (Klaus and Kennel, 2001).

We are tempted to speculate that if a baby can appreciate her mother's face, she can definitely see the areola and nipple (perceived as a dark spot on a lighter background). This is consistent with Illingworth (1987) stating that a newborn baby shows more interest in a black and white pattern than in a blank grey card. Perhaps that is the main reason why the areola is hyperpigmented. This is in sharp contrast to animal breasts / nipples. Does this point to a possibility that as compared to young animals, human babies may be also vision dependent in homing on to the nipple?

3.1.3 Taste

Amniotic fluid on the infant's hands probably also explains part of the interest in suckling the hands and fingers. The baby uses the taste and smell of amniotic fluid on its hands to make a connection with a certain lipid substance on the nipple related to the amniotic fluid (Klaus and Kennel, 2001).

3.1.4 Auditory

The mother's voice is reported to be the most intense acoustic signal measured in the amniotic environment. A preterm foetus also is capable of responding to speech stimuli. Both the newborn and the foetus show heart rate decelerations in response to speech sounds. Newborn infants prefer the sound of the maternal voice and also suckle for longer when they hear it (DeCasper and Fifer, 1980; Fifer and Moon, 1994). They can discriminate the language heard in utero from another language (Mehler et al, 1988). Thus, the mother's voice is a naturally occurring and salient stimulus during a critical time period in which there is significant development in several psychobiological systems.

Given these abilities of the newborn, the Breast Crawl offers the best chance for auditory stimulation with the natural voice of the mother, which the newborn is accustomed to in utero. However, it is also important to encourage mothers to initiate conversations with the baby in the antenatal period and to continue conversing in the early tender moments soon after birth. This may not only comfort the baby but also may have a bearing on development.

The rhythmic sound of the mother's heart-beat can also have a calming influence on the baby. Sounds that imitated heart beats at a frequency of about 70 per minute, during the first few days, not only calmed the baby but also reduced postnatal weight loss (Salk L, 1960; Salk L, 1962).

Early experiences with voices have both acute and enduring effects on the developing brain. These effects have ramifications for the development of the auditory system, as well as for later social and emotional development (Fifer and Moon, 1994).

Thus, the Breast Crawl provides continuity in auditory stimulation and development during transition from intrauterine to extrauterine life.

3.1.5 Touch

Skin to skin touch provides heat and variety of other tactile inputs. It offers benefits at many levels:

- Helps maintain temperature (Christensson et al, 1992)
- Facilitates metabolic adaptations especially sugar levels and acid-base balance (Christensson et al, 1992)
- Results in less crying (Christensson et al, 1992; Christensson et al, 1995)
- Facilitates bonding (Widström et al, 1990)
- Causes oxytocin release in the mother
- Improves immediate and long term breastfeeding success: (Righard and Alade, 1990; WHO, 1998; DeChateau and Wiberg, 1977)

All these benefits are discussed in detail later on.

3.2 Central Component

After birth, the healthy newborn often undergoes a quiet alert phase, which has been referred to as the first phase of reactivity. When placed skin to skin on a mother's chest shortly after birth, the infant often becomes quiet and starts exploring its environment (D'Harlingue and Durand, 2001). Infants separated from their mothers cry excessively.

Widström et al (1987) recorded a state of wakefulness during the Breast Crawl according to Brazelton's Neonatal Behaviour Assessment Scale (BNBAS). At 15 minutes, the children's median state was 4. Alertness gradually decreased until 150 minutes after birth, when they were all asleep.

This confirms that the newborn's brain is optimally ready to integrate various sensory inputs and other components of the Breast Crawl soon after birth. If initiation is not attempted soon after birth, a vital period of

alertness will be lost – the newborn will go off to sleep and the first breastfeed may be delayed for several hours. This delay leads to baby loosing out the benefits of early initiation.

3.3 Motor Outputs:

Orofacial / Lower Limbs / Upper Limbs / Salivation

3.3.1 Orofacial:

Around 30-40 minutes after birth, the newborn begins making mouthing movements, sometimes with lip smacking. Suckling of hands and fingers is commonly seen. After attaching successfully, newborns continued to suckle for 20 minutes (Righard and Alade, 1990).

Table 2

Study	Widström , 1987	Varendi, 1996
Intensity of Suckling	Low in first 15 mins of birth Peak at 45 mins Absent by 150 mins	-
Intensity of Rooting	Low in first 15 mins of birth Peak at 60 mins Absent by 150 mins	Onset: 11-66 mins (Median:25) for amniotic fluid treated breast Onset: 16-58 mins (Median:30) for natural breast
First Hand To mouth	34 (Mean) $\pm$ 2 mins	14-45mins (Median: 32) for Amniotic Fluid Treated breast 22-45 mins (Median: 29.5) for natural breast
Onset Of Breastfeeding	55 (Mean) $\pm$ 4 mins	17-88 mins (Median: 46.5) for amniotic fluid treated breast 38-103 mins (Median: 52) for natural breast

3.3.2 Lower Limbs

The Stepping Reflex helps the newborn to push against her mother's abdomen to propel her towards the breast. Pressure from the infant's feet on the abdomen may also help to expel placenta and reduce uterine bleeding (Klaus and Kennel, 2001). Righard & Alade (1990) observed that arm and leg movements started after a mean of 49 mins (SD: 7.8).

3.3.3 Upper limbs

Horizontal motion is achieved by using small push ups and lowering one arm first in the direction they wish to go. The ability to move its hand in a reaching motion enables the baby to claim the nipple. This helps to stimulate, elongate and protract the nipple (Klaus and Kennel, 2001) and facilitates attachment. When the baby massages the breast and subsequently suckles, a large oxytocin surge is induced from the mother's pituitary gland into her bloodstream. This also helps in the manufacture of prolactin.

Muscular strength in the neck, shoulders and arms helps newborns to bob their heads and do small "push ups" to inch forward and side to side.

The efforts to reach the breast are interspersed with short periods of rest. Sometimes babies change direction in midstream

3.3.4 Salivation
Salivation occurs in anticipation that the food is in close proximity.

3.3.5 Neuro-endocrine Component
It is widely known that oxytocin (sometimes called the love hormone) is released in the mother's blood by the posterior pituitary gland. This oxytocin is in fact produced by the hypothalamic neurons and reaches the posterior pituitary gland through their axons. It is responsible for the letdown of milk and contraction of the uterus. In humans, there is a blood brain barrier for oxytocin, and only small amounts reach the brain via the blood stream.

The lesser known fact is that de novo oxytocin synthesis occurs in both the infant's and mother's brain when breastfeeding occurs. The stimuli for this release are touch on the mother's nipple and the inside of the infant's mouth. This oxytocin, acting on multiple oxytocin receptors in the brain (Klaus and Kennel, 2001) plays the following roles:

- Stimulation of the vagal motor nucleus, releasing 19 different gastrointestinal hormones including insulin, cholecystokinin and gastrin (Tafari and Ross, 1973). Five of these 19 hormones stimulate growth of the baby's and mother's villi and increase the surface area and the absorption of calories with each feeding (Uvnas-Moberg, 1989).
- Important for the initiation of maternal behaviour and for the facilitation of bonding between the mother and the baby (Klaus and Kennel, 2001).
- In mothers it results in slight sleepiness, euphoria, increased pain threshold and feeling of increased love for the infant. It appears that, during breastfeeding, elevated blood levels of oxytocin are associated with increased brain levels; women who exhibit the highest plasma oxytocin are the sleepiest (Klaus and Kennel, 2001).

4. Advantages offered by the Breast Crawl

The promotion of early initiation of breastfeeding has great potential: 16% of neonatal deaths could be saved if all infants were breastfed from day 1 and 22% if breastfeeding were started within the first hour after birth (Edmond et al, 2006).

Several other advantages of early initiation have been mentioned in the FAQ section. These are listed along with references in the International Lactation Consultant Association document (ILCA, 2005).

All these advantages will obviously be maximally tapped with Breast Crawl. We present some of these advantages where such evidence is available: For Baby / For Mother / For Both

4.1 For the Baby

Warmth / Comfort / Metabolic adaptation / Quality of attachment

4.1.1 Warmth
Christensson et al (1992) compared temperatures of newborns kept in skin-to-skin contact in the Breast Crawl position with those kept in a cot in the first few hours after birth. They found that the former had better body and skin temperatures. They concluded that the mother is an important heat source for the newborn. From an evolutionary perspective, the mother's body must have been the only reliable source of heat for the newborns. The natural body to body contact may have been part of a genetic programme for maternal behaviour, which is worthwhile protecting.

These findings would be especially valuable in those developing countries, where the incidence of neonatal hypothermia has been reported to be high and associated with an increased morbidity and mortality rates.

4.1.2 Comfort
The transition from life in the womb to existence outside the uterus is made easy by the various sensory inputs in the Breast Crawl position.

In this position, the infant can experience sensations somewhat similar to that felt during the last several weeks of intra-uterine life. It is likely that each of these features – the crawling ability of the infant, the decreased crying when close to the mother, and the warming capabilities of the mother's chest-are adaptive features that have evolved to help preserve the infant's life (Klaus and Kennel, 2001).

Christensson et al (1992) compared crying between babies kept in the Breast Crawl position with those kept in a cot next to the mother during the first 90 minutes after birth. The infants in the cot cried for a significantly longer time than the babies in Breast Crawl position during all observation periods.

Table 3: Crying duration at various time intervals

Group	Time Interval		
	At 25-30 mins	At 55-60 mins	At 85-90 mins
Babies in skin-to-skin contact (Breast Crawl)	60 seconds	0 seconds	10 seconds
Babies in cot	1094 seconds	985 seconds	760 seconds

On the basis of these observations, authors concluded that the infants in cot cried for a significantly longer time than the babies in skin-to-skin contact during all observation periods.

A similar study (Christensson et al, 1995) objectively evaluated differences in crying when infants were cared for by one of three methods during the 90 minutes following birth:

- Skin to skin contact (Breast Crawl): 90 mins.
- In a cot next to the mother: 90 mins.
- In a cot next to the mother for the first 45 minutes and then skin to skin contact (Breast Crawl) for next 45 mins.

Results suggested that human infants recognize physical separation from their mothers and start to cry in pulses. Crying stops at reunion. The observed cry may be a human counterpart of the 'separation distress call' which is a general phenomenon among several mammalian species and serves to restore proximity to the mother. The results suggest that in human newborns this cry is not dependent on earlier social experience and may be a genetically coded reaction to separation. Whatever the evolutionary foundations, this cry seems to signal that care in a cot does not satisfy the needs of the newborn human baby. Authors recommend that the most appropriate position of the healthy full term newborn baby after birth is in close body contact with the mother. This was ensured in the study by keeping the babies in the Breast Crawl position.

4.1.3 Metabolic adaptation

Babies kept in the Breast Crawl position had higher 90 minute blood sugar levels and more rapid recovery from transient acidosis at birth, as compared to babies separated and kept in a cot next to the mother (Christensson et al, 1992).

4.1.4 Quality of attachment

Of 17 babies kept in the Breast Crawl position and kept in uninterrupted skin-to-skin contact for 1 hour, 16 attached to the breast correctly. Fifteen babies in the other group were separated after about 20 minutes for routine measuring and weighing procedures. After an interval of approximately 20 minutes, they were returned to the mother. Only seven babies in this group attached correctly (Table 4). These findings are crucial because the early suckling pattern is of prognostic value for the duration and success of breastfeeding (Righard and Alade, 1990).

4.2 For the Mother

Expulsion of placenta and reduction of postpartum haemorrhage

This occurs by the following mechanisms

- As mentioned earlier, massage of the breast by the baby and subsequent suckling induce a large oxytocin surge from the mother's pituitary gland into her bloodstream. Close emotional interaction coupled with cutaneous, visual and auditory stimuli from the baby during the Breast Crawl also help oxytocin release. This oxytocin helps to contract the uterus, expelling the placenta and closing off many blood vessels in the uterus, thus reducing blood loss and preventing anaemia.
- Pressure of the infant's feet on the abdomen may also assist in expelling the placenta (Klaus and Kennel, 2001).

Nissen et al (1995) showed that with the baby in Breast Crawl position, the blood level of oxytocin soon after delivery was elevated significantly compared with that postpartum. The level returned to its pre-partum value 1 hour after delivery. The peak oxytocin level was seen 15 minutes after delivery with expulsion of placenta. Most mothers had several peaks of oxytocin occurring up to 1 hour after delivery.

4.3 Advantages for Both: Bonding

A mother's feeling of love for the baby may not necessarily begin with birth or instantaneously with the first contact. During the Breast Crawl, while resting skin to skin and gazing eye to eye, they begin to learn about each other on many different planes. For the mother, the first few minutes and hours after birth are a time when she is uniquely open, emotionally, to respond to her baby and to begin the new relationship. Suckling enhances the closeness and new bond between mother and baby. Mother and baby appear to be carefully adapted for these first moments together (Klaus and Kennel, 2001).

Many studies have addressed the question of whether there is what has been called a 'sensitive period' for parent-infant contact in the first minutes, hours and days of life that may alter the parent's behaviour with their infant later in life. In each study, increasing the mother-infant time together or increased suckling improves caretaking by the mother (Klaus and Kennel, 2001).

Researchers have also observed that mothers exhibit a very orderly and predictable set of behaviour when they first see and come into contact with their newborns. They begin by hesitantly touching the infant's extremities with their fingertips. Within four or five minutes, they begin caressing the child's trunk with the palm, simultaneously showing progressively heightened interest that continues for several minutes. By the end of nine minutes, fingertip touch has dropped substantially, palm contact has more than doubled, and touch now emphasizes the trunk rather than the extremities. (Klaus et al, 1970)

If nurses spend as little as 10 minutes helping each mother discover some of their newborn infant's abilities, such as turning towards the mother's voice and following the mother's face and assisting mothers with suggestions about ways to quieten their infants, the mothers become more appropriately interactive with their infants face to face and during feeding at 3- 4 months of age (Brazelton and Cramer, 1990).

If the lips of the infant touch the mother's nipple in the first hour of life, a mother will decide to keep her baby 100 minutes longer in her room every day during her hospital stay than another mother who does not have contact until later (Widström et al, 1990).

Extended early contact in the first few days helps prevent parenting disorders including child abuse, failure to thrive, abandonment and neglect later on.

The behaviour described in these studies can be partly explained by de novo release of oxytocin in both the mother's and infant's brain when an infant suckles from the breast (Klaus and Kennel, 2001) (discussed in section 3.3.5).

5. Hindering Factors

Righard and Alade (1990) studied the effect of separation on the Breast Crawl in 72 infants. In the separated group (n=34), the infant was placed on the mother's abdomen immediately after birth but removed after 20 minutes for measuring and wrapping. These routines took about 20 minutes after which the infant was returned to the mother. In the contact group (n=38) contact between mother and infant was uninterrupted for at least one hour after birth. Of the 72 mothers, 40 (56%) received pethidine during labour. The suckling technique was studied in both the groups. The results of the study were tabulated and are as follows:

Table 4

Total 72 newborns	Suckling Pattern		Still not suckling 2 hrs after birth
	Correct	Incorrect	
Contact Group (38)			
No Pethidine (17)	16	1	0
Pethidine (21)	8	3	10
Separation Group (34)			
No Pethidine (15)	7	7	1
Pethidine (19)	0	4	15

Authors concluded that brief separation of the infant from the mother during the first hour after birth had a strong effect on the success of the first breastfeed, as did pethidine given during labour. Of infants both separated & exposed to pethidine through their mothers, not one breastfed successfully, whereas almost all those who were neither separated nor exposed to pethidine succeeded in adopting the correct breastfeeding technique. Thus, the two crucial determinants for a successful start to breastfeeding seem to be uninterrupted contact with the mother until after the first feed and no sedation of the infant by analgesics given to the mother during labour.

A side effect of such narcotic analgesics as pethidine is central nervous system depression, in both the mother and the infant. The plasma half life of pethidine is 3.0-4.5 hours in the mother, but as long as 13-23 hours in the infant (62 hours for the active metabolite, normeperidine). Consequently, the infant is depressed for much longer time than the mother. The plasma concentration of pethidine in the infant is almost as high as that in the mother, reaching a maximum after 2-3 hours, after which the level falls slowly. In this study, more infants were alert, ready to suckle and suckled correctly, when the time between analgesia and the delivery room was below 2 hours than when it was longer.

Separation for measuring and wrapping procedure after 15 to 20 minutes of skin to skin contact seriously disturbed the first breastfeed. This time seems to be a very critical stage for separation; just when the infant was about to start crawling movements, she was removed. The infants generally protested loudly when removed. There is no justifiable reason for routine separation - measuring and weighing procedures can simply be put off for 1-2 hours.

Authors recommended that

- The naked infant should be left undisturbed on the mother's abdomen until the first breastfeeding is accomplished, and the infant's efforts to take the breast actively should be encouraged.
- The use of drugs given to the mother during labour should be restricted.

To allow the Breast Crawl to be successful, Klaus and Kennel (2001) strongly urge that the injection of vitamin K, application of eye ointment, washing and any measuring of infant's height, weight and head circumference be delayed for at least 1 hour. In order not to remove the taste and smell of the mother's amniotic fluid, it is necessary to delay washing the baby's hands. This early hand-sucking behaviour is markedly reduced when infant is bathed before the crawl.

As stated earlier, olfaction plays a great role in guiding the newborn to the breast. A substance secreted by the nipple is thought to be responsible. Based on this Varendi et al (1994) stated that unnecessary routine cleaning of the breast may interfere with the establishment of successful early breastfeeding by elimination of the infant's access to biologically relevant chemical signals.

The same researchers in 1996 stated that excessive use of products that eliminate or mask natural odour signals (deodorants and perfumes) should perhaps be avoided during the perinatal period.

Birth practices can affect breastfeeding, particularly initiation. These practices are important, in their own right, for the physical and psychological health of the mothers themselves. They also have been shown to enhance infants' start in life, including how they breastfeed (UNICEF-WHO, 2006). In 2006, authorities of the WHO / UNICEF Baby-Friendly Hospital Initiative added an optional component to the baby-friendly assessment tools, which examines mother-friendly care. Each country will determine whether it will integrate this module as it updates assessment criteria and tools to the new standards (Lothian, 2007). Implementing 'Ten Steps of Mother Friendly Care' will facilitate successful initiation (Breast Crawl). Hence, every maternity service should consider implementing these steps.

Dos and Don'ts for success of the Breast Crawl

For the Mother

- Use drugs for labour analgesia judiciously.
- Do not wash / wipe breast before feeding.
- Raise mother's head on a pillow to facilitate mother-baby visual contact.
- Do not move mother out of labour room until completion of the first breastfeed.

For the baby

- A baby who has cried well does not need oro-nasal suction.
- Dry the baby thoroughly except for the hands.
- Do not pass orogastric / nasogastric tube or do gastric suction as a routine.
- The baby and the mother should be covered together with a cloth, so that they keep warm while continuing with skin-to-skin contact.
- Delay the injection of vitamin K, weighing, routine measuring and dressing (wrapping) till after the first breastfeed.
- Baby bath is best delayed to beyond 24 hours.
- Continue the first skin-to-skin contact till completion of the first breastfeed.

1. Introduction
2. Recommendations and Breast Crawl
3. Our Vision

1. Introduction

The Breast Crawl was described 20 years ago. The discovery, in spite of its tremendous potential, has failed to reach the beneficiaries (i.e. mothers and infants) at large. The scientific community, the medical fraternity, health managers, breastfeeding advocates and international health organizations have missed out on a powerful 'change' agent for early initiation and hence short and long term breastfeeding success. We tried to analyze the reasons for this failure and observed that:

- Article Titles do not mention the Breast Crawl: Most articles related to the Breast Crawl, including the first one which described the phenomenon (Widström et al, 1987), have titles which convey the aims of the study with great clarity without mentioning the word 'Breast Crawl', even though the babies were kept in the 'Breast Crawl' position.

- Transition from Verb to Noun: Klaus (1998) used the term 'Breast Crawl' as a 'noun' for the first time. All previous studies have used it as a 'verb'. We feel that this is a landmark transition which resulted in widespread use of the term 'Breast Crawl'. Had this significance been realized earlier, perhaps the titles of many Breast Crawl studies could have used the term.

- Breast Crawl & Search Engines: Interestingly, simply because most article titles do not mention the term 'Breast Crawl', the internet search yields very few articles when the search engines use this term.

- Recommendation failures: The body of scientific evidence presented in the previous section is strong enough to recommend 'Breast Crawl' as 'the method' for initiating breastfeeding. However, there has been no such widespread recommendation. In fact, no particular method for initiation of breastfeeding has been recommended by the BFHI documents.

The purpose of this dossier, and our mission, is to strongly recommend an evidence based workable method in form of the Breast Crawl for initiation of breastfeeding. This is especially relevant when the focus of World Breastfeeding Week for 2007 is on 'Initiation of Breastfeeding'.

2. Recommendations and Breast Crawl

WHO and UNICEF BFHI documents' subtle descriptions of the initiation of breastfeeding are similar to the process of the 'Breast Crawl'. If interpreted properly and practised in its true spirit, initiation of breastfeeding would naturally follow the 'Breast Crawl' pattern.

By the time the foundation stone of the Baby Friendly Hospital Initiative was laid, the Breast Crawl had already been discovered. This was reflected in the 'Joint WHO / Unicef Statement' (1989) as *'The newborn infant should therefore be cleaned and dried and placed over the mother's abdomen for her to take and put to her breast.'*

WHO and UNICEF BFHI documents have evolved since 'Ten Steps to Successful Breastfeeding' were described in 1989. Though the 4th step remains unchanged, the interpretation has changed with time.
The initiation of breastfeeding comprises of two components i.e. skin-to-skin contact and suckling. These were discussed and differentiated subsequently (WHO, 1998).

'Early skin-to-skin contact and the opportunity to suckle within the first hour or so after birth are both important. However, contact and suckling are so closely interrelated that most studies reviewed have used the terms interchangeably, and few researchers distinguish clearly between them.

Optimally, the infant should be left with the mother continuously from birth, and allowed to attach spontaneously to the breast whenever she shows signs of readiness to do so. An arbitrary but practical minimum recommendation is for skin-to-skin contact to start within at most half-an-hour of birth and to continue for at least 30 minutes.'

Revised BFHI guidelines (UNICEF/WHO, 2006) interpret 'Step 4' as *'Place babies in skin-to-skin contact with their mothers immediately following birth for at least an hour and encourage mothers to recognize when their babies are ready to breastfeed, offering help if needed.'*

The same document further defines the 'Revised Global Criteria' for Step Four' as *'At least 80% mothers confirm that their babies were placed in skin-to-skin contact with them* ***immediately or within five minutes*** *after birth and that this contact continued for at least an hour, unless there were medically justifiable reasons for delayed contact.'*

The revised criteria have precisely defined the maximum upper limit of the interval between delivery and initiation of breastfeeding as five minutes which is consistent with the recommendation by Klaus and Kennel (2001): *'Once it is clear that the baby has good colour and is active and appears normal (usually within 5 minutes), she can go to her mother.'*

The interpretation, description and global criteria for Step four in Revised BFHI Guidelines almost matches the process of 'Breast Crawl' with some subtle differences which are tabulated below:

	Breast Crawl	Revised BFHI Guidelines
Process labelled	Yes	No
Abilities of the newborn addressed	Yes	No
Start position	Nose in the midline of the mother's chest, eyes at the level of the nipples	Only one of the positions is similar to the Breast Crawl
Recommended duration of skin-to-skin contact	Till completion of the first breastfeed	For at least one hour

We have following suggestions to strengthen the Revised BFHI guidelines (UNICEF/WHO, 2006)

- Define and describe in detail a specific method to initiate breastfeeding.
- The 'Breast Crawl' would help to bridge this gap.
- Labelling or naming the process will tremendously help the implementation.

The slogan for the World Breastfeeding Week for 2007 has focussed on initiation in one hour because it is linked to a study in Ghana (Edmond, 2006) where neonatal mortality was studied for initiation within one hour. It should not therefore be misunderstood that WABA recommends delaying initiation of breastfeeding to 'within an hour'. WABA supports 'Ten Steps to Successful Breastfeeding' and Revised BFHI Guidelines.

3. Our Vision

The Breast Crawl, to our mind, is the most natural, spontaneous and logical method of initiating breastfeeding. It is also the simplest method that provides prolonged skin to skin contact and culminates in the first breastfeed. It is easy, does not require elaborate preparations, can be done in any setting and is readily reproducible. We recommend that every baby (and mother) should be given an opportunity to experience this miracle.

3.1 Ideal Recommendations
3.2 Implementing Breast Crawl as the method of initiation of breastfeeding.
3.3 Breast Crawl E-Dialogue
3.4 Breast Crawl Summit
3.5 Avenues for research

3.1 Ideal Recommendations

Every minute after birth is crucial. The mother-baby interactions are extremely complex and precise like a computerized programme. All healthcare providers need to understand this process, which also is genetic, instinctive, unlearnt behaviour.

Current recommendations need subtle updating in the light of the evidence presented

- A description of the precise method of supporting initiation of breastfeeding i.e. the Breast Crawl.
- A discussion of the sensory and motor abilities of the newborn.
- Educating all the health workers and mothers (as well as fathers and other close relatives) about these abilities, so as to empower them to explore these abilities, for the benefit of the mother and the baby.
- The need to continue skin-to-skin contact, until completion of the first breastfeed.

At a later stage WHO / UNICEF can consider adding just two words to the fourth step as follows:

4. Help mothers initiate breastfeeding within a half-hour of birth **by the 'Breast Crawl'.**

At a still later stage the step can be further updated to the following:

4. Help mothers initiate breastfeeding **within five minutes of birth by the 'Breast Crawl'.**

We also visualize the need to talk about the 'Extended Period of Initiation'.

Classically, 'Initiation of Breastfeeding' means the first contact and the first breastfeed. However, there is a need to talk about an 'Extended Period of Initiation'. This period can be considered as the entire period from birth till the time lactation is established. Realizing the importance of this period ILCA has published a document 'Clinical Guidelines for the Establishment of Exclusive Breastfeeding' in June 2005. The document focuses on issues such as frequency of feeding, realizing early feeding cues, waking up a sleepy infant, the need for mothers to learn positioning and attachment, monitoring for adequacy etc., in addition to other important points. Discussing this period would link Step 4 to other steps especially Step 5, 7 and 8. The lessons from the Breast Crawl, like skin to skin contact and the newborn's spectrum of abilities would come handy in this period. Some of the mothers whom we have seen initiating breastfeeding by the Breast Crawl, continued to use the 'crawling in position' advantageously, so as to establish successful breastfeeding. Though 'Kangaroo Mother Care' was invented to care for low birth weight babies, we visualize a unification of this concept with the Breast Crawl, in this extended initiation period, for normal full term newborns.

3.2 Implementing the Breast Crawl as the method of initiation

BPNI Maharashtra is collaborating with the Government of Maharashtra, with support from UNICEF, to train health care providers in 'Basics of IYCF'. The delegates undergoing this training are given a demonstration to initiate breastfeeding by Breast Crawl. Those delegates working in the maternity service have started implementing Breast Crawl whenever possible. However, for wider implementation, more intense efforts will be necessary. These will be vigorously followed-up over the next one year.

3.3 Breast Crawl E-Dialogue:

The documentary on Breast Crawl that accompanies this dossier will be sent to health professionals, researchers and breastfeeding advocates round the world. A discussion on this will be initiated by E-dialogue as well as other means. This should culminate in a Breast Crawl Summit. Both the documentary and the dossier can be put up on multiple websites for open review. WABA can play a crucial role in the dissemination of this material, along with distribution of resource material for this year's World Breastfeeding Week.

3.4 Breast Crawl Summit

UNICEF, WHO & WABA can jointly hold this summit before or during the World Breastfeeding Week. The goals for the summit will be:

- To consider Breast Crawl as 'the method' for initiating Breastfeeding.
- Recommendations on Step 4 to Revised 2006 BFHI Guidelines.
- Further recommendation for worldwide implementation of the Breast Crawl
- Discussion on further research avenues on the Breast Crawl.

3.5 Avenues for Research

- Studies on implementing the Breast Crawl as the recommended method for initiation and solutions to overcome problems (practicability / feasibility).
- Impact on initiation rates after using the Breast Crawl as 'the method' for initiating breastfeeding.
- Studies of the Breast Crawl with larger sample sizes and without hindering factors.
- Detailed studies on the role of various hindering factors with large sample size and with special reference to newer regimes for labour analgesia.
- Breast Crawl in low birth weight babies. This will be important for developing countries which have a high incidence of low birth weight babies.
- Role of infant vision in the Breast Crawl with special reference to evolutionary differences in areola pigmentation.
- Effect of initiating breastfeeding with the Breast Crawl on the establishment of lactation, exclusive breastfeeding for six months and long term breastfeeding success.
- Role of 'Crawling in' as an advance over 'bedding in' and 'rooming in'.
- Routine use of amniotic fluid application on nipples to augment the Breast Crawl.
- Isolation of chemical from the nipple and amniotic fluid. This may be useful to encourage babies that suddenly refuse to breastfeed.

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APPENDIX 1

List of Abbreviations

BFHI	Baby Friendly Hospital Initiative
BPNI	Breastfeeding Promotion Network of India
FOGSI	Federation of Obstetric and Gynaecological Societies of India
HETV	Health Education to Villages
IAP	Indian Academy of Paediatrics
ICDS	Integrated Child Development Services
ICH	Institute of Child Health
ILCA	International Lactation Consultant's Association
IYCF	Infant and Young Child Feeding
LBW	Low Birth Weight
NFHS	National Family Health Survey
NGO	Non-Governmental Organizations
RJMCHNM	Rajmata Jijau Maternal and Child Health and Nutrition Mission
UNICEF	United Nations Childrens Fund
WABA	World Alliance for Breastfeeding Action
WBW	World Breastfeeding Week
WHO	World Health Organization

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