



Mumbai Breastfeeding Promotion Committee WBW 2021

Breastfeeding: The Precious Bond

Handbook For Lactation Management

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Protect Breastfeeding -
A shared responsibility

WBW 2021

TRAINING PROGRAM

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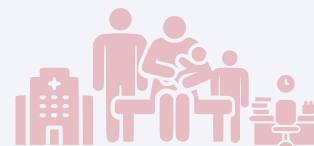
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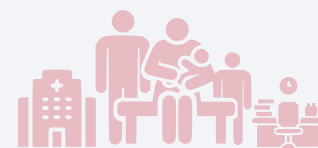
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FROM THE PRESIDENT'S DESK



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“You can’t have a better tomorrow if you are thinking about yesterday all the time”

The pandemic situation triggered by COVID-19 has continued to 2021, and has challenged the healthcare systems and health professionals. Along with the health challenges, there have been financial and mental health issues faced by many. Collateral damage included delays in examinations, medical teaching suffered and we migrated to online trainings and “work from home” as far as possible for many. I personally look at the positive aspects of the situation- one of these being my continuation for another term on the prestigious post of President of MBPC!

Mumbai Breastfeeding Promotion Committee (MPBC) team is comprised of members across different specialties (Pediatrics & Neonatology, Community Medicine, Obstetrics & Gynecology and others). This year with my colleagues and seniors, we have ventured back to hold a Hybrid Inauguration program for World Breastfeeding Week celebrations 2021, after missing out meeting in person in 2020. Our convenors managed to attract many entries for the popular Slogan and Streetplay contests, and we decided to revive our in-house training programs in person as possible with Covid-appropriate behaviour.

It is with great pleasure that I present to you this “Labor of Love”, a compilation of articles by experts and trained lactation champions working in the field. Along with this we have collected powerpoints which can be used for training our residents, nursing staff and others. On behalf of MBPC & the editorial team, we would like to thank all the contributors. Special thanks to Mr. Amardeep Raina from Emcure-Xennex, who came forth to provide unrestricted support for this educational activity. We hope you enjoy reading the articles and find them useful to spread the message “Breast is Best!”

I would like to end with the words from Robert Frost, famous American poet-

***“The woods are lovely, dark and deep,
But I have promises to keep,
And miles to go before I sleep,
And miles to go before I sleep”***

Let’s continue to work together for maternal and neonatal health, and keep our spirits high.

Wishing you and your teams good health and safety in these difficult times!

RL Jain



Message from Editorial Team



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“With Great Power Comes Great Responsibility”

This is exactly how a new mother feels. She has so many responsibilities, the society & family pressure and a constant want to be a ‘perfect mother’. Every new mother faces this sudden rise in expectations. Let us help her become the best version of herself by sharing the responsibility of Breastfeeding with them. And that is the Theme of this year’s Breastfeeding week -2021 “**Protect Breastfeeding: A Shared Responsibility**”

The global breastfeeding rates remain low with only 41% of infants under six months of age being exclusively breastfed. This clearly shows we have a long way to go.

There needs to be awareness in society and medical fraternity about Breastfeeding. This manual aims at including all the technical problems regarding Breastfeeding, which are explained in a simple way. This manual hopes to fulfil the gap in training material available for sensitising our health care worker about range of topics. We wish readers get maximum benefit out of this book and it solves all their queries.

We are glad to be part of this team for this important project and on behalf of the editorial team we would like to thank all the Experts who contributed for the module.

THANK YOU!



World Breastfeeding Week 2021: Protect Breastfeeding, a shared responsibility



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Introduction:

Breastfeeding is a physiological and natural process of providing nourishment to baby. This simple evolutionary adaptation by mammals is designed to provide the ideal nourishment to the offspring. Most naïve mothers are capable of breastfeeding. However, factors like fear of the first performance, lack of knowledge, embarrassment, lactation problems, advice from multiple sources, marketing of baby food products, misleading information from the internet, TV and other sources lead to anxiety and negative attitude towards breastfeeding.

In view of this, in the year 1990 the WHO and UNICEF created a formal statement about the protection, promotion and support of breastfeeding, known as the Innocenti declaration. This was followed by the formation of the WABA: World Alliance for Breastfeeding Action, a body to carry out the goals mentioned in the declaration. Among the ways to support breastfeeding, an idea was floated to have a day dedicated to breastfeeding. This grew and became a week, from 1st to 7th of August every year, called World Breastfeeding Week (WBW). This was inaugurated in 1991, and celebrated annually from 1992. Since 2016, WBW is aligned with the Sustainable Development Goals (SDGs).



Figure 1 - Themes of WBW since 2016. L to R top row: 2021, 2020, 2019. L to R top row: 2014, 2015, 2016.

Objectives of WBW:

Inform people about the importance of protecting breastfeeding. Inform celebrants about the selected theme of the year.

Anchor breastfeeding support as a vital public health responsibility. Anchor the theme within the

global breastfeeding agenda.

Engage with individuals and organizations for greater impact.

Galvanize action on protecting breastfeeding to improve public health. Galvanize action on the selected theme and related issues.

As today's world runs on the internet and social media, the campaign has incorporated the use of the following hashtags to make it easier for interested people to stay in the loop. This also improves the reach of the campaign as it catches the eye of the public.

#WBW2021 #WABA **#ProtectBreastfeeding** #SharedResponsibility **#breastfeeding**
#SDGs **#worldbreastfeedingweek2021** #ProtectBreastfeedingaSharedResponsibility
#protectbreastfeedingtogether #buildingbackbetter **#warmchain4breastfeeding**
#breastfeeding4publichealth

Theme of 2021: Protect Breastfeeding, a shared responsibility

This theme is aligned with area 2 of the WBW-SDG 2030 campaign: links between breastfeeding and survival, health and wellbeing of women, children and nations. Focus is given on promoting an enabling environment for breastfeeding and protecting it against industry influence. Advertisements of formula feeds, bottle-feeding and other products for the newborn are to be targeted specifically. Breast milk substitutes are a huge global business which pose a significant risk to breastfeeding. In India, there has been an Infant Milk Substitutes, Feeding Bottles and Infant Foods Act, 1992 with Amendments in 2003. This year aims to improve awareness and enforcement of the same. Another aspect being promoted is the warm chain of support for breastfeeding. This encompasses all levels of society including health systems, workplace and the community at home.

Although national figures are still to be compiled, the data from Maharashtra in National Family Health Survey (NFHS) – 5 shows that only 53.2% children under the age of three years have been breastfed within one hour of birth. Also, only 71% children under the age of six months are exclusively breastfed. These figures may be on an upward trend from NFHS 4 (51.3% and 53.0% respectively), but still has plenty of room for improvement.

Pandemic Effects and Breastfeeding: COVID-19 or 21??

As the COVID-19 pandemic is moving along in its due course, the concept of 'building back better' after the pandemic is being developed. Negative aspects during COVID-19 included separation of mother and child due to perceived risk of transmission of the disease to the newborn post-delivery. There are two sides of the coin: lockdown and movement restrictions led to parents spending more time at home, which is conducive towards breastfeeding. However despite 2020 lockdown restrictions we are still battling with COVID in 2021, hence special attention needs to be given.



Figure 2 - Recommendations for COVID-19 positive mothers during breastfeeding

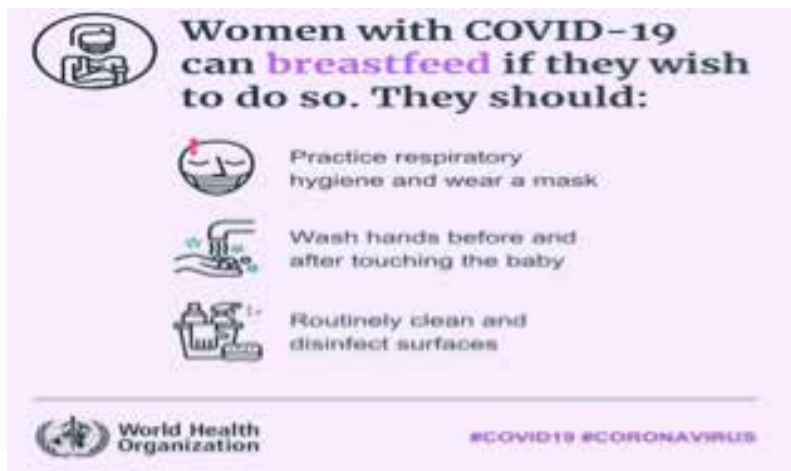


Figure 3 - Infographic on guidelines for COVID-19 positive mothers.

Key Messages

1. **Public Health Approach to breastfeeding.**
2. **Government collaboration to create multi-sectoral breastfeeding friendly environment.**
3. **Legislation must be enacted and upheld to protect mothers and other parents and their right to enhance maternity and paternity leave.**
4. **Ban on digital platforms marketing Breastmilk substitutes.**
5. **Promotion of breastfeeding at work by policies and a supportive attitude change.**
6. **Priority to breastfeeding and maternal & infant health.**
7. **Warm chain by promoting inter-professional teamwork within the health system &**



community to provide a continuum of care.

Source References & Suggested Reading:

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- http://rchiips.org/nfhs/pdf/NFHS5/MH_FactSheet.pdf



Messages from Dignitaries



AUTHOR

Dr. Armida Fernandez

Founder Trustee SNEHA (Society for Nutrition, Education and Health Action)
Ex- Professor Neonatology and Dean LTMMC & LTMG Sion Hospital

The importance of breastmilk cannot ever be evaluated. It is truly the nectar of life that nourishes the baby in all realms of life

It was traditional in India to breastfeed every baby and when a mother could not breastfeed, relatives and sometimes the grandmother wet nursed the baby. Many factors were responsible for the eroding of these traditional practices. Lack of support for breastfeeding by the hospital staff, nuclear families which lacked family support, mothers working outside the home and the flooding of the market with formula milk by baby food companies who actively promoted formula milk .

In the 1980s when we studied the breastfeeding practices at the LTMG hospital and in the municipal maternity homes across the city, initiation, continuation of breastfeeding was deplorable and mothers

from vulnerable communities were introducing top feeds often with the bottles. Fortunately, in the early 90's the Baby Friendly Hospital Initiative (BFHI) was introduced and more doctors and nurses got involved in the promotion and support of breastfeeding. The Infant and Baby Food act that was passed in our country also helped to a great extent

An entire movement for the support of breastfeeding was started across the world. The World Breastfeeding Week celebrations was one such initiative. The MBPC brings together all academic bodies, medical institutions and NGOs to celebrate this week. These celebrations sets the stage for advocacy among medical, nursing staff, students and society but our efforts need to continue through the year till every mother breastfeeds her baby. . Breastfeeding celebration should not be restricted to a week but celebrated every day of the year!



Message from BPNI President Dr. Mangala Wani



To succeed we must make sure that every mother is supported at the individual, household, hospital and community level. Every adolescent needs to be made aware about the benefits of breastfeeding, long before she becomes a mother. The role of support in the hospital, in the antenatal, natal and postnatal period must be emphasized. The mother needs support when she returns home. from her family, community, society and breastfeeding support groups.

Fortunately, today the trends of breastfeeding are improving though not as quickly as we would have wanted. Even more mothers with higher education and professionals want to breastfeed their babies. We as paediatricians, obstetricians, nurses and community workers and family members need to support them. This support to some extent has been highlighted in the recent Covid pandemic where mothers were supported to breastfeed their babies. We must continue these efforts at all times.

I would like to congratulate the organisers of this years WBW for having been able to organise the event and bring out this booklet despite the pressure of their work in this short period of time.

Let each of us play our role to help a mother to give her baby the best gift of life- BREASTMILK

Breast milk, as we all know, is specifically designed to optimise a baby's growth and development. The research evidence on the value of breastfeeding, for mothers and their babies, is very compelling. And this body of evidence is growing all the time.



Just as importantly, breastfeeding provides a unique early bonding experience for infants and their mothers. This contributes greatly to the baby's psychological, emotional and social development.

Our common aim, therefore, should be to re-establish breastfeeding in India as the cultural norm, thereby making it the natural choice for the vast majority of Indian parents.

Improving access to trained health workers for breastfeeding can extend the duration of breastfeeding and promote exclusive breastfeeding with benefits for babies, families and economies.

I am delighted that Dr. Reena Wani, President MBPC has taken initiative and has produced this training module which will also act as a resource and an advocacy tool for health-professionals and other stakeholders at large. The entire range of topics from breast-milk composition to comprehensive lactation management center has been presented in a concise and crisp manner. All the authors have taken great efforts to provide you update and clinically relevant information.

Congratulations to all those who have worked hard to prepare this module and wish you success in promoting, protecting and supporting the breastfeeding.

I sincerely hope that this module reaches to maximum health-care providers.

“Never Doubt That A Small Group of Thoughtful Committed Citizens Can Change The World”

- Margaret Mead

Dr. Mangala Wani.

President BPNI Maharashtra



Message MOGS President Dr. Sarita Bhalerao



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St. Elizabeth, Wadia Maternity Hospital, Mumbai
President The Mumbai Obstetric and
Gynaecological Society 2021-2022
Past President Association of Medical Women in
India (Mumbai Branch)
Immediate Past Chapter Secretary Indian
Menopause Society Mumbai Chapter
Member, Governing Council, ICOG

I am delighted that The Mumbai Obstetric and Gynaecological Society will collaborate with Cooper Hospital for this Inaugural program on Breast feeding which is part of the World Breast feeding week 2021.

MOGS is a large professional organisation of over 2500 obstetricians and gynaecologists in Mumbai. Promotion of breast feeding is the responsibility of every obstetrician.

Breast feeding has many health benefits for mother and baby. It is also important for bonding. Sometimes mothers who want to breast feed are unable to do so due to lack of support. A mother needs support from her family as well as her health care providers.

I am certain that these programs will benefit our patients and our community as a whole. We are especially happy to collaborate with our Paediatric colleagues and nursing colleagues on this subject and together I am sure we can spread the message more effectively.

I would like to thank the entire organising team and especially Dr. Reena Wani for this excellent initiative .

Dr. Sarita Bhalerao, MD, DNB, FRCOG



Message from Dean HBT Medical College and Dr. R N Cooper Hospital



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Dean
HBT Medical College & DrRN Cooper
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It is with great pleasure that I present to you all the efforts of the editorial team from Obstetrics and Gynaecology department , Cooper hospital where I recently took charge as Dean.

Maternal and Child health is an important area of priority in healthcare , and as an administrator it is on my agenda to ensure best practices.

It is upto us to strengthen our healthcare system by comprehensive medical education , curriculum planning and development to ensure good clinical practices.

I congratulate Dr Reena Wani whom I have known for many years , for the consistent academic efforts and getting together this very comprehensive document which will benefit many institutes for inhouse training.

Best wishes to the MBPC team!

Dr. Shailesh Mohite



Acknowledgements & Disclaimer

ACKNOWLEDGEMENTS

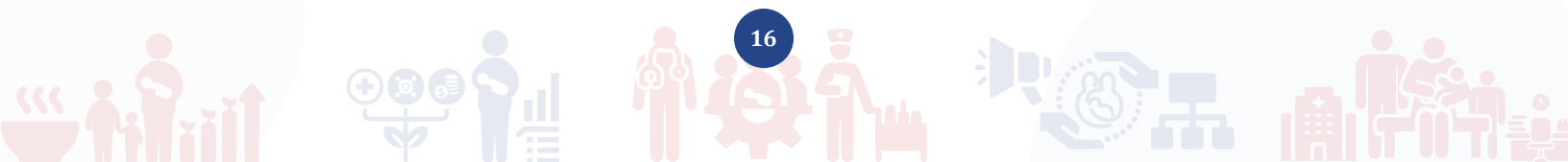
We are fortunate to have assistance and support of our talented seniors in the making of this handbook, much of which is based on earlier modules created for training by MBPC & BPNI.

- We are especially grateful to authors for their sharing of expertise and timely contribution to complete this project in record time
- MBPC for conducting the World Breastfeeding program yearly with great enthusiasm.
- WABA, BPNI for their tireless efforts to protect breastfeeding
- The support from administration and Dean sir Dr. Shailesh Mohite at HBTMC & Dr. R. N. Cooper Hospital.
- Co-editors gratefully acknowledge Dr. Reena Wani for her dedication and commitment who enthusiastically and skilfully conceptualized and managed to bring out this handbook.
- Our spouses and family members who are our support system. Special mention of Dr. Varun Wani, Dr. Priya Manihar and Dr. Jatin Wani, Sunny Dalvi for their inputs and time!
- Special thanks to Vikrant Dalvi for designing.
- A heartfelt thanks to Mr. Amardeep Raina and Team Emcure for unconditional support publish this very important handbook - "BreastFeeding: The precious bond"
- Special thanks to Tejas, Shantanu and the creative team for efforts without which completing this booklet in time was not possible!
- The prize-winners and participants of the WBW 2021 Poster competition, some of which posters have been displayed in this booklet.



DISCLAIMER

Information contained in this handbook is updated, believed to be reliable and is in accordance with the accepted standards, at the time of publication. However with ongoing research and passage of time, new knowledge may modify some of it. Although great care has been taken by each author and editorial team in compiling the data, it is possible some errors have been left uncorrected. The authors are believed to have used material which is not having any conflict of interest or copyright issues. For further information and clarity, the reader may refer to the original source. The Editors and publishers are not responsible for errors, omissions or inaccuracy.



Introduction to **MUMBAI BREASTFEEDING PROMOTION COMMITTEE**

(ACASH, BPNI, MBIAP, MCGM, MCIAPSM, MEDICAL COLLEGES, MOGS, NFM, SNEHA, SNDT, UNICEF)

COMPILED
BY



Dr. Sushma Malik

Lactation Consultant, Ex-President- MBPC, & Professor & Head, Pediatrics & Neonatology, Amrutdaan Human Milk Bank, KMC Services & Pediatric Palliative care, TN Medical College & BYL Nair Hospital, Mumbai.

History of MBPC

Brief History- Ever since 1992 when the BFHI came into being in Mumbai, various organisations and medical colleges were celebrating World Breastfeeding week and were conducting BF training programs independently. So it was decided that a committee should be formed, so that they work together under one umbrella and this would ensure that everyone works together and not independently. So various organisations including **ACASH, BPNI, MBIAP, MCIAPSM, MEDICAL COLLEGES, MOGS, NFM, SNEHA, SNDT, UNICEF** got together to work for the promotion and support of breastfeeding. In 2001 under the patronship of Dr. Armida Fernandes the “**Mumbai Breastfeeding Promotion Committee**” was formed. Ever

since then various activities have included training of doctors, nurses, community health workers, anganwadi workers and the spectrum of activities has multiplied over the years at the urban, rural and at the grass root level. BPNI Maharashtra took the initiative in 2009 to introduce the training of IBCLC in Mumbai and to date there are 28 lactation consultants (IBCLC) trained in our committee.



Year	President	Vice President	Secretary / Jt Secretary	NB Kumta Award	MBPC Life-time Achievement	Exceptional Work Done
2001	Dr. Armida Fernandes	****	Dr. Rekha Udani / Dr. Ruchi Nanavati	Introduced in 2004	Dr. N B Kumta	
2002	Dr. Armida Fernandes	****	Dr. Rekha Udani / Dr. Ruchi Nanavati	Dr. Prashant Gangal & Amravati Branch	Dr. R K Anand	Training of all HCW of BMC
2003	Dr. Armida Fernandes	****	Dr. Rekha Udani / Dr. Ruchi Nanavati		Dr. D K Tank	Training of all HCW of BMC
2004	Dr. Rekha Udani	****	Dr. Ruchi Nanavati		Dr. Armida Fernandes	
2005	Dr. Rekha Udani	Dr. Ruchi Nanavati	Dr. Sushma Malik		Dr. Vasant Khatav	
2006	Dr. Rekha Udani	Dr. Ruchi Nanavati	Dr. Anupama Mauskar	Raj Lakshmi Nair	Dr. Baburao Palav	
2007	Dr. Daksha Pandit	Dr. Jayashree Mondkar	Dr. Anupama Mauskar	Mr. Panduranghi Sudame	Dr. Rekha Udani	
2008	Dr. Daksha Pandit	Dr. Jayashree Mondkar	Dr. Anupama Mauskar	Dr. Sanjay Prabhu	Dr. Prashant Gangal	
2009	Dr. Jayashree Mondkar	Dr. Sushma Malik	Dr. Kamakshi Bhate/ Dr. Manissha Srivastav	Dr. Daksha Pandit	Dr. Charu Suraiya	IBCLC Program introduced
2010	Dr. Jayashree Mondkar	Dr. Sushma Malik	Dr. Kamakshi Bhate/ Dr. Manissha Srivastav	Mr. Chandrasen Turkar	Dr. Rekha Davar	
2011	Dr. Ruchi Nanavati	Dr. Sushma Malik	Dr. Shobha Kowli	Dr. Yogesh Sale	Dr. Jayashree Mondkar	TOT- Sion, Sensitisation & Identification of trainers
2012	Dr. Ruchi Nanavati	Dr. Sushma Malik	Dr. Shobha Kowli	Ms. Archana Rana Sheth	Dr. Mansi Chavan	
2013	Dr. Sushma Malik	Dr. Kamakshi Bhate	Dr. Manissha Srivastav	Dr. Gopal Pandge	Dr. Ruchi Nanavati	
2014	Dr. Sushma Malik	Dr. Kamakshi Bhate	Dr. Manissha Srivastav	Dr. Saurav Bhattacharya	Dr. P K Shah	
2015	Dr. Kamakshi Bhate	Dr. Sunita Shanbhag	Dr. Manissha Srivastav Dr. Anita Shenoy	Dr. Satish Tiwari	Dr. Sushma Malik	

Year	President	Vice President	Secretary / Jt Secretary	NB Kumta Award	MBPC Life-time Achievement	Exceptional Work Done
2016	Dr. Kamakshi Bhate	Dr. Sunita Shanbhag	Dr. Anita Shenoy	MSG Dipti Shah	Dr. Yogeshwar Nandanwar	
2017	Dr. Seema Bansode Gokhe	Dr Reena Wani	Dr. Mridula Solanki	Dr. Sneha Deo	Dr. Sunita Shanbhag	
2018	Dr. Seema Bansode Gokhe	Dr Reena Wani	Dr. Mridula Solanki	Dr. Alka Kuthe Ms Ila Mahidar	Dr. Kamaxi Bhate	
2019	Dr. Reena Wani	***	Dr Sujata Pol	Dr. Sarita Bhagwat Ms. Jayamala Pawar	Dr. Sandhya Khadse	
2020	Dr. Reena Wani	Convenors-For Arranging & Executing the Online Program- Dr Sushma Malik & Dr Ruchi Nanavati		Dr. Shama Kulkarni Dr Jayant Shah	Dr. Taru Jindal (MBPC Young Achievers Award)	1) First time Online program 2) Young Achievers Award was Introduced
2021	Dr. Reena Wani	**	Dr. Mumtaz Sharif	Dr. Mangla Wani	Sister Rekha Samant	
				MSG Sangeeta Vakharia		

Awardees

Pediatricians/ Neonatologists- Dr. N B Kumta, Dr. R K Anand, Dr. Armida Fernandes, Dr. Vasant Khatav, Dr. Rekha Udani, Dr. Jayashree Mondkar, Dr. Prashant Gangal, Dr. Charu Suraiya, Dr. Sanjay Prabhu, Dr. Ruchi Nanavati, Dr. Satish Tiwari, Dr. Sushma Malik, Dr Sandhya Khadse, Dr. Jayant Shah, Dr. Shama Kulkarni

Obstetricians- Dr. D K Tank, Dr. Rekha Davar, Dr. P K Shah, Dr. Yogeshwar Nandanwar, Dr. Alka Kuthe, Dr. Taru Jindal, Dr. Mangala Wani

Community Medicine- Dr. Daksha Pandit, Dr. Mansi Chavan, Dr. Sunita Shanbhag, Dr. Kamaxi Bhate,

Other Categories- Dr. Sarita Bhagwat (Homeopath) & **Nurses -** Rekha Samant, **MSG Counsellor & Lactation Consultants-** Ms. Dipti Shah, Ms. Sangita Vakharia

Grass-root workers /Health Dept & Govt & UNICEF- Mr. Pandurangi Sudame, Raj Lakshmi Nair, Ms. Archana Rana Sheth, Dr. Sneha Deo, Dr. Saurav Bhattacharya, Dr. Yogesh Sale, Mr. Chandrasen Turkar, Dr. Gopal Pandge, Dr. Baburao Palav, Ms. Ila Mahidar, Ms. Jayamala Pawar

Introduction to BPNI Maharashtra

AUTHOR



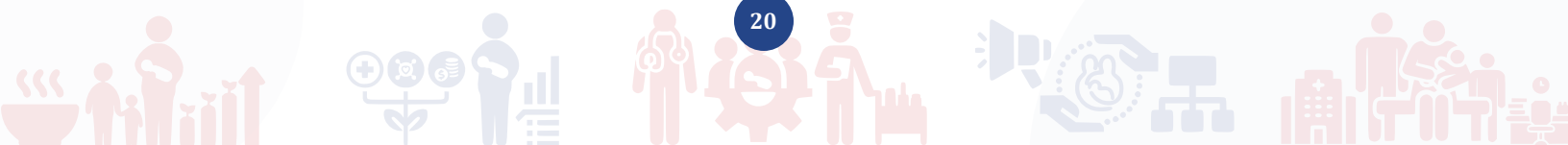
Dr. Prashant Gangal

Practicing Pediatrician
Breastfeeding Advocate -Trainer (3 Decades)
Mother Support-Training Coordinator of BPNI
Maharashtra Since 1995
Co-Coordinator: Mother Support Working
Group of WABA
Chair: Global Collaboration Committee, ILCA
(2018)

Background:

BPNI Maharashtra was constituted in 1994. It is a broad based organization with Pediatricians, Obstetricians, Public Health Experts, Lactation Consultant & Mother Support Counsellors, n Nurses & Health care providers dedicated to promote maternal & child health through Protection, Promotion & Support of IYCN (Breastfeeding & Complementary feeding, Maternal nutrition) & by improving Newborn and Child caring Practices.

1. Under Five Child Death (U5MR) remains high in Maharashtra, India and developing countries.
2. Younger the child, higher the chances of death.
3. Malnutrition directly or indirectly responsible for 45% of all U5MR
4. Appropriate breastfeeding and Complementary feeding can prevent 19% of U5MR
5. Initiation of breastfeeding within 1 hour will prevent 22% of newborn deaths.
6. Knowledge, Attitude and Practices (KAP) of Health Care Providers and society at large is not favorable for appropriate IYCN Practices.
7. Help provided by Maternity Services for successful breastfeeding is suboptimal



OBJECTIVES

1. Promotion and Advancement of Breastfeeding and allied Sciences.
2. Improvement of Public Health by promoting optimal breastfeeding & complementary feeding practices and education.
3. The maintenance of the honour and dignity and upholding of interest of Breastfeeding Promotion and cooperation between members thereof.
4. Improvement of child survival rate.

ACHIEVEMENT OF BPNI MAHARASHTRA

1) Maternity services

a) Baby Friendly Hospital Initiative (BFHI): >100 Maternity Hospitals certified along with 2 institutional hospitals. Recertification of Maternity Services covered by MSGs (Mother Support Group) is an ongoing activity.

b) Establishment of Mother Support Group (MSG): This was successfully established for the first time in India. Sixty Five MSG Leaders have been certified. These MSG Leaders have played a pivotal role in the activities of the organization.

c) Pre-Delivery and Post-Delivery Counselling by MSGs in 80 maternity homes in & around Mumbai. This includes many Municipal & Private Institutional Hospitals.

2) IYCN Training

a) Training of Governmental & Non-Governmental Health Care Providers in collaboration with State Governments and with support from UNICEF in states of Maharashtra, Jharkhand, Odisha, Gujarat, Rajasthan, Chhattisgarh and Bihar (About 60000 personnel in one day sensitization and 6000 in 3 day TOT).

b) Innovative Level I module written in Marathi & translated to Hindi, English, Gujarati & Oriya

3) Community

a) Awareness drives for different community groups e.g. Pregnant and lactating mothers, School & College students, Senior Citizens etc.

b) Traditional Massage Women (TMW) Training: >500 TMWs from North-West Mumbai were trained from 1999-2003 in a 12 hour course.

4) Government and University

a) Establishment of 'Hirkani's room': (facility to express and store milk) This concept was promoted to the Government of Maharashtra. Subsequently about 1000 Hirkani Rooms were established in Government Hospitals and PHCs (Primary Health Center)

- b) Inclusion of IYCN in medical curricula in collaboration with MUHS (Maharashtra University Of Health Sciences)
- c) One year course in Mother Support Counselling sanctioned by MUHS

5) Collaboration with other Organizations

UNICEF, WABA, Mumbai Breastfeeding Promotion Committee (MBPC), Indian Academics of Paediatrics (IAP), Association of Fellow Gynecologist (AFG) etc.

6) Media

- a) Articles in Newspaper and magazines
- b) Interviews on television and radio
- c) Sensitization of media personnel and celebrities.

7) Global challenges

- a) Contribution at International level : Breast crawl video & website (breastcrawl.org)
- b) Contribution to Hirkani's Daughters: Compilation of breastfeeding experiences of working mother by LLLI
- c) IBLCE exam conducted for the first time in India (Mumbai): 27 Faculty members including 7 MSG Counsellors passed the exam in 2009 & 2010 to get certified as IBCLC (International Board Certified Lactation Consultant). This training was restarted in 2017. The organization currently has 75 IBCLCs.

8. Website:

<https://bpnimaharashtra.org> was launched in 2003 & revamped in 2020. This has complete description of organization's activities and resource material for health care providers and prospective parents.

SERVICES OFFERED

- 1) Pre-Delivery and Post-Delivery Counselling of Mothers in Maternity Homes.
- 2) Baby Friendly Hospital Initiative (BFHI) Assessment & BFHI certification in the State of Maharashtra
- 3) Half day, 1 day, 3 days IYCN Training Workshops for Health Care Providers
- 4) Counselling for Breastfeeding problems: Positioning and Attachment, Breast Engorgement, Cracked Nipple, Low Milk Supply etc.
- 5) Community Awareness Programmes

- 6) TV / Radio programmes
- 7) Help for setting up 'Hirkani Room' (Breastfeeding room) at work places.
- 8) Consultative Service to Govt./Municipal bodies & NGOs for IYCN & BFHI Policy, Programming and Advocacy

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Tel. No. 9322317556/ 022-28809698
Email: mahbpni@gmail.com
Website: <https://bpnimaharashtra.org>



Convener's Report of **WBW program 2021 - POSTERS**

Doctors/Interns & Others Category



JUDGE

Dr. Anita Shenoy

Additional Professor & Head
Department of Community Medicine
HBTMC & Dr. R. N. Cooper Municipal
General Hospital, Vile Parle (West),
Mumbai



JUDGE

Dr. Radha Ghildiyal

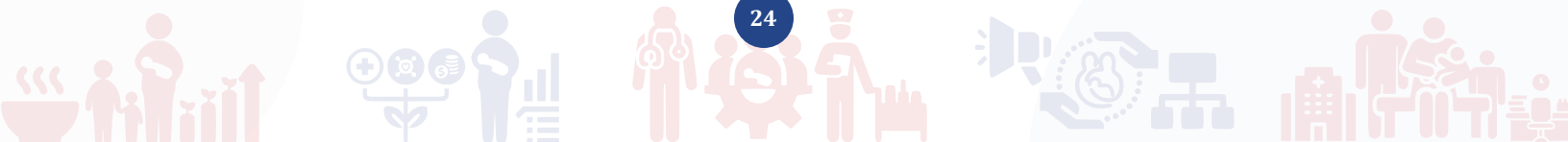
Professor & Head, Department of
Pediatrics
LTMMC & General Hospital
Sion, Mumbai

CONVENOR



Dr. Mridula Solanki

Professor (Additional),
Department of Community Medicine
Seth G. S. Medical College & KEM
Hospital, Parel, Mumbai – 12



TOTAL ENTRIES FOR THE COMPETITION

DOCTORS/INTERNS CATEGORY - 34 Entries

1st prize : Dhruvi Jain (Intern) HBTMC & R.N.Cooper Hospital

2nd prize : Dr Shrasta Soumya (RMO- Paeds) D.Y. Patil Medical College

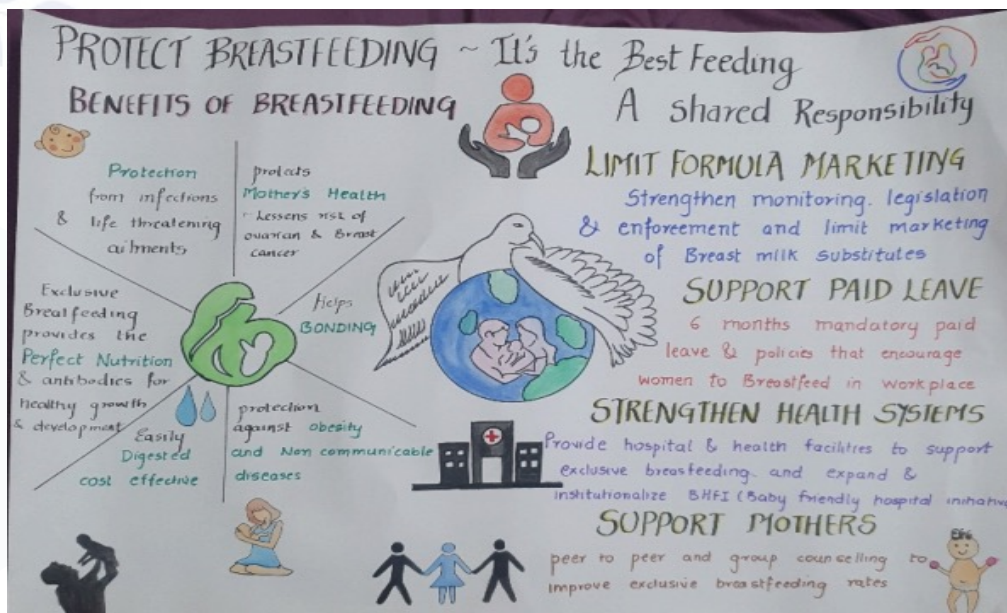
3rd prize : Dr Sayli Wankhedkar HBTMC & Dr R. N. Cooper Hospital

Consolation prize : Dr Revanth Sai Madhav B (RMO-Paeds) D. Y. Patil Medical College

OTHERS CATEGORY - 09 Entries

1st Prize : Swarangi Patankar (MBBS Student) Terna Medical College

2nd Prize : Vishal Sodaye (MSW) K. J. Somaiya Medical College





Report of E-Poster competition of MBPC by Dr. Pradnya Changede



CONVENOR

Dr. Pradnya Changede

Assistant Professor,
Department of Obstetrics and
Gynecology, LTMMC, Sion.
On the occasion of celebration of
World Breastfeeding Week 2021,
Mumbai

Breastfeeding Promotion Committee decided to organise an intercollegiate e-poster competition with online submission for three categories (Doctors/ Nurses/ Other HCW). Every year this competition is conducted and has overzealous participation in all categories. However, this year due to COVID 19 pandemic it was decided to hold an online E poster Competition. The pandemic did not deter participants from participation and due to multiple requests, the last date of submission was extended from 19th July 2021 to 22nd July.

E-Poster Competition-2021 was conducted on WBW Theme-2021: Protect Breastfeeding: A Shared Responsibility

Judges for this poster Competition were

JUDGE



Dr. Sunita Shanbhag

Ex Professor, Dept of PSM,
Seth G.S. Medical College and
KEMH

JUDGE



Dr. Charusheela Korday

Associate Professor & In-charge NICU,
Department of Pediatrics,
HBTMC and Dr R N Cooper Municipal
General Hospital,
Vile Parle (West), Mumbai

A total of 67 entries were received for E poster competition in Nurses Category.

Posters were made in English / Marathi /Hindi, so that can be used in the community. Participants were asked to give a suitable title to the posters. Posters were made with crayons, paints or sketch pens in standard—chart paper size. Posters were submitted as e- copy (scanned copy) only. The identity of the participants was not revealed on the poster. Only one person per poster was permitted. However, multiple and unlimited entries per college were permitted.

Following Nursing Colleges participated in the competition

- 1) D Y Patil, School of Nursing, Nerul, Navi Mumbai.
- 2) L.T. College of Nursing, SNDT Women's University.
- 3) School of Nursing, LTMG Hospital, Sion, Mumbai.
- 4) Institute of Nursing, JJ Hospital.
- 5) TNMC BYL Nair Ch trust Hospital.
- 6) School of Nursing KEMH.
- 7) Sau Minatai Thakre Institute of Nursing Education, Thane.

Judgement Criteria Entries were judged on the following criteria

- a) Subject matter & caption.
- b) Relevance to theme-support and promotion of breastfeeding.
- c) Poster clarity & technique.

Result of the Competition were as follows

1st Prize

SAKSHI KOLI, Sau Minatai Thakre Institute of nursing education

2nd Prize

Aditi Jadhav, Sau Minatai Thakre Institute of nursing education

3rd Prize

Prajakta Mokal, Sau Minatai Thakre Institute of nursing education

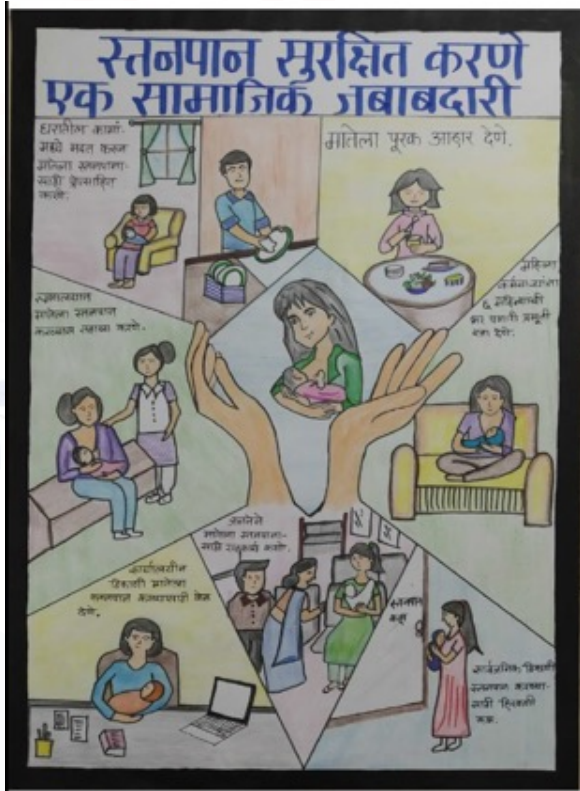
Consolation Prize 1

Akshata Gaikwad, Sau Minatai Thakre Institute of nursing education

Consolation Prize 2

Saniya Shaikh, TNMC BYL Nair hospital

It was decided to display all Prize-winning posters at the inaugural function of WBW week celebration. Attractive Prizes will be awarded To Winners at the inauguration ceremony.



Convener's Report of WBW Program 2021 - STREET PLAY

Doctors/Interns & Nurses Category Judges



JUDGE

Dr. Rajesh Rai

Professor & Head
Department of Paediatrics
D Y Patil Hospital, Nerul, Navi
Mumbai



JUDGE

Dr. Yogeshwar Nandanwar

Professor & Head
Department of OBGY
D Y Patil Hospital, Nerul, Navi Mumbai



JUDGE

Dr. Kamaxi Bhate

Ex-President, MBPC & Professor
Emeritus, Community Medicine,
Seth GS Medical College and
KEM Hospital



CONVENOR

Dr. Mumtaz Sharif

HOU and Professor
Department of Paediatrics,
D Y Patil Hospital, Nerul, Navi
Mumbai



CONVENOR

Dr. Shital Kolhe

NICU Incharge
Department of
Paediatrics, D Y Patil
Hospital, Nerul, Navi
Mumbai

TOTAL ENTRIES FOR THE COMPETITION=9

DOCTORS/INTERNS CATEGORY : We received total 3 entries from different institutes

Dr. D. Y. Patil M.C/Hospital, Terna Hospital, Nerul, & HBTM C/R.N Cooper Hospital


Dr. R.K. ANAND Prize was awarded to Terna Hospital.

NURSES CATEGORY: We received total 6 entries from different institutes :

T.N.M.C/Nair Hospital, Minatai Thakeray Hospital, Seth G.S.M.C/K.E.M Hospital, Sion Hospital, Mumbai, Dr. D. Y. Patil M.C/Hospital, K.J. Somaiya M.C/Hospital

Mrs. Asha Anand Prize was awarded to TNMC & Nair Hospital nursing team.

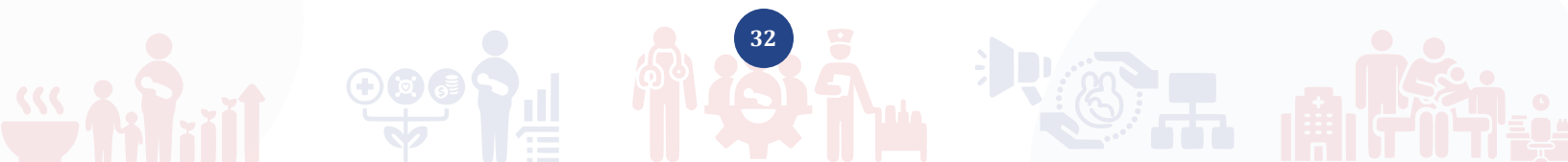




Section 1



Breastfeeding Physiology and Preparedness



Objectives:

1. Describe the variation in the composition of breast milk in different stages of growth of the baby.
2. To explain superiority & benefits of breast milk & breastfeeding.

Exclusive breastfeeding

Exclusive breastfeeding means that the infant receives only breast milk. No other liquids or solids are given – not even water – with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medicines. Infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health.¹

Only breastmilk for the first six months means:

- No liquids, like honey, glucose water, water, gripe water, juices.
- No other milk like animal or powder
- No semisolids or solids

A] Composition of Breast Milk:

a. Types of Breast Milk:

1. Colostrum: first 72 hours:

- The first fluid produced by mothers after delivery is distinct in volume, appearance and composition.
- Colostrum, is rich in immunologic components such as secretory IgA, lactoferrin, leukocytes, as well as developmental factors such as epidermal growth factor.^{2,3,4}
- Contains more protein, vitamins A and K.
- Enhance the development and maturation of the baby's gastrointestinal tract.
- Suffices the caloric needs of newborn in the first few days of life
- Purgative action – clears meconium & helps to prevent jaundice

2. Transitional Milk- Day 5 to 2 weeks postpartum:

- Transitional milk shares some of the characteristics of colostrum but represents a period of ramped up milk production to support the nutritional and developmental needs of the rapidly growing infant.
- Lower in Immunoglobulin and protein content.
- Fat and sugar content increases.

3. **Mature Milk – after second week:**

- Increases in Quantity
- Appears thinner, more watery
- Contains all the nutrients needed for healthy physical and mental development of the baby.

4. **Foremilk:**

- Comes at the starts of a feed.
- Is watery has a low level of fat
- Is high in lactose, protein, vitamins, minerals and water.
- It satisfies the baby's thirst

5. **Hindmilk:**

- Comes later in a feed ,
- Is richer in fat.
- It satisfies the baby's hunger and
- Supplies more energy than foremilk

The composition of milk changes according to the gestational age or maturity of the baby.

b. **Macronutrients in breast milk:**

Mean macronutrient composition of mature, term milk is estimated to be approximately 0.9 to 1.2 g/dl for protein, 3.2 to 3.6 g/dl for fat, and 6.7 to 7.8 g/dl for lactose. Energy estimates range from 65 to 70 kcal/dl, and are highly correlated with the fat content of human milk.

1) **Protein:**

The true protein content of human milk is 0.9%, in well-nourished as well as malnourished mothers. Casein constitutes only about 20% of the protein nitrogen in human milk. The remaining 80 % is derived from the whey proteins of which, the three dominant components being α -lactalbumin, lactoferrin and secretory IgA. Lysozyme is a minor component of the whey proteins and represents an active enzyme with a bactericidal effect.

2) **Fat:**

It is the most highly variable macronutrient of milk. Hindmilk may contain two to three

times the concentration of milk fat found in foremilk.⁵

Human milk fat is characterized by high contents of palmitic and oleic acids. Fatty acid composition of milk fat varies somewhat with the composition of diet. Phospholipids include phosphatidyl ethanolamine, phosphatidyl choline, phosphatidyl serine, phosphatidyl inositol, and sphingomyelin.

3) **Carbohydrate:**

Carbohydrates (mainly lactose) forms about 7% of the breast milk and provides the baby with instant energy. The principal sugar is disaccharide lactose. Lactose is important for maintenance of constant osmotic pressure in human milk.⁶ Human milk carbohydrates also include small amounts of monosaccharides, such as glucose and galactose, as well as human milk oligosaccharides (HMO).⁷ Lactose also benefits gut microbiota and helps in absorption of calcium.⁸

c. **Micronutrients & Minerals:**

All of the vitamins, except vitamin K, are found in human milk in nutritionally significant concentrations.

The principal mineral constituents of human milk are Na, K, Ca, Mg, P, and Cl. Iron, copper, and zinc contents of human milk vary considerably. A long list of other trace elements has been reported. About 25% of the total nitrogen of human milk represents non-protein compounds including urea, uric acid, creatine, creatinine, and a large number of amino acids. Of the latter, glutamic acid and taurine are predominant in quantity.

Prebiotic composition in breast milk can vary quite a bit and is mainly sourced from complex sugars called oligosaccharides.⁹ These provide the good bacteria to baby's gut which forms the base for strong immunity against infections.

d. **Bioactive components in breast milk:**

Bioactive components are defined as elements that "affect biological processes or substrates and hence have an impact on body function or condition and ultimately health."¹⁰ Bioactive components in human milk come from a variety of sources; some are produced and secreted by the mammary epithelium, some are produced by cells carried within the milk¹¹ while others are drawn from maternal serum and carried across the mammary epithelium by receptor-mediated transport.

i. **Growth factors**

Human milk contains numerous growth factors that have wide-ranging effects on the intestinal tract, vasculature, nervous system, and endocrine system.

1. Epidermal growth factor (EGF): Helps in intestinal maturation, and repair.
2. Neuronal growth factors: Growth and development of the enteric nervous system.

These are brain-derived neurotrophic factor(BDNF) and glial cell-line derived neurotrophic factor(GDNF).¹²

3. The insulin-like growth factor(IGF) superfamily: Helps in tissue growth, IGF-I and IGF-II, as well as IGF binding proteins and IGF-specific proteases which are found in human milk. Their levels are highest in colostrum.¹³
4. Vascular endothelial growth factor(VEGF): Regulation of the vascular system
5. Erythropoietin(Epo): Intestinal development and prevention of anemia
6. Calcitonin and somatostatin: Growth-regulating hormones
7. Adiponectin and other hormones: Regulating metabolism and body composition

Other metabolism-regulating hormones found in effective quantities in human milk are leptin, resistin, and ghrelin, which appear to play an important role in regulating energy conversion, body composition, and appetite control.¹⁴

ii. IMMUNOLOGICAL FACTORS

1. Cells of human milk : Transfer of living protection and programming

About 80% of the cells in early milk are breast milk macrophages, which originate as peripheral blood monocytes that exit the bloodstream and migrate into milk through the mammary epithelium. Phagocytosis of human milk components transforms these monocytes into potent breast milk macrophages with unique functional features, including the ability to differentiate into dendritic cells that stimulate infant T-cell activity. This capability provides broadly powerful protection against pathogens while stimulating development of the infant's own immune system.

2. Cytokines and chemokines ; Communication between cells

- The TGF- β family constitutes the most abundant cytokines of human milk and consists of three isoforms, of which TGF- β 2 predominates. Milk-borne TGF- β regulates inflammation and wound repair and helps to prevent allergic diseases.¹⁵
- Granulocyte-colony stimulating factor(G-CSF), identified in human milk has beneficial effects on intestinal development and the treatment of sepsis.
- Pro-inflammatory cytokines TNF- α , IL-6, IL-8, and IFN- γ are also found in mother's milk. The role of the inflammatory cytokines found in human milk remains under investigation, but they are known to be engaged in the recruitment of neutrophils, enhance intestinal development.IL-8 may help protect against TNF α -mediated damage.¹⁶

3. Acquired and innate factors : Protection from infection

- A set of innate, multi-functional molecules also provide significant protection against infection. Lactoferrin, which is the most abundant of these, is effective

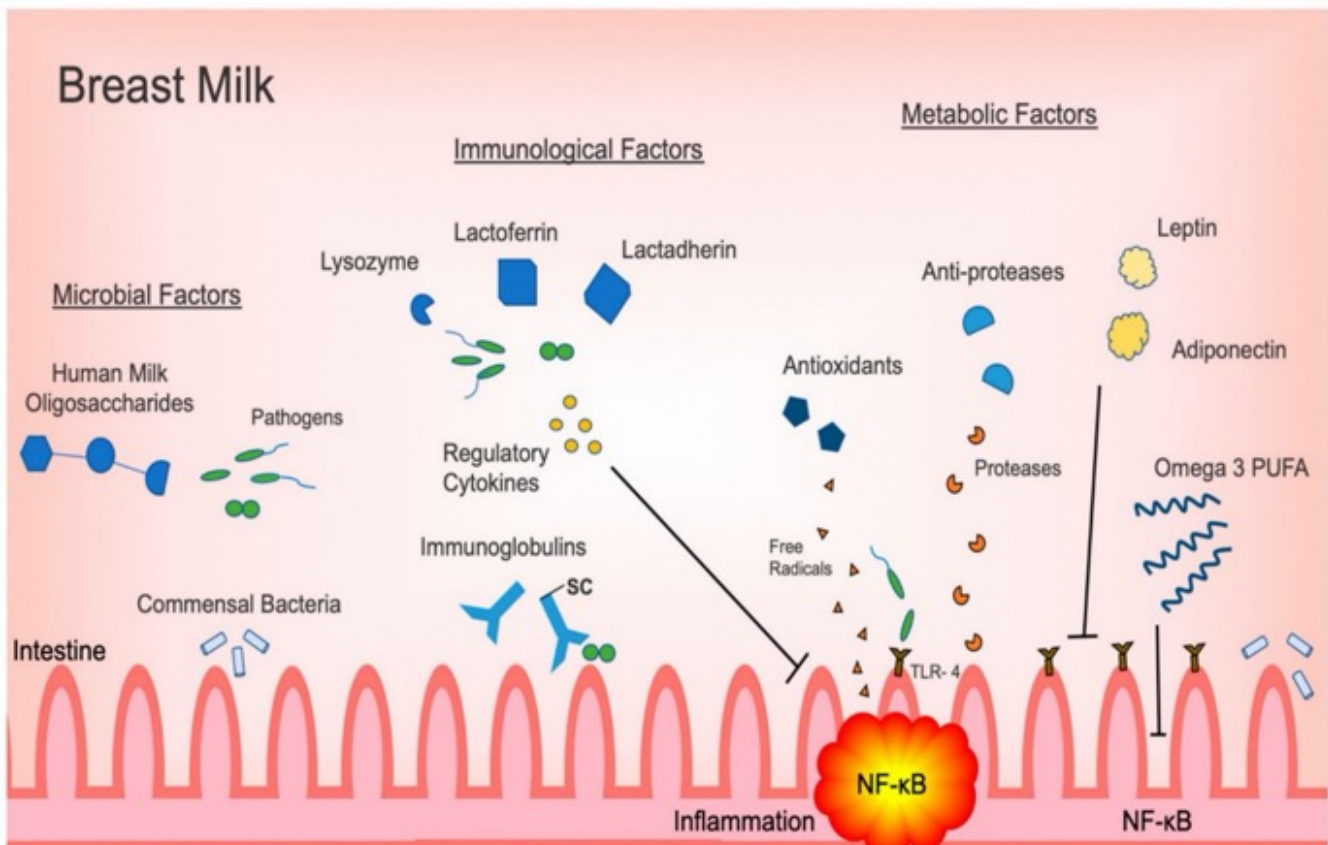
against many different bacteria, viruses and fungi.¹⁷ Lactadherin, prevents rotaviral infection in the newborn and also promotes healing during intestinal inflammation.¹⁸

- Another multi-functional protein, bile salt stimulating lipase(BSSL), is a highly glycosylated enzyme that breaks down milk fats. Milk-borne BSSL also protects infants from viral infection, including Norwalk and HIV. BSSL binds to dendritic cells, preventing HIV trans-infection of CD4+ T cells.¹⁹
- The milk fat globule(MFG) contains mucins(MUC1, MUC4, and potentially others) derived from the maternal plasma membrane. These mucins are multi-functional, but most importantly, protect infants from infection. For example, MUC1 blocks infection by HIV and rotavirus and both MUC1 and MUC4 block infection by Salmonella enterica serovar typhimurium and Norwalk virus.²⁰

4. Oligosaccharides: Selection for the growth of beneficial organisms.

The human milk oligosaccharides are “prebiotic” agents that selectively encourage the growth of beneficial(probiotic) organisms.

Fig 1- Breast milk Bioactive Factors:



B] Superiority of Breast milk:

Whey proteins in breast milk are easy to digest, well absorbed, have antiinfective properties whereas casein is less easy to digest. Cow milk protein is dominated by the casein fraction, which constitutes 80% of total protein, while the whey protein fraction constitutes 20%.

Fig 2 - Nutrients in Different Milks(gms / 100 ml)

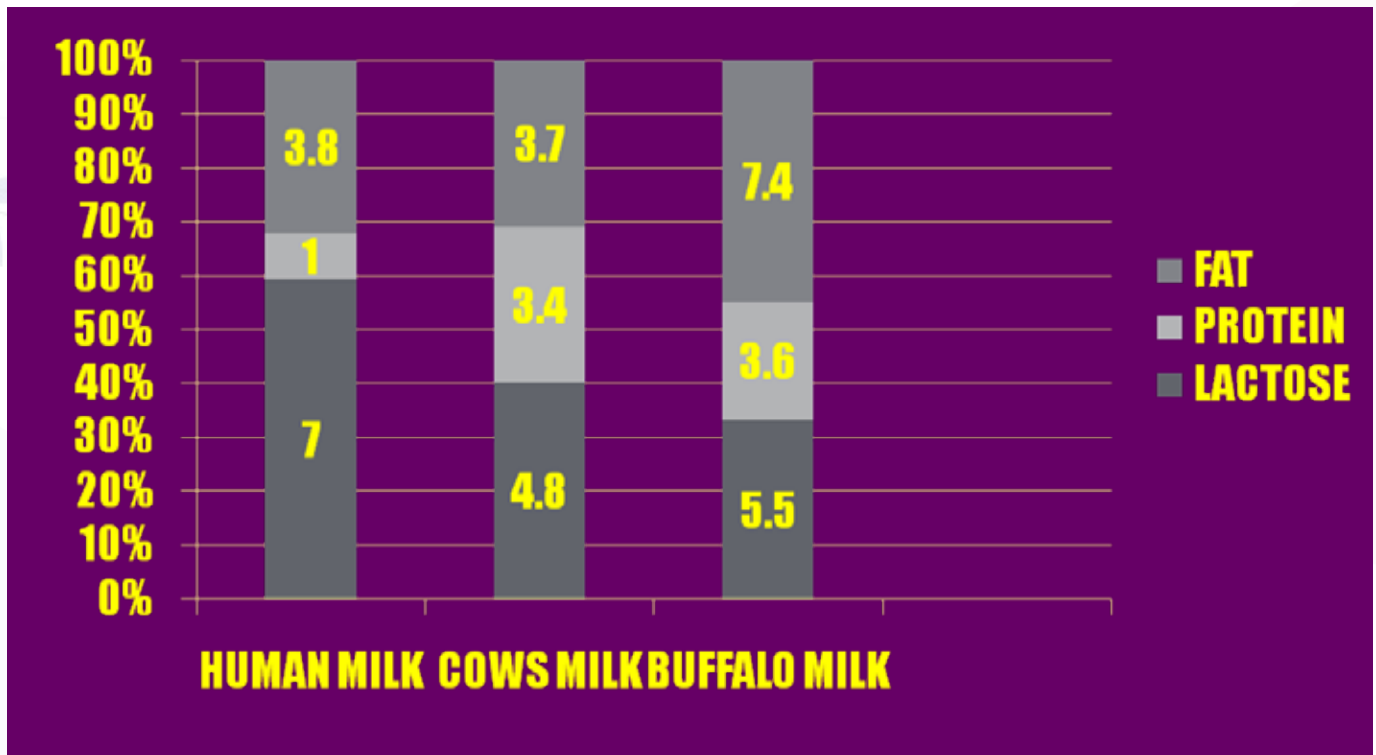
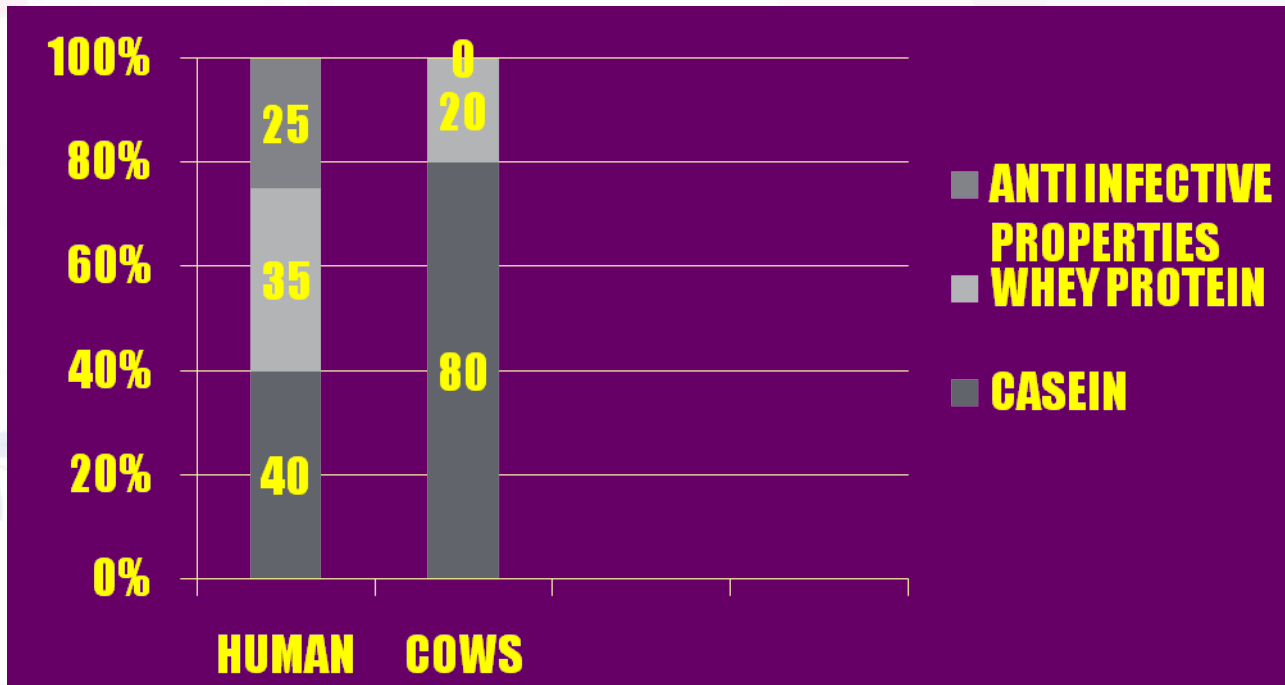


Fig 3 - Differences in Quality of Proteins in Human and Cow's Milk



Differences in Fats of Human & Cow's Milk:

Human milk contains 1.8% saturated fat, 1.6% monounsaturated fat and 0.5% polyunsaturated fat, while Cow's milk contains 2.5% saturated fat, 1.0% monounsaturated and 0.1% polyunsaturated fat. The higher level of unsaturated fatty acids in human milk reflects the important role of these fats in brain development. Human milk also contains the fatty acids arachidonic acid and docosahexaenoic acid, both of which are essential for brain development and functioning; cow's milk does not contain these fatty acids. As compared to the fats in cow's milk, the fats in human milk are more easily digested, more efficiently used.

Iron in Milk:

A clinical study provided support for the proposition that human infants absorb iron more efficiently from human milk than from cow's milk.

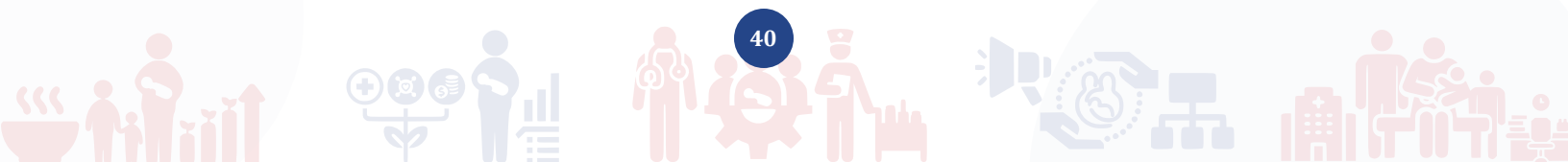
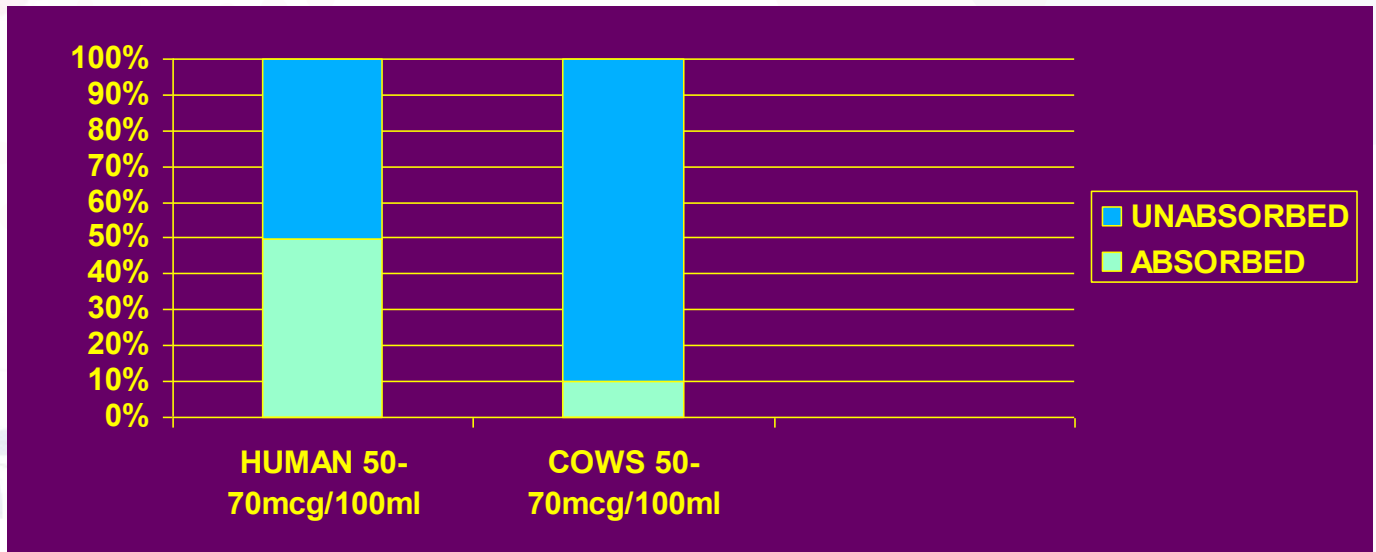


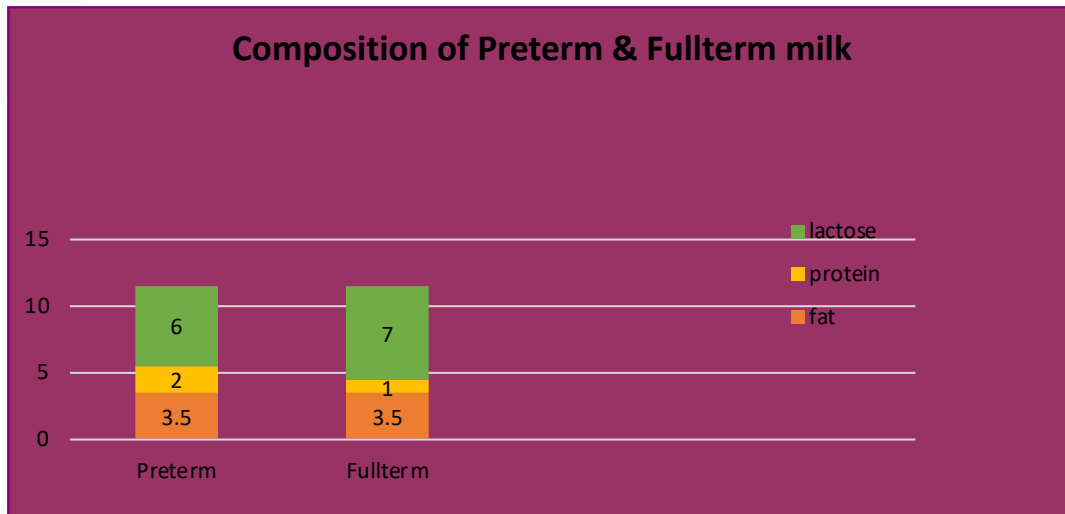
Fig 4 – Comparison of Bioavailability of Iron in Human and Cow Milk:



Composition of Full term and Preterm Milk:

Macronutrient composition differs between preterm and term milk, with preterm milk tending to be higher in protein and sodium than full term milk.

Fig 4 – Composition of Full term and Preterm Milk



C] Benefits of Breastmilk and Breastfeeding

1) Benefit to Child:

1-New born / Infants

- Species specific
- Optimum nutrients(quantity and quality)
- Tailor made even for premature babies.
- Bio-availability of minerals & vitamins better(less anemia/ rickets/scurvy)
- Potentially lifesaving against - Enteric pathogens, meningitis, pneumonia
- Protection against - Measles, mumps, polio, rotavirus & Jap B encephalitis.
- COVID 19 Protection - SARS-CoV-2 antibodies found in breast milk showed strong neutralizing effects, suggesting a potential protective effect against infection in the infant.²¹

2- Infancy and childhood:

A. Disease Prevention:

1. Diarrhea & GIT Illnesses:

- Secretory IgA - Prevents adherence of micro organisms
- Lactoferrin/ Lysozyme/ Complement - Kill E. coli, Rota virus, Shigella, Salmonella
- Bile stimulated lipase – Kills Giardia/ Entamoeba
- Breast milk - Oral rehydrant & provides fluid and nutrition
- Lesser severity, shorter course, decreased hospital stay & mortality

2. Respiratory Illness:

- Lower incidence
- Lesser Mortality
- Lesser ear infections / otitis media

3. Other Illness

- Reduced risk of Necrotising enterocolitis(NEC) & Sudden infant death syndrome(SIDS).

B. Breastfeeding & Brain Development:

- Longer duration of breastfeeding: Better educational outcome
- Better cognitive ability

- Reading comprehension
- Mathematical ability
- Significant increase in IQ

C. Vision development:

- Taurine in breastmilk help in retinal integrity
- Essential Fatty acids(EFA) aids in visual development

D. Scholastic age:

- Fewer orthodontic/ dental problems.
- Lesser chronic digestive disorders.
- Decreased incidence of asthma & allergies
- Lesser behavioral problems.

E. Adulthood:

Decreased incidence of:

- Asthma/ Allergies/ Eczema
- Diabetes(IDDM)
- Hypertension, atherosclerosis, coronary disease
- Obesity & associated risks
- Degenerative disorders - Motor Neurone Disease(MND)

2) Benefits to Mother:

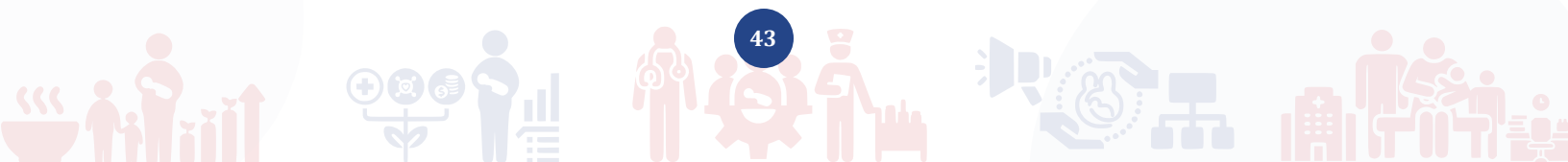
- Less post-partum bleeding
- Rapid uterine involution
- Lesser breast & nipple problems
- Emotional bonding
- Reduced risk of pre-manopausal breast & ovarian cancer

Lactation Amenorrhoea(LAM)

- Natural way to space pregnancy
- Prerequisites - exclusive breastfeeding, < 6 months, day& night
- Protects women's health and recovery of iron stores

Emotional Support

- Better quality of mothering & emotional bonding



- Sense of accomplishment & confidence
- Close, comfortable & affectionate relationship with baby
- Lesser chances of child abuse/ neglect
- Better ways of dealing with upsetting events

3) Benefit to family:

- Saves money, time & conserve energy
- Less illness means less expenditure on health care & less stress for the family
- Family can space pregnancies.

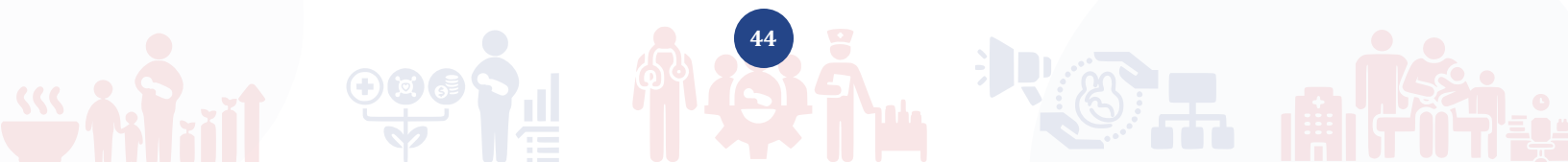
4) Community & Country:

- Contributes to child survival
- Decreases cost by preventing illnesses & allergies
- Contributes to population control & spacing of pregnancies
- Decreases government spending for formula milk
- Decreased IMR & Under five Mortality rates
- Decreases environmental pollution
- Saves earth resources

Breast feeding is best for all – Baby, mother, family, community and the country!

Key Messages

- Encourage exclusive breastfeeding till 6 month of age of baby.
- Colostrum, which is rich in immunological factors, must be provided to all newborns.
- Breast milk protects baby from illnesses including diarrhoea, coughs, colds and allergies like asthma and eczema, unlike animal and powdered milks.
- Breastfeeding reduces the incidence of breast and ovarian cancer in mother.
- Breast milk costs nothings, while animal and formula milks uses up a large percentage of the family's income.
- Exclusive breastfeeding for the baby for the first six months, day and night, daily, acts as a natural method of contraception in the post-partum period.
- Breastfeeding helps improve overall general health of baby and mother.
- Breastfeeding helps build a strong emotional bond between baby and mother.



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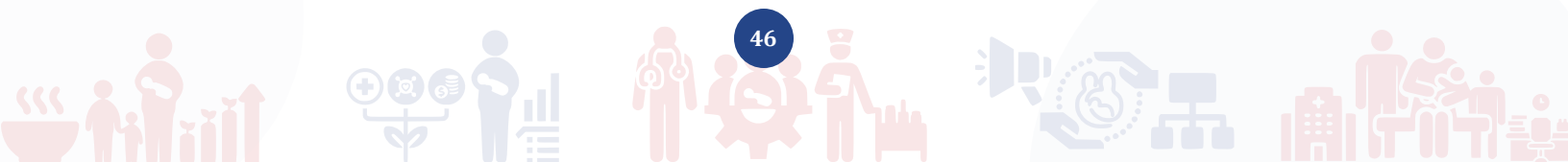
2. Optimum Breastfeeding: Early Initiation to Exclusive Breastfeeding



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Whether delivery takes place in a hut in a rural village or a hospital in a major city, putting new-borns to the breast within the first hour after birth gives them the best chance to survive, thrive and develop to their full potential.

Breastfeeding promoters like ourselves expect mothers to breastfeed soon after birth. In that case, the mother has to know all about the importance and methods of breastfeeding. She needs to develop confidence for exclusive breastfeeding much before she delivers the baby! The mother especially the primipara needs to prepare herself for her new role and her caregivers (Husband, Mother, Mother-in-Law or anybody else) need to understand the importance of breastfeeding for the baby and for the mother.

Helping the mother learn about baby feeding and rearing practices during antenatal period is known as **Mothercraft**.

Mothercraft is a confidence building exercise, conducted in a group during antenatal clinic. Group learning helps because the concerns and myths of each mother get addressed. Hence the learning becomes manifold. Information given should be in **simple language and in communication format** to the mother and to the relatives to assure them about the quality and quantity of the breast milk. Here are some common concerns of the mothers and the family that Mothercraft addresses them don't just negate them, as shown--

- **“All mothers can produce enough milk-** as per the requirement of your baby. Right after your baby is born, she can be dried with soft linen except her palms, and the baby is placed directly on your chest. **This skin-to-skin (chest-to-chest)** contact helps your baby transition to the outside world. It decreases the baby's stress and promotes bonding between you and your new-born. Baby must be given to you within one hour, so that your baby learns to suckle. You can be helped to hold her in the labour room itself. This even helps you to expel the placenta fast and reduce blood loss during delivery.”
- **“Help baby root** - When your baby is at your breast, you can stroke her on the cheek that's closest to your nipple. The baby will root, or turn her head toward the stroking and open her mouth wide. You can take this opportunity to lift your breast and offer the baby to feed. If you have a C-section, you can place your baby skin-to-skin and try to breastfeed as soon as you and your baby are able to with some help. This will help your uterus to contract and come to the original size soon.”
- **“First three days there is only colostrum,** a few sticky brownish drops! Colostrum is the perfect first food for your new-born because it acts as a laxative, helping your baby excrete bilirubin through black stools to prevent jaundice. Colostrum coats the digestive tract and helps prevent infection. It provides immunity to the baby to protect against illness. It's easy to digest. Don't worry about the quantity. It is high in protein and packed with calories, so even a few drops fed often is enough for the baby's nutrition.”
- **“For the first eight to ten days feed your tiny new-born every two hours,** by putting baby to the breast again and again. This will help baby suckle better and stimulate the production of matured milk. Even if new-born is sleeping, she should be gently woken up to be put to the breast at least every 2 to 3 hours. Nurse for 10 to 15 minutes on each side. An average of 20 to 30 minutes per feeding helps to ensure that the baby is getting enough breast milk. Longer suckling

also allows enough time to stimulate your body to build up your milk supply. Don't hesitate to take the help of your husband or relatives to feed the baby in lying down or sitting up position".

*Letting the family know that her milk alone is enough for her baby is an emotional appeal. It is almost like saying that **she alone is chosen for the health and nutrition of the baby and all others have to help her.***

- **"The first breastfeeding is a learning experience** for you and your baby. Some new-borns latch on immediately and breastfeed well from the beginning. Some babies show little interest in nursing and don't latch on at all. Other babies latch on but won't suckle. All of these responses to the first feeding are normal. Be patient, keep trying, and ask for help."

Exclusive breastfeeding for optimal growth, development and health of infants: -

Exclusive breastfeeding means that the infant receives only breast milk for the first six months. No other liquids or solids are given – not even water – with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medicines if required.

For successful exclusive breastfeeding it is important to let the mother know about the position of the baby and that of the mother while feeding.

- **"Wear a shirt or a gown which opens completely** from front so that you can feed your baby easily and the **skin-to-skin** contact can be assured. Make your sitting comfortable by taking a good backrest, as it takes long time for the baby to feed. You may sit in a chair or on the bed as per your comfort. If you and your baby are comfortable, feed your baby in lying down position also."
- **"Turning the baby towards you while feeding** is important so that there is skin-to-skin contact of baby's stomach with your body. Touching the baby's cheek with your nipple will make baby open her mouth wide and that will help you to offer the nipple along with a big bite of areola in the mouth of the baby. That will make chin of the baby touch the breast of the mother and suckling with the tongue will make the lower lip fold outward. Baby's head, neck and body should be in the same line so that suckling, swallowing is easier and feeding is comfortable for the baby and mother."
- **Breastfeeding is an emotional experience** and not a mechanical method! for the baby and for you. Baby loves to listen to your voice so talk, sing or hum while feeding. It is a soothing feeling for her and will help to suckle more, feed more.
- In next one to two weeks your baby's weight will start increasing and she will start passing urine more than six times in 24 hours. Now you can start feeding the baby on demand. The demand may have a gap of 3 to 4 hours. Sometimes demand can also be more often, and sometimes the gap is 5-6 hours. Your baby might sleep much longer during the day so will demand milk at night. Just because baby cries at night to demand breast milk, don't think you have less milk!

Every few weeks growing baby's mother starts worrying that her milk is not enough, assuring her after talking and discussing with her makes her feel relaxed. Why do mothers worry? Mother worries because her baby cries more often, or takes less or more time to feed at the breast! Her breasts have become less heavy or the milk doesn't leak from the breast as it used to as earlier, or simply because she compares her baby's weight with her neighbour's baby or her friend's baby! She wonders if her position is not right. Here it is important to explain-

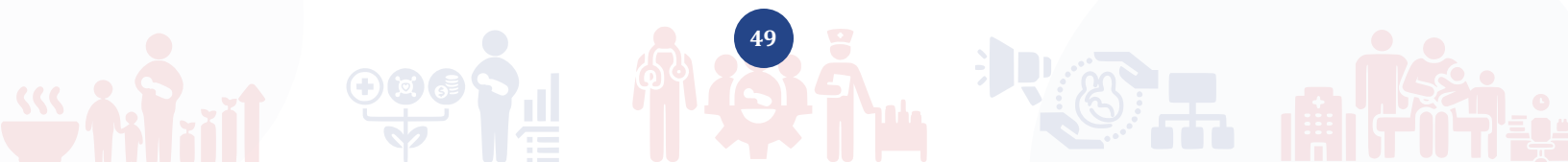
- “Does your baby cry all twenty-four hour? No. If you had less milk why would your baby sleep during the day? Baby has no clue about day and night. She sleeps during the day at a stretch for 5 -6 hours and gets up to feed or change her nappy and goes back to sleep. At night she will keep awake and play and demand more breast-milk, pass stool and urine several times and again demand breast milk. But everyone at home is sleeping at night, you also are sleepy. Hence the worry. If your baby’s weight is increasing 500-700 gm/month, she is passing stool soft and yellow and passing urine more than 6 times in 24 hours, this suggests you have enough milk. Some babies feed fast and some take time to feed on the breast. Your baby is unique. Don’t compare her to anybody.”
- “The breasts which were very heavy to start with will soften in a few weeks because now your body has known about the requirement of milk for the baby, moreover baby is also adjusted and simply suckling more effectively, so the leaking of breast milk has reduced.”
- “**Take any position you like** Feeding in sitting or lying down position is equally good. Whatever is comfortable to you and your baby is the right position. There are various positions to hold your baby while feeding, mainly, cradle position, modified cradle position, football position, lying down on side and feeding your baby. Since your baby and you have got adjusted to feeding and she is growing well, don’t worry.”
- “While you are feeding the baby, you will be more hungry and thirstier, remember you can eat everything that is freshly cooked at home, let it be less spicy to avoid acidity. You must avoid eating stail food and outside food. ***It is said Feed while eating and eat while feeding***

While talking about the baby positions while breastfeeding health care workers can use a doll to explain in the mothercraft clinic. Assurance and reassurance help the mother get confidence, and that is important for successful exclusive breastfeeding for six months. For each mother- baby pair what **works and what hurts is different.**

Hospitals, families, work places, and government policies should have a **baby friendly approach.** Protecting and promoting breastfeeding is a shared responsibility. Let us make the foundation of life strong!

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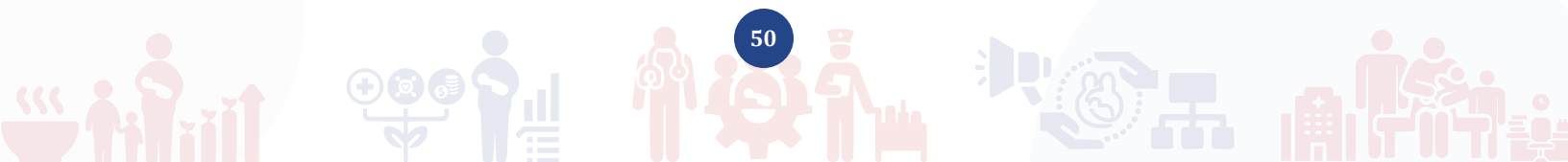
3. Preparation for breastfeeding during pregnancy and delivery



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Although breastfeeding starts after delivery of the baby, there are few things that need to be looked at and be prepared for even before birth, mainly during pregnancy.

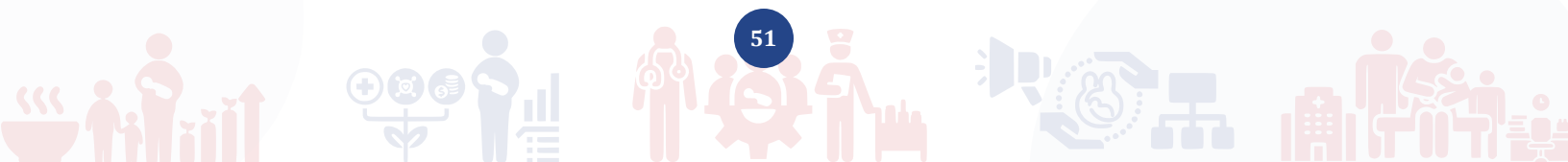
Points a new mother should do to prepare herself for breastfeeding are

BEFORE DELIVERY:

1. Get good prenatal care. This will help them in developing good nutrition necessary for breastfeeding. Also it will decrease the chances of premature delivery as premature babies have difficulty in breastfeeding than full term babies.
2. The pregnant body is preparing itself for breastfeeding. A pregnant woman should understand that this is the reason why her breasts get so much bigger during pregnancy — the milk ducts and milk-producing cells are developing, and more blood supply goes to the breasts than before. She has to be explained that breast size has nothing to do with your ability to nurse successfully. The hormonal changes pregnancy brings to your breasts are sufficient preparation for most women. There is no need to rub or scrub your nipples; this will only hurt her and make breastfeeding difficult.
3. Take a breast feeding class if possible or at least have some awareness regarding breastfeeding. A new mother is under tremendous stress and pressure from her family and from the new baby, so to grasp new terms such as cluster feeding, engorgement during that time becomes very difficult. A pregnant woman should also know things such as how often a newborn baby should be breastfed, that she should have as much as skin to skin contact as possible and the only important thing that will increase her breast milk output will be consistent breastfeeding. She can also be taught various breastfeeding positions and asked to practice them.
4. Talk to her doctor about her health. A doctor will look for potential breastfeeding problems like flat or inverted nipples. Even consultation with a trained gynaecologist or a lactation consultant may help at this stage. She should discuss any breast surgery or injury or silicone implants she may have had which can cause problems with breastfeeding. If she has history of taking supplements or medicines, she should talk with her doctor about treatments that can work with breastfeeding.
5. It is important for a pregnant woman to know that she should ideally breastfeed her baby as early as possible after delivery. The sucking instinct is very strong within the baby's first hour of life. She should be counselled about the same during pregnancy where she would be more receptive.

DURING DELIVERY:

1. An immediate postpartum mother should be asked to maintain immediate skin-to-skin contact with her baby after giving birth if the baby is healthy.
2. She should be asked to breastfeed as soon as possible after giving birth.
3. She should be offered the services of a lactation consultant if needed at any point.
4. The hospital staff and family members should be advised to not give sugar water or formula,



unless it is medically necessary.

5. The mother and the baby should be roomed –in all day and night so that she can breastfeed often and as and when possible.

PREPARATION FOR BREASTFEEDING BY PARTNER/HUSBAND

1. We need to Talk to fathers, partners, and other family members about how they can help support breastfeeding by being kind and encouraging
2. They can show their love and appreciation for all of the work that goes into breastfeeding
3. They can help make sure that the post-partum mother has enough to eat and drink and get enough rest and also help around the house.

TAKE HOME MESSAGE :

Preparation for breastfeeding shouldn't be limited to only after delivery , but should be an ongoing process right from the time the woman conceives.Support of partner /husband and family members is also extremely essential.

Learning Objectives :

At the end of the session, the participants shall be able to :

- know the importance of adequate nutrition in mothers during lactation.
- understand the effects of maternal nutrition on infant and maternal health
- advice a breastfeeding mother what to eat

Sessions outline :

1. Introduce the topic
2. PPT presentation
3. Answer participants questions

Duration : 15 minutes

Introduction to topic :

Explain what the session will be about :

- When we help a mother to breastfeed, it is necessary to explain to her about the importance of remembering her own health and take care of herself as well as her baby.
- To support optimal health for both the infant and the mother, it is important to understand how nutrient needs change during lactation and the consequences of inadequate intakes.
- In addition, it is critical to be familiar with typical dietary intakes of lactating mothers so that we can identify education needs and interventions to promote their health, vitality and well-being.

Facilitators/Instructors Notes for PPT :

Importance of adequate nutrition in mothers during lactation :

A worldwide accepted fact is that breastfeeding and breast milk are the global standard for infant feeding. Similar to pregnancy, adequate nutrition of the mother during lactation is of vital importance since during the first few months of life, the infant derives all the nutrition from the mother's milk. The child does not need anything over breast milk for the initial six months and generally, the child is breastfed for six to over one year.

Lactation is one of the most complex and nutritionally demanding phases of the human life cycle wherein the breastfed infant is dependent on the mother for resources, mostly in the form of nutrition amongst other things for growth and other developmental processes.

Women who breastfeed require approximately 500 additional kcal/day beyond what is recommended for non-pregnant women. The estimate is derived from the mean volume of breast

milk produced per day (mean 780 mL, range 450-1200 mL) and the energy content of milk (85 kcal/100 mL). During pregnancy, most women store an extra 2 to 5 kg (19,000 to 48,000 kcal) in tissue, mainly as fat, in physiologic preparation for lactation. If women do not consume the extra calories, then body stores are used to maintain lactation. Lactating women tend to lose 0.5-1.0 kg/month after the first postpartum month.

Table 1. Nutritional Requirements of Lactating Mothers during 1st 6 months & next 6 months of lactation

	Net energy	Protein	Fat	Calcium	Iron	Vit A - Retinol	Vit A - Betacarotene	Vit B1 - Thiamin	Vit B2 - Riboflavin	Vit B3 - Nicotinic acid	Vit B6 - Pyridoxin	Vit C - Ascorbic Acid	Free folic acid	Vit B12
	Kcal/day	g/day	g/day	mg/day	mg/day	ug/day	ug/day	mg/day	mg/day	mg/day	mg/day	mg/day	ug/day	ug/day
0 - 6 Months														
Lactating + Sedentary work	2425	75	45	1000	30	950	3800	1.2	1.4	16	2.5	80	150	1
Lactating + Moderate work	2775	75	45	1000	30	950	3800	1.4	1.6	18	2.5	80	150	1
Lactating + Heavy work	3475	75	45	1000	30	950	3800	1.5	1.8	20	2.5	80	150	1
Incremental consumption when lactating	+550	+25	+25	+600	+0	+350	+1400	+0.3	+0.3	+4	+0.5	+40	+50	+0.5
6 months+														
Lactating + Sedentary work	2275	68	45	1000	30	950	3800	1.1	1.3	15	2.5	80	150	1
Lactating + Moderate work	2625	68	45	1000	30	950	3800	1.3	1.5	17	2.5	80	150	1
Lactating + Heavy work	3325	68	45	1000	30	950	3800	1.4	1.7	19	2.5	80	150	1
Incremental consumption when lactating	+400	+18	+25	+600	+0	+350	+1400	+0.2	+0.2	+3	+0.5	+40	+50	+0.5

www.parentree.in Source: National Institute of Nutrition, Indian Council of Medical Research

Nutrients affecting infant health

Breast-milk concentrations of some nutrients can be altered by changes in maternal intakes or nutrient stores. The main nutrients in this group include vitamins A, C, and D, the B vitamins, iodine, and choline. With these nutrients, infants who are exclusively breastfed by mothers who have deficient intakes may be at risk of inadequacy. Milk is still produced when the mother is undernourished, but concentrations of certain nutrients may not be optimal or even sufficient for proper development under those conditions. The adverse health outcomes associated with deficient intakes vary from nutrient to nutrient.

Nutrients affecting maternal health

Other nutrients have breast-milk concentrations which are not altered by nutritional status of mothers. These are primarily the nutrients associated with infant growth such as calcium, zinc, phosphorous, protein, and calories. The mother's body will ensure there is a sufficient concentration of these nutrients in the milk at the expense of depleting maternal stores. As a result, inadequate intakes of nutrients in this group will lead to health effects in the mother rather than the infant. Potential health effects would be anaemia for iron deficiency and a decrease in bone mineral density for calcium, increasing future risk for osteoporosis.

Table 2. Lactating mothers' average intake of nutrients important for infant or maternal health

Nutrient	Intake as % recommendation	Common food sources
Chromium (mcg)	16*	Fruits, vegetables
Iodine (mcg)	21	Dairy, seafood, potatoes
Vitamin D (mcg)	24	Fortified dairy, eggs, fatty fish
DHA	30	Fatty fish
Vitamin E (α -tocopherol) (mg)	33	Oils, nuts
Lutein	42	Leafy greens
Choline (mg)	46*	Eggs, meat, green vegetables
Vitamin A (mcg RAE)	50	Dark green/orange vegetables, fortified dairy
Biotin (mcg)	53*	Egg, proteins
Vitamin C (mg)	67	Citrus fruits, vegetables
Pantothenic Acid (mg)	67*	Dairy, fruit, vegetable
Zinc (mg)	85	Proteins
Copper (mg)	85	Proteins
Calcium (mg)	89	Dairy, vegetables
Vitamin B6 (mg)	90	Meat
Folate (mcg DFE)	98	Leafy greens, fortified grains
Thiamin (mg)	107	Grains
Riboflavin (mg)	129	Dairy, proteins
Vitamin B12 (mcg)	150	Proteins
Iron (mg)	165	Proteins

Green nutrients are those whose concentrations in breast milk are affected by maternal intake

Blue nutrients are those whose concentrations in breast milk are not altered by maternal nutrition status

* Intake as percent of Recommended Daily Allowance (RDA). Percentage of Adequate Intake is shown for nutrients without an RDA (*)

Mothers nutrition needs for lactation :

It is extremely important for the lactating mother to eat enough food to provide adequate nutrients to make breast-milk so that she can not only nourish her child but also prevent her own body tissues from being used up and maintain her own nutritional status, to help her feel well and strong enough to care for her child and family.

- She needs to eat food which will provide about 500 extra calories in the form of a variety of foods (as shown in Table 2 as common sources of food) which will automatically provide the extra proteins, vitamins and minerals.
- Plenty of water and oral fluids must be part of her diet.
- Affording mothers who can eat freely and increase their food intake in response to their appetite do not usually need advice but can be counselled to eat a variety of foods.
- Mothers who are poor and may not afford variety of or special foods can be recommended to eat an extra helping of her usual food each day.
- If any food or vitamin supplement is to be given during lactation, it should be given to the mother and not the baby. They should be given throughout the lactation period and not only for the first

few months.

- Overall it is equally important for a woman to eat adequately before and during pregnancy to keep her strong and to build good stores of energy and nutrients which her body can use to make breast milk. Also a well nourished women is less likely to give birth to a low birth weight baby.

Key Messages :

Making breast milk uses about 700 Kcal a day. In a well nourished mother about 200 Kcal come from her fat stores accumulated during pregnancy and about 500 Kcal must come from the food that she eats during lactation.

A poorly nourished mother whose fat stores are smaller or if a mother is on a very poor diet, there may not be enough body stores or extra nutrients to make breast milk, the nutrients come from her own body tissues and she can become malnourished.

A mother's capacity to produce milk of sufficient quantity and quality to support infant growth is resilient and remarkably resistant to nutritional deprivation. However, milk production normally affects maternal body composition and nutritional status, and lactating women have increased nutrient demands.

Thus, nutritional needs are increased during lactation:

- For sufficient breast milk production.
- For providing adequate nutrients to the infant.
- To meet the mother's daily needs.

Further, it is not certain whether or not increased food intake during breastfeeding increases breast-milk production. The purpose to give supplements to mother is to improve her own nutrition and to ensure that her breast milk is adequate in nutrients for her baby's health.

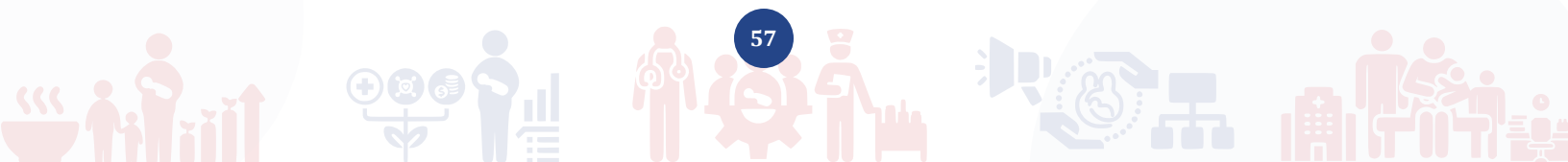
Encourage mothers to eat variety of foods for the extra proteins, vitamins and mineral required to provide for the extra 500 Kcal needed during lactation.

Mothers should be encouraged to breastfeed her baby often to build up her breast-milk supply.

Avoid suggesting early complementary feeding for babies, especially in non- affording families.

Counselling of family members to look after the nutritional needs of a lactating mother is of prime most importance – A shared responsibility

Questions commonly asked by mothers to be answered by participants :



What should I avoid eating ?

Will eating banana give cold to my baby ?

Will eating spicy food give diarrhoea to my baby ?

Is eating this or that food hot or cold for my baby?

Will drinking lots of water make my stomach bloat in future ?

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Breastfeeding can have its own challenges in certain situations. We will be discussing in short how we can overcome these challenges and establish lactation.

1. Feeding options in HIV

HIV Mothers can infect the baby (vertical transmission) during pregnancy, delivery and through breastmilk. There is 20% risk of transmission during pregnancy and delivery. Risk of transmission through breastmilk is 15 %.

UNICEF and WHO have recently updated guidelines for infant feeding in HIV positive mothers.

- All HIV mothers should receive Antiretroviral Prophylaxis during pregnancy and during breastfeeding period.
- Such mothers should exclusively breastfeed their child till the end of six months and introduce appropriate complementary food after completion of six months and continue breastfeeding till the end of the first year.
- Breastfeeding should not be stopped abruptly but over a period of one month and ARV prophylaxis in mother and child to be continued till seven days after stopping feeding.

AFASS Criteria for Replacement Feeding

A: Acceptable : Family and community do not pressurize the mother to breastfeed or suspect her of having any illness because she is giving replacement feeding. Hence the option of not breastfeeding and of giving replacement feeds should be acceptable to all concerned.

F: Feasible : The mother and family should have adequate time, knowledge and skills to frequently prepare and give the replacement feeds.

A: Affordable : The family can afford replacement feeding and medical expenses for illnesses due to replacement feeding.

S: Sustainable : Availability of an uninterrupted supply of safe replacement feeding, till child is atleast one year old. If this does not happen then child is likely to get mixed feeding and hence is at increased risk of transmission.

S: Safe: Precautions necessary to prevent infections arising out of giving replacement feeding can be taken care of: keeping utensils clean (availability of soap and water), boiling water/milk, maintaining hygiene and sanitation in and around the house.

Even if one of these criteria does not satisfy replacement feeding cannot be offered as a feeding option. Cracked nipples and engorgement in exclusively breastfeeding HIV positive mother and thrush in baby's mouth can increase the risk of transmission. Appropriate breastfeeding counselling for prevention and treatment of these problems can greatly reduce this danger.

Mixed feeding triples the transmission risk and hence to be strictly avoided. WHO and UNICEF suggest that HIV positive mothers should be counselled appropriately.

2. Chickenpox and breastfeeding

Women who have chickenpox do not have chickenpox virus in their breast milk. In fact, breast milk has the necessary antibodies that can protect a baby from contracting chickenpox. Mothers who contract chickenpox can breastfeed as normal. Any vesicles on the breast should be covered

to minimise the risk of transmission from virus within vesicles. If symptoms of chickenpox appear in the mother less than 5 days before and 2 days after delivery the baby should receive Varicella Zoster immunoglobulin and IV acyclovir.

3. Tuberculosis and breastfeeding

The best way to prevent infection in infants of infected mothers is timely and properly administered chemotherapy for the mother.

Breastfeeding and Maternal Tuberculosis Summary of Management

(according to the time of diagnosis and bacteriological status of the mother)

Active pulmonary TB diagnosed before delivery		Active pulmonary TB diagnosed after delivery		
> 2 months before		< 2 months before	< 2 months after	> 2 months after
Smear negative just before delivery	Smear positive just before delivery	-	-	-
Treat mother	Treat mother	Treat mother	Treat mother	Treat mother
Breastfeed	Breastfeed	Breastfeed	Breastfeed	Breastfeed
No preventive chemotherapy for infant	Give isoniazid to infant for 6 months	Give isoniazid to infant for 6 months	Give isoniazid to infant for 6 months	Give isoniazid to infant for 6 months
BCG at birth	BCG after stopping isoniazid	BCG after stopping isoniazid	BCG after stopping isoniazid	If BCG not given at birth, give after stopping isoniazid

Monitor all infants for weight gain and health
Do not give BCG to infants who are symptomatic for yellow fever or HIV infection

4. Multiple pregnancy and breastfeeding

Time- Twins may be breast fed in any of three modes: simultaneously, separately on an individual demand schedule, or separately on a modified demand schedule where one infant is fed on demand and then the other immediately afterwards. Simultaneous breast feeding saves time and also has a physiological advantage in that the more vigorous baby on one side may stimulate the letdown reflex for the other twin.

Sides- It is preferable to alternate breasts when breast feeding twins. This ensures that each breast receives balanced stimulation from the different babies and that the milk yield for each baby will be the same.

Positions for simultaneous breast feeding

There are three commonly used positions for simultaneous breast feeding

- “Double football”. As shown in fig 1,, an infant’s head is supported in each of the mother’s hands (or on a pillow) with an infant’s body lying under each of mother’s arms. Many mothers use this position initially before they gather more experience. “Double cradle”. In this position each infant is held like a singleton, in the cradle position. The two infants cross on the mother’s abdomen (fig 2.). This position is often used when the mother is more experienced and the infants have better head control.
- Combination of cradle with football. One infant is held in the cradle position and the second in the football position (fig 3).



figure 1

figure 2

figure 3

Mothers of triplets or quadruplets who intend to provide their infants with some exposure to human milk may choose between the various possible combinations.

5. Mothers of babies admitted in NICU

All Neonatal Intensive Care Units should have facility to accommodate mothers once they are mobile postdelivery .Breast emptying should be started within few hours postdelivery. Expressed milk needs proper storage and transportation. Kangaroo Mother Care should be encouraged. With extra help, support, counselling and training in breastfeeding techniques successful breastfeeding can be achieved. Baby can be discharged once it starts gaining weight with breastfeeding or expressed breastmilk feeding.

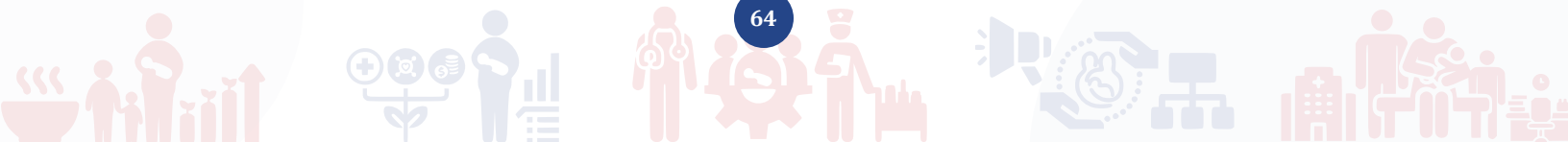
6. Mothers admitted in NICU

In situations which donot permit the mother to be with the baby regular emptying of breast and feeding of expressed breastmilk to the baby should be accomplished till the mother recovers.

7. Mothers of adopted baby or baby through surrogacy.

Estrogen and progesterone in an oral contraceptive pill should be started as many weeks as possible before the adoption. Breastfeeding or expressing begins when they are stopped. Contraindications and side effects of contraceptive pills must be considered. Suckling or other nipple stimulation and skin to contact cause the release of oxytocin from the hypothalamus without using pharmaceuticals. synthetic oxytocin to be used only if the milk ejection reflex is ineffective .Till the induced lactation is established supplementation (milk bank or artificial

formula) is essential. Putting the child for frequent suckle wil increase the production. Breastfeeding is compatible with majority of illnesses and situations ,encouragement and support offered to parents can help establish successful lactation.



6. Breast and Nipple problems

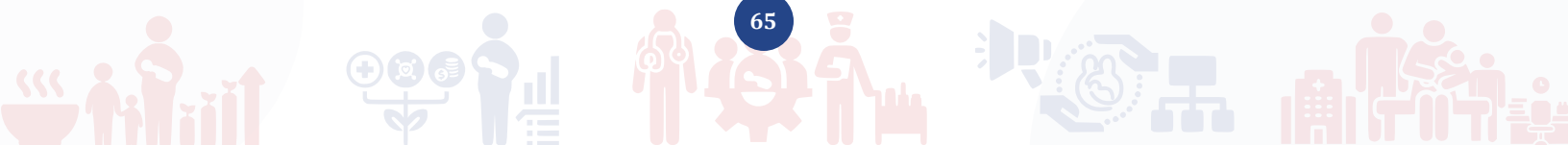


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Successful identification and treatment of common breast and nipple problems form the corner stone of successful breastfeeding.

A) Conditions of nipple affecting breastfeeding.

1) Sore nipple - A tender painful nipple is termed sore nipple. It may be red, cracked or bleed.

73 % mothers experience nipple pain on first day due to incorrect latching.

Allodynia is defined as the sensation of pain in response to a light stimulus that would not normally be painful.

Causes

- 1) Incorrect attachment (latching) causes baby to suckle at nipple. Areola doesn't enter mouth so baby doesn't get enough milk. Hence baby suckles more vigorously and for longer duration of time damaging skin of nipple. Nipple and large part of areola should be inside baby's mouth for successful breastfeeding.
- 2) Frequent use of soap and water washes out natural oil which normally keep nipples soft. Do not wash breasts frequently with soap.
- 3) Pulling of baby while baby is suckling.
- 4) Poor fit of pump flange will traumatize nipples.
- 5) Candidiasis of nipple.

Treatment

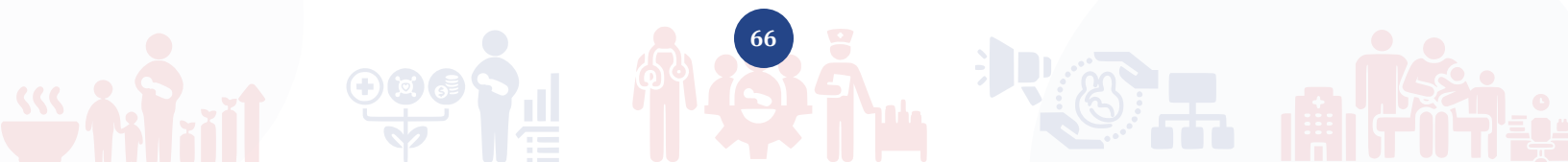
- 1) Proper latching of the baby to the breast helps prevent sore nipples.
- 2) Apply hindmilk expressed at the end of every feed. The high fat content acts as a lubricant and the antibodies present in breastmilk help healing.
- 3) Treating oral thrush of the baby with antifungal medications.
- 4) Cochrane review found good quality trials which used glycerin pads, lanolin, expressed breastmilk and all purpose ointments (a combination of topical antibiotic, antifungal and steroids).
- 5) Break suction by inserting fingers between gums and not lips.

Proper treatment should commence after observation of breast, infant oral anatomy and suck assessment. It is recommended to observe breastfeeding, pumping or manual expression session.

2) Nipple trauma or fissuring

Causes

- 1) Poor latch or positioning.
- 2) Superficial bacterial infection – yellow crusts are seen.
- 3) Pumping or manual expression.



Degree of nipple damage

Stage 1- superficial pain, intact skin (redness bruising swelling).

Stage 2 - superficial pain tissue breakdown (abrasion shallow fissure compression stripe blistering).

Stage 3 - partial thickness erosion (skin breakdown to lower layer of the dermis deep fissure).

Stage 4 - full thickness erosion (full erosion through dermis).

Treatment

- 1) Correct latch and positioning.
- 2) Topical Mupirocin or bacitracin ointment.
- 3) Using correct fit of flange and not using very high pressures for milk expression.

3) Types of nipples

- a) Common Nipple - It protrudes slightly at rest and becomes more graspable when stimulated.
Baby can grasp and pull in a large amount of breast tissue and stretch it to the roof of the mouth.
- b) Flat or Short shanked nipple -A flat nipple may have a short shank making it more difficult to form ridges and for baby to grasp and find. In response to stimulation the nipple may remain unchanged or may retract with compression. This nipple may benefit from syringing to increase protractility.
- c) Pseudo inverted nipple -It may appear inverted but it becomes erect after compression or stimulation. This needs no correction and presents no grasping problems.
- d) Retracted nipple -This is the most common type of nipple. Initially nipple appears graspable. However, it retracts on stimulation making attachment difficult. This nipple responds to techniques that increase nipple stimulation.
- e) Inverted nipple - A truly inverted nipple is retracted both at rest and when stimulated. This type is uncommon and is difficult for the baby to grasp. Techniques to enhance protractility of the breast can be used to improve attachment. Baby is able to latch if parents help form the breast into baby's mouth.

On doing pinch test (nipple is pinched 2 cm behind the base of nipple) truly inverted nipple remains inverted when compressed or stimulated. Pseudo inverted appears inverted but everts when compressed or stimulated. A short-shanked nipple appears everted but retracts when compressed or stimulated.

Treatment

- 1) Manually stretch and roll nipple between thumb and finger several times a day.
- 2) Teach mother to grasp the breast tissue so that areola becomes a teat and allows baby to feed (teacup or sandwich technique).
- 3) Pumping before breastfeeding helps in making nipple prominent.
- 4) Nipple shields are devices placed over the nipple and areola, the infant sucks to pull milk through holes in the tip. Thin silicone devices allowing tactile stimulation to nerves of areola and nipple are recommended.

Uses of nipple shield

- 1) Flat or inverted nipples – nipple shield helps stretch and improve elasticity of a flat or inverted nipple.
- 2) Tongue tie.
- 3) Weak or dysfunctional suck.
- 4) Block Overactive milk ejection reflex.
- 5) Protection of sore nipples.
- 6) Improve milk transfer in compromised infants.

Nipple shield is available in 3 sizes 16mm, 20 mm and 24 mm. The average nipple diameter is 15 to 16 mm.

Use- To apply roll the shield back most of the length of the nipple shank and apply it to the breast unrolling the shield onto the nipple and areola. The teat height should not exceed the length of the mouth of the infant from lips to the junction of hard and soft palate.

- 5) Nipple evertor are syringe like devices that are placed over the nipple with a plunger to gently create suction that pulls the nipple outward. It is recommended to apply suction to the nipple and hold the everted nipple for 30 seconds prior to breastfeeding.
- 6) Breast shells.

4) Nipple variations

1. Bulbous may be difficult for baby to grasp.
2. Dimpled nipple is enveloped by areola. It is a type of nipple inversion in which the tissue inside the fold can become adhered.
3. Bifurcated nipple has 2 or more sections.
4. Double or multiple nipples.
5. Skin tags on nipple.
6. Raspberry nipples-individual section of nipple are called nipple druplets.

7. Pagets disease of the nipple- it is a type of breast cancer resembling nipple eczema. It accounts for 2 to 3 % of breast cancers.

5) **Blocked duct (white spots on nipple, blebs)**

Milk produced in the glandular tissue of breast is carried towards nipple by ducts.

Duct may get blocked due to incorrect feeding, improper emptying of breast, incorrect attachment or tight clothing. Milk is not able to flow towards nipple and a painful lump develops. A ropy tender mass develops behind blocked duct.

Treatment - Continue to feed baby from affected breast.

Changing positions while feeding baby helps to unblock duct.

Massage the duct from chest towards nipple to unblock duct before and during breastfeeds.

Apply warm packs locally.

6) **Nipple vasospasm** is a constriction of the blood vessels with resultant color changes to the face of the nipple. This causes a shooting or cramping pain. Blanching of nipples occur due to cold stress. Keeping nipples dry and applying warm heat helps in treatment.

B) **Conditions of breast affecting breastfeeding.**

1) **Mastitis**

It is an inflammatory condition of the breast. Most infections affect one breast. Frequency 9 to 20 %

Pre disposing factors

Nipple damage, over production, plugged ducts, engorgement, primiparas, prior history of mastitis.

Incorrect use of breast pumps and nipple shields has been suggested as probable causes.

Treatment

1) Optimize latch.

2) Rest, fluid, frequent and complete drainage of breast.

3) Antibiotics (Dicloxacillin, cephalosporin and clindamycin).

4) NSAIDS

Most common organism is Staphylococcus aureus, Streptococcus and E coli.

If no response to antibiotics is seen milk culture can be sent.

Recurrence in same position if noted structural abnormality should be ruled out.

Engorgement of breast interferes with latching on breast and milk transfer.

Causes

Increased vascular flow, oedema and copious milk production exceeding infants demand, delayed initiation of breastfeeding, infrequent feeds are common causes. Engorgement worsens due to compression of blood vessels and milk ducts.

Engorgement typically occurs 3 to 5 days after delivery. If untreated can lead to mastitis.

Types

- 1) Primary engorgement -proactive avoidance by understanding feeding frequency, latch and milk transfer plays a major role.
- 2) Secondary engorgement -excessive pumping, change in feeding interval, URTI in infant and latching difficulty cause secondary engorgement.

Engorgement can also occur in tail of spence (axillary breast tissue)

Treatment

Regular breast emptying (ideally by baby) starting within first moments after birth is the first line of defense

- 1) Massaging breasts prior to and during feeds and pumping breasts.
- 2) Reverse pressure softening for peri-areolar edema.
- 3) NSAIDS.
- 4) Frequent milk expression.

2) Breast Abscess

Breast abscesses are cysts filled with infected material (pus). Infection of the breast resulting in tender, painful and hot swelling with the collection of pus is termed as a breast abscess.

Failure to treat lactation mastitis can progress to breast abscess.

Breast abscess needs to be distinguished from galactocele which is a cyst filled with non-infected milk.

85% abscess occur in first 3 months. The most common organism is Staphylococcus aureus.

Types

- 1) Subareolar abscess – occur close to surface. They are easier to excise and have a favorable prognosis.
- 2) Intramammary unilocular abscess-occur as a solitary focus of infection.

3) Multilocular -65% abscesses are multilocular. They have a high recurrence rate.

Predisposing factors

Nipple trauma, inadequate breast drainage, prior history of mastitis, primiparas, women older than 30 and women giving birth after 41 weeks.

Symptoms

Pain in breast, fever, flu like symptoms, fatigue, redness of breast.

Mothers can secrete yellow, orange or red color milk in MRSA infection.

Clumps seen in women's milk indicate staphylococcal infection due to coagulase protein produced by these bacteria.

Diagnosis -clinical examination and USG, culture and antibiotic sensitivity of pus.

Treatment

- 1) Analgesics.
- 2) Antibiotics.
- 3) Manual expression of milk from affected breast.
- 4) Ultrasound guided needle aspiration – is a less invasive, more conservative therapy with shorter recovery and has better cosmetic effect. Success rate of this procedure is 82 %. 1 to 4 aspirations may be required.

Incision and drainage – to release pus may be required for failed aspirations and for abscesses more than 10 cm in diameter. The incision is kept open and allowed to granulate. Surgical incision should be placed as far as possible from nipple to facilitate breastfeeding and pumping. The incision should be taken radially so that it runs along rather than across ducts and reduces damage to ductal system.

3) Infections

i) **Candida infection** can affect both mother and baby. Most common cause is *Candida albicans*.

Red colored lesions are typically seen. Satellite lesions may be present at the periphery of the lesion.

Infants may have diaper rash. Mothers may have itching and burning sensation in breast.

Symptoms -white plaque on inner cheek, palate and tongue are noted. These lesions are persistent and cannot be wiped off.

Pre disposing factors -warm moist environment e.g., breastfeeding pads, diabetes mellitus, excessive use of antibiotics and immunosuppression.

Treatment

1) Nystatin suspension or miconazole gel application for topical application in infant is useful.

Dilute solution of gentian violet 0.5 % aqueous solution can be applied for 7 days.

Mothers can be treated with oral fluconazole therapy for 7 days.

ii) **Herpes zoster** is caused by reactivation of varicella zoster virus which causes chicken pox. Infection leads to formation of vesicles which are pruritic and itchy. Vesicles are pustular and form crust. Painful vesicles occur in a linear pattern along dermatomes. Lesions are no longer contagious after crusting. Breastfeeding can continue if there is no lesion on breast, nipple and areola. Covering lesions during breastfeeding, good hand hygiene and hand washing can prevent transmission.

4) Breast types

Type 1 Round breasts, normal lower medial and lateral quadrants.

Type 2 hypoplasia of lower medial quadrant.

Type 3 hypoplasia of lower medial and lateral quadrant.

Type 4 Severe constriction minimal breast base.

C) Breast and nipple malformations

- a. Polythelia is the presence of extra nipples – accessory or supernumerary nipples develop along milk line.
- b. Polymastia is the presence of extra breast tissue.
- c. Hyperthelia describes a nipple without accompanying mammary tissue.
- d. Hypertrophy describes an abnormally large breast.
- e. Hypomastia describes an abnormally small breast.
- f. Hyperplasia is the overdevelopment of breast.
- g. Hypoplasia is insufficient glandular tissue.
 - a) Tubular shape because of lack of glandular tissue b) insufficient milk production.
Intramammary distance of more than 4cm leads to decreased milk production.
- 8) Amastia refers to absence of breast tissue.
- 9) Athelia refers to absence of nipple tissue.

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Figure 1 - Breast Abscess

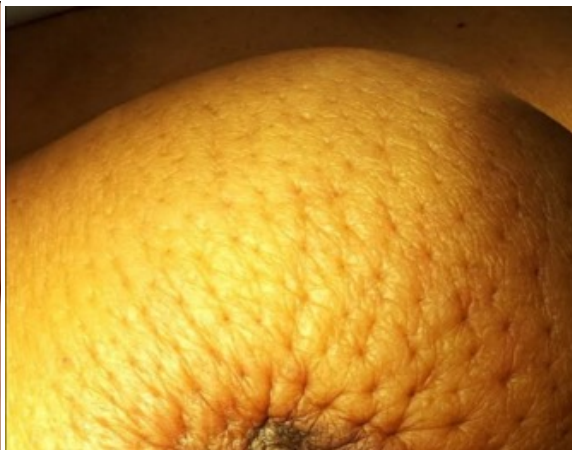


Figure 2 - Peau 'd Orange



Figure 3 - Oral Thrush



Figure 4 - Nipple Shield

7. Babies with Special Needs



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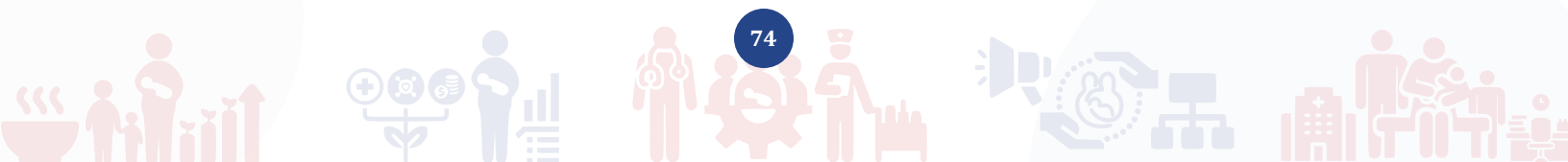
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Introduction

Breastfeeding, being a primary source of nutrition, is crucial for its special benefits in feeding 'babies with special needs' which includes all those vulnerable babies with feeding difficulties due to a spectrum of physical and developmental abnormalities ranging from very mild to very severe birth defects, prematurity, low birth weight, respiratory illness, any other infections etc and must be continued.

Objective:

The main objective of this module is to provide information, support & skilled help to mothers to breastfeed their babies with special needs.

A. Problems encountered during breast feeding of sick babies:

The main problem encountered during feeding is that either the mother may stop breastfeeding or the baby may stop taking breastfeeds due to his ill condition.

B. Reasons for the need of breast milk in illness of these babies:

Breast milk still remains the prime source of nutrients, fluid & protective substance for these babies. It is the most easily digested & assimilated food in their illness. It not only helps ill babies recover quickly but also provides comfort & security.

C. General Principles of management of sick babies:

- Explain to the mother that breast milk is the perfect food for her ill baby and hence she needs to continue breastfeeding.
- Give extra support to these mothers to establish and maintain for milk expression, storage and feeding of their babies.
- Encourage the mother to visit, touch and hold the baby frequently if she is separated from her baby for any reason or is hospitalized.
- Baby should be assisted and attached to attach to the mother's breast to encourage breastfeeding on recovery.
- Monitor these babies and be sure they are receiving enough calories for adequate weight gain.

D. Various feeding options in babies with special needs are as follows:

1. Conditions in which babies can be directly breastfed from the mother's breast:
 - a. Minor infection
 - b. Mild Jaundice
 - c. Recovering from major illness
 - d. Preterm more than 32 weeks gestation
2. Conditions in which babies have difficulty in breastfeeding at the mother's breast:
 - a. Conditions in which babies can be fed by wati(katori) and spoon:

- i. Blocked Nose
 - ii. Thrush
 - iii. Local defect like cleft Lip or cleft palate, Pierre Robin Sequence
 - iv. Hypotonia(Down's Syndrome, Perinatal asphyxia)
 - v. Preterm more than 28 weeks and less than 32 week gestation
 - vi. Mild Respiratory Distress
- b. Conditions in which babies can be fed by enteral tube feeds:
- i. Moderate respiratory distress
 - ii. Babies who are unable to take adequate breastfeeds
 - iii. Preterm less than 28 week gestation
- c. Conditions in these babies in which intravenous fluids need to be administered:
- i. Severe respiratory distress
 - ii. Repeated episodes of convulsion
 - iii. Preterm babies
 - iv. Necrotising entero-colitis(NEC)
 - v. Post-operative status

E. Breastfeeding management of some frequently encountered conditions:

(1) Blocked Nose:

Babies are obligatory nose breathers. When the nose is blocked, the baby breathes through the mouth. During breastfeeding the breathing is obstructed and the baby stops feeding to breathe through his mouth.

Treatment of blocked nose:

- 1) Decongestants
- 2) Clean baby's nose before feeds
- 3) Continue breastfeeding
- 4) May need feeding by katori & spoon

(2) Thrush infection

Thrush infection is clinically seen as white patches inside and around the mouth, tongue, palate, lips and cheeks leading to refusal to breastfeed due to discomfort. It can also be present as fungal rash around the perineum, groins and genitals. The baby may contract oral thrush while passing through the birth canal during vaginal delivery.

Management of thrush infection:

Gentian violet or any antifungal mouth paint should be applied thrice a day to the baby's oral cavity, the mother's nipples and all objects that come in contact with the oral cavity for a prolonged period till infection clears. During this time the breastfeeding should be encouraged and continued. If the baby is unable to take breast milk by direct suckling at the breast, expressed breast milk should be fed to the baby by katori and spoon.

(3) Cleft Lip(CL) and Cleft Palate(CP):

CL may occur as isolated entity or in varied combinations with defect in alveolus and hard palate. CP may either be occult submucosal type or a complete cleft of hard and soft palates and may involve either only the uvula or extend through both the hard and soft palates in varied combinations creating a communication between the oral and nasal cavities. These babies, due to inadequate generation of negative pressure in oral cavity, may encounter various problems during breastfeeding like nasal regurgitation, reflux, fatigue, prolonged feeding times, nasal regurgitation, reflux, insufficient milk transfer resulting in impaired growth and nutrition.

Fig.1- Types of Cleft Lip(CL) and Cleft Palate(CP)



Management of Cleft Lip and Cleft Palate:

Baby's whole body should be well supported and mouth attached to the breast so that the breast tissue closes over the cleft creating a tight seal and vacuum in oral cavity enabling easy out flow of the breast milk when baby suckles at the breast. A **'face-on'** upright **'Straddle position'** with nose higher than the breast may be more effective to prevent nasal aspiration and flow of breast milk into the eustachian tubes while breastfeeding. It may be necessary to supplement the baby with additional expressed breast milk(EBM) every two to three hours to fulfil the baby's daily requirement of feeds. It is important to address any other anxiety issues and reassure the mother about complete correction of defect by plastic surgery.

Fig 2 - Straddle Position



(4) Pierre Robin Sequence:

This congenital anomaly which is characterised by micrognathia (small under developed lower jaw), glossoptosis (abnormal position and falling back of tongue in the oral cavity) may be associated with a cleft lip or palate in 60 -90% of cases causes airway obstruction resulting in respiratory distress and low oxygen levels in the baby in supine position. These infants cannot coordinate their laboured breathing with the sucking and swallowing of milk causing choking and sputtering while feeding resulting in inadequate feed intake.

Fig 3 - Pierre Robin Sequence Anatomy

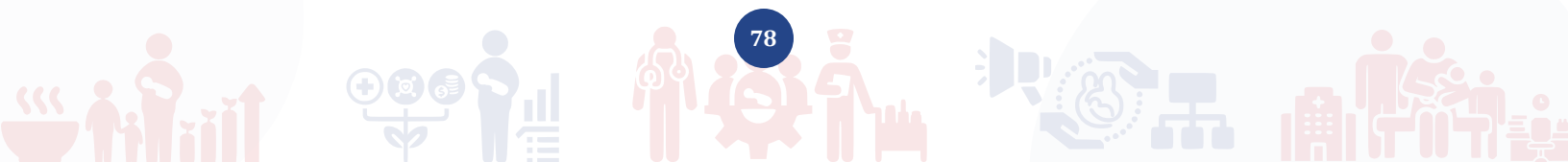
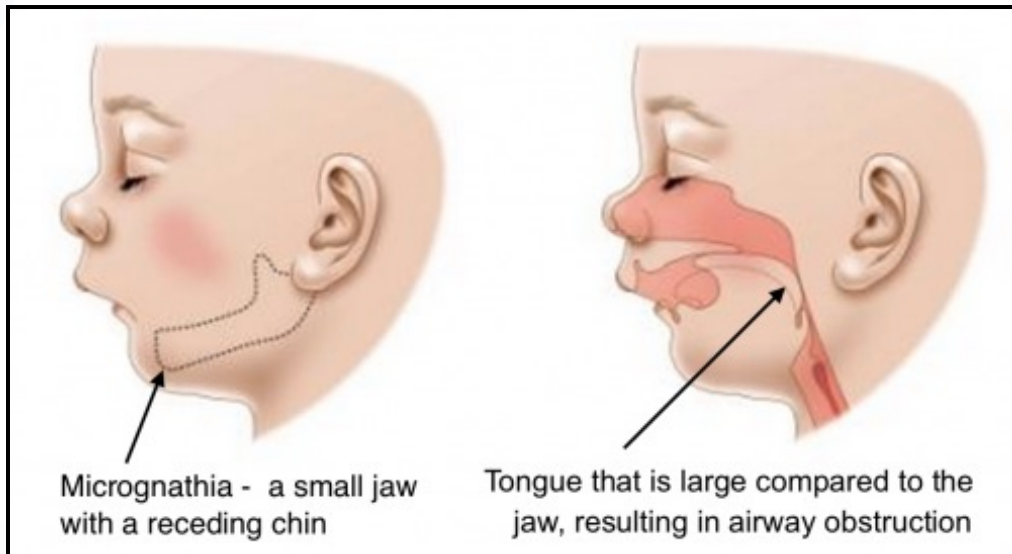


Fig 4 – Pierre Robin Sequence – Clinical Features



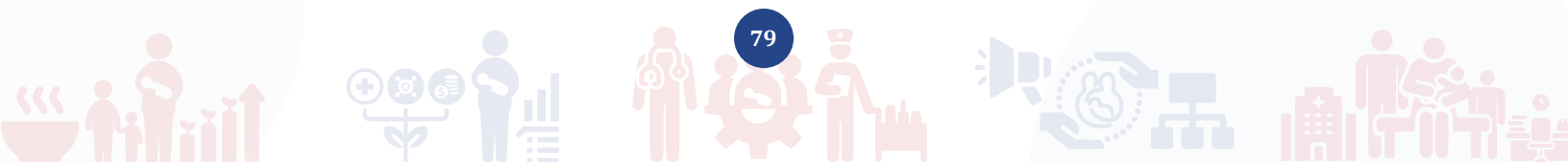
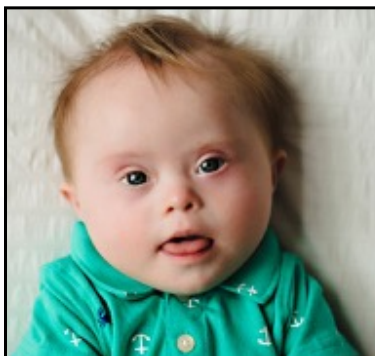
Management of Pierre Robin Sequence:

The mother should be in supine position for breastfeed and baby must be placed prone on top of mother’s chest and abdomen so that the tongue remains forward, doesn’t obstruct the airway and allows the baby to suckle at the breast easily or supplementation of EBM katori and spoon or tube feeds.

(5) Neurologically impaired babies:

The babies characteristically have hypotonia(Down’s syndrome, perinatal asphyxia, hypotonic premature babies etc.)leading to abnormal or underdeveloped control of the oropharyngeal structures, an uncoordinated and/or weak suck, along with weak head back musculature control resulting in improper positioning of baby to mother with respect to breastfeeding. Breastfeeding can help to strengthen jaw and facial muscles of these babies.

Fig 5 – Downs Syndrome – Facial Features



Management of neurologically impaired babies:

While breastfeeding, use of a sling or pillows to support the baby in flexed position allows the mother to use her hands to support both her breast and the infant's jaw simultaneously. With the help of 'Dancer Hand Position' the mother can pull the baby's jaw slightly forward allowing the baby to grasp the breast better, forming a good seal and then give gentle pressure to the masseter muscle, which stabilizes the jaw. The other hand is free to support the infant's neck and shoulders in the 'Football position'. The baby needs to be awakened every two to three hours to feed at the breast. Psychological must be provided to the mother and breastfeeding continued as long as possible prior to surgical intervention in baby.

Fig 6 – Dancer's Hand Position



Fig 6 –Football Position



F. Breastfeeding management in common conditions in babies:

1] Diarrhoea:

- **Physiological Loose Motion:**

These are characterised by loose, soft, pasty, frothy, curdy, golden yellow in colour with yoghurt smell. They can occur with increased frequency, five to fifteen times a day due to heavy dose of lactose in foremilk. The baby thrives well and has good weight gain. Reducing substances may be positive in the stool examination of the baby.

Management of diarrhoea due to physiological loose motions:

Babies should be given more hind milk.

- **Infective diarrhoea:**

This pathologic condition is characterised by foul smelling stools. Clinically the baby may present with fever and dehydration (loss of body fluids resulting in 5-10% of weight loss) due to excessive fluid loss resulting in reduced urine output. Pus cells may be seen on stool examination.

Management of Infective diarrhoea:

The mother should be encouraged to continue to breastfeed the baby. Oral rehydration fluids can be administered to the baby between subsequent breastfeed using a katori (cup) and spoon to prevent dehydration.

2] Neonatal Jaundice:

Jaundice in baby being one of the commonest condition encountered may clinically vary from mild to severe degrees. The 2 types of jaundice related with breastfeeding are 'Breastfeeding Jaundice' ('Suboptimal Intake Jaundice' / 'Breastfeeding Associated Jaundice') and 'Breast Milk jaundice'. There can be multiple other reasons for jaundice in a baby which needs investigations for exact diagnosis.

Table 1: Differentiation between Breastfeeding Jaundice and Breast Milk jaundice :

	Breastfeeding Jaundice	Breast Milk jaundice
Onset	Appears early (Day 3/Day4 of life)	End of 1 st week
Duration	1-2 weeks	Can persist for 3 weeks to 3 months
Cause	Delayed, infrequent feeding increased enterohepatic circulation(EHC) of bilirubin.	Presence of a substance in breast milk leading to deconjugation of intestinal bilirubin and its increased EHC. Other processes including bilirubin excretion are present.
Weight of baby	Ongoing weight loss	Good weight gain present

General principles of management of feeding in babies with jaundice:

- Adequate lactation support to initiate and encourage early frequent exclusive breastfeeding by mother with baby wrapped in portable phototherapy blankets, for reducing jaundice, if available.
- In case baby is placed in a phototherapy unit, supplement extra 20% extra EBM for fluid losses via phototherapy especially in a LBW baby.
- In 'Breast milk jaundice', rarely, rapid rise in very high life threatening bilirubin levels in baby may necessitate the temporary interruption of breastfeeding for 24 hours for rapid reduction of bilirubin levels to prevent brain damage in baby. It is thus crucial to maintain maternal milk production by frequent expression and storage of her breast milk for future use with adequate lactation support.
- On recovery, when breastfeeding resumes, the infant needs to return to a good supply of milk for adequate weight gain and to prevent further increase in jaundice.

3] Twins:

There can be multiple reasons for problems with breastfeeding twins due to prematurity, low birth weight etc. The mother is often worried that she may not produce enough milk to suffice both her babies. This worry leads to suppression of the oxytocin reflex.

Management of feeding issues in twins:

Reassure the mother she will have enough milk for both babies. Encourage the mother initially to feed one baby at a time until breastfeeding is established. Subsequently with assistance, she can feed both the babies simultaneously in the 'Double Football Position'. The 'Crossed Cradle Position' can be tried to give support to the weaker baby during breastfeeding. Simultaneous suckling at the breast by both babies results in more milk production as the sensory stimulus to the pituitary gland is doubled resulting in both twins simultaneously getting more milk. The stronger suckling efforts of the bigger baby can be used for increased milk production and ensuring adequate milk to the weaker baby. Alternate the breasts between each baby at every feed to ensure adequate milk production from both breasts.

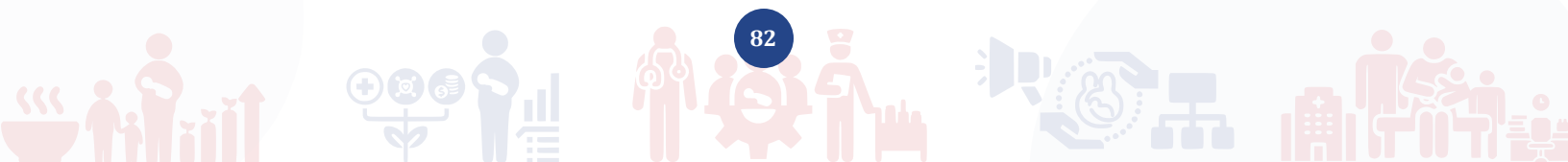


Fig 7- Double Football Position - Twins



Fig 7-Cross Cradle Position - Twins



4] Preterm and Low Birth Weight(LBW) babies:

The advantages of breast milk for feeding preterm and low birth weight babies are:

- Prolonged colostrum phase in these mothers
- Presence of protective substances in breast milk
- Prevention of infection
- Easily digested
- Helps bonding
- High content of proteins, immunoglobulins in these mothers' milk

- Helps establish breastfeeding and maintain lactation

Management of feeding issues in preterm and low birth weight babies

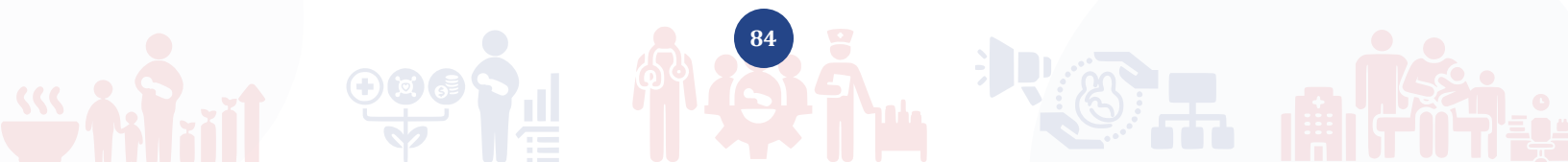
Frequent expression of milk by mother soon after delivery 8 to 10 times in the day and night every 24 hours to maintain milk production along with frequent 2 hourly feeding to prevent hypoglycaemia in baby, using the 'Modified cradle' and 'Dancer hand position' along with Kangaroo Mother Care(KMC) for direct breastfeeding or by supplementing EBM. She can express and store her milk appropriately for feeding later as baby recovers if currently baby's condition is unstable. Encourage the mother to visit, touch and care for her baby. Preterms more than 32 weeks gestation can be breastfed directly every 2 hours or by feeding EBM with katori and spoon. Preterms less than 32 weeks gestation can be fed fortified EBM either by katori and spoon or tube feeds along with non-nutritive suckling(NNS) to stimulate the baby's oral musculature and develop oral suckling reflexes.

Conclusion:

Mothers should be provided extra support, encouragement and reassurance to successfully learn this skill of breastfeeding which appears to be a simple natural process but at certain times can be challenging in their babies with special needs.

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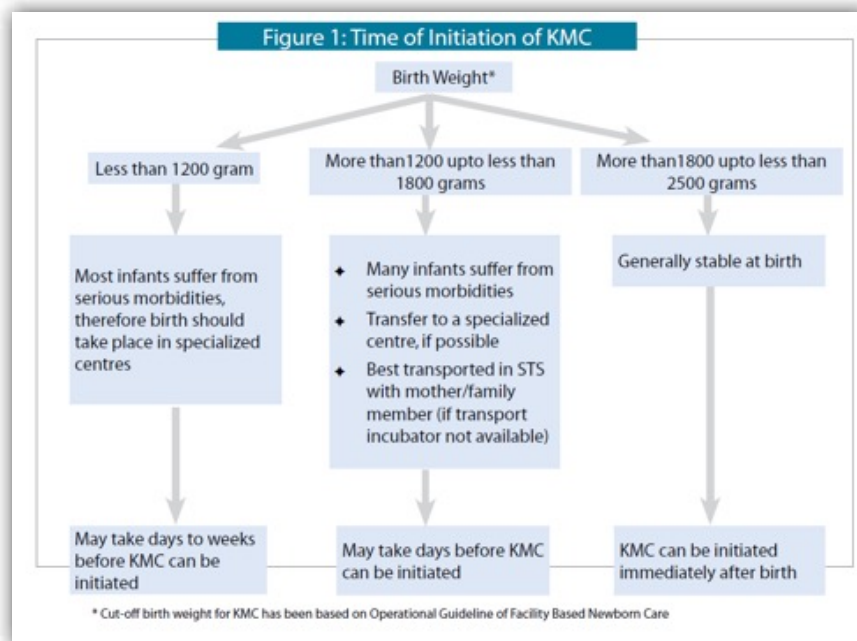
- Better **bonding**
- **Empowerment**
- **Better milk production**
- **Economical** as babies are discharged early from hospital
- **Lower stress**
- **Lower post partum depression**

Benefits in infancy and childhood

- Improved Growth
- Neurodevelopment
- Increased IQ and Better executive functions
- Better parent- infant interaction
- Lower readmission rate

Eligibility criteria:

All stable LBW babies are eligible for KMC. Timing of initiation of KMC depends on the birth weight & stability of the baby. Under close supervision KMC can also be provided to babies on respiratory support in a unit where KMC is well established and nurses are confident in KMC



Preparation for KMC Provider:

The mother and other family members should be effectively counseled, trained and demonstrated KMC, to overcome socio-cultural barriers and anxiety regarding handling a LBW baby. A supportive family, regular follow up and access to health provider in case of emergency or any doubt about baby's health are pre requisites for successful KMC implementation.

- KMC can be provided by mothers, fathers and other family members. The KMC provider should be willing, in good health & free from serious illnesses.
- She/he should maintain basic standards of hygiene such as hand washing, daily bath, clipped fingernails, tied up hair and clean clothes.
- Jewellery, watches and sacred threads must be removed to maintain hygiene and might cause injury to the baby.
- KMC mother or care giver can wear any front-open gown, Punjabi suit, sari-blouse or shirt pant. Kangaroo bag, chunni/ sari can secure the baby in KMC position for an extended period of time.
- Encourage the mother to keep the baby in KMC for as long as possible during the day and night.

Preparations for the baby

- Dress the baby with cap, socks, soak proof diapers and front-open sleeveless shirt or 'jhabala' made from soft cotton.
- Baby may be placed in a KEM KMC bag -innovated at KEM Hospital, Mumbai used as a KMC binder and promotes continuous KMC.



Fig 2: LBW baby dressed & ready for KMC



Fig.3 How to hold a baby in KMC

Kangaroo position:

- The baby should be placed between the mother's breasts in an upright position
- The head should be turned to one side and in a slightly extended position. This slightly extended head position keeps the air way open and allows eye to eye contact between the mother and her infant.
- The hips should be flexed and abducted in a "frog" position; the arms should also be flexed.
- The baby's abdomen should be at the level of the mother's epigastrium. Mother's breathing stimulates the infant, thus reducing the occurrence of apnea.
- Support the baby from the bottom with a sling/binder.

Mother's position: A semi-reclining position (30°- 40°) of mother/care giver is to be adopted while sleeping. This can be achieved with the help of 2-3 pillows on the hospital bed or fowler's bed or special semi-reclining chairs and at home with 2-3 pillows over the cot or floor bed

The mother carrying an infant in the KMC position can walk, stand, sit, or engage in different activities.

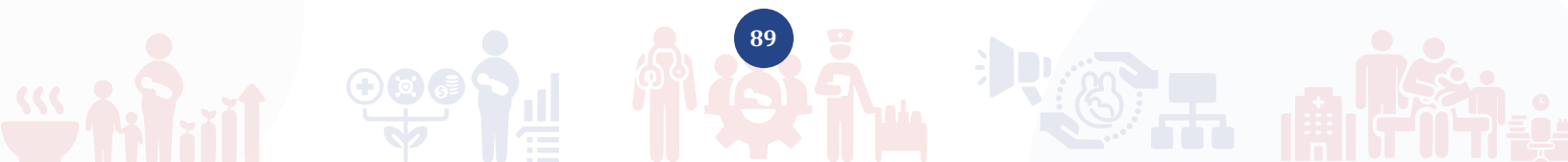
Duration of KMC:

Minimum duration of a KMC session should be one hour because frequent handling may be stressful for the baby. The duration of each KMC session should be gradually increased for as long as possible preferably 24 hours a day. Duration of KMC is defined as Short KMC (4h/d), Extended KMC (5-8h/d), Long KMC(9-12h/d) continuous KMC > 12 hours daily.

If the mother wishes to relax or going for bath; other family member can provide KMC. Babies are removed from Skin-to-Skin Contact only for changing diapers; clinical assessment can be carried out in KMC position. **After removing from KMC; babies should be adequately warmed by covering head, feet & whole body.**

Monitoring a baby in KMC

- The mother and the nursing personnel should continue to monitor the baby.
- Monitor the vital parameters – heart rate, respiration, glucose.
- The mother should be educated about the danger signs and trained to monitor her baby in KMC.



Monitoring in KMC			
	What to monitor?	How to monitor?	Who monitors?
T	Temperature	Axillary temperature /Touch technique	Nurse /Mother
A	Airway, Apnea, Breathing	Clinically-Respiratory efforts and apnea, KMC position /Pulse oximeter	Nurse / Mother
B	Breastfeeding	Exclusivity and adequacy of breastfeeding	Nurse/ Mother
C	Compliance with Kangaroo care	KMC compliance chart	Nurse / Mother
D	Danger Signs	Clinically	Mother
E	Education and Emotional support to mother	Counseling	Nurse / Family
F	Follow up	In high risk follow up clinic	Doctors/Nurse
G	Growth	Postnatal growth charts	Nurse / Doctors

- The mother's compliance with KMC should be monitored & plotted on KMC chart. (Fig.4)
- The mother should be taught the "touch technique" of temperature assessment. She should be able to feel the baby's breathing and recognize apneic episodes if any.
- Advise the mother to continue to provide KMC during the day & night at home.

Feeding during KMC

Initially, breastfeed is given at fixed intervals of two hours and not on demand, to ensure an adequate and assured minimal intake. The mother should be taught how to breastfeed in KMC or how to feed with vati- spoon or with cup or with "bondla- paladai" while the baby is in KMC position.

Special situation:

Sick LBW babies: KMC may be given only under close and constant supervision in centers that are well versed with the practice of KMC. Hemodynamically stable preterm babies on prolonged ventilation or on CPAP can also be given KMC under strict supervision.

Transport: After initial stabilization baby can be transported in skin-to-skin contact by father or any other family member from labour room to SNCU or NICU and by the mother/father after discharge from hospital to home.

Discharge from Hospital and Follow-up: The newborn should be discharged if the following criteria are fulfilled: The baby is....

- Stable and not on parenteral medication
- Maintaining temperature in KMC for 3 consecutive days at room temperature

- Gaining 15-20 g/kg/d for at least 3 consecutive days
- Accepting feeds directly from breast (preferable) or by spoon, paladai or cup and mother confident of caring for her baby.
- Advise about hygiene, danger signs, follow-up visits, Iron, calcium and vitamin supplements, immunization and prompt care seeking at a health facility if baby is unwell.
- First Follow-up should be at one week, followed by fortnightly follow-up Additional follow-up visits may be done until she/he reaches 40 weeks of post-conception age or achieves a weight of 2,500 grams.

Discontinuation of KMC

KMC may be discontinued when the baby refuses KMC by excessive crying or wriggling or fusses every time the baby is put in KMC. This usually occurs by about 37-40 weeks

Expected growth in Kangaroo Mother Care

- 15 - 20 gm/kg/day up to 40 weeks post menstrual period and after that 7 - 11 gm/kg/day.
- Head Circumference & length increased between 0.7 cm - 0.9 cm /week.

Don'ts of Kangaroo Mother Care

- Do not keep baby horizontal in kangaroo position
- Do not bathe till infant weighs 2,500 g, sponging may be done
- Do not handle infant too frequently
- Do not give bottle feed
- Do not allow infant to be in contact with sick person.

In situation where Hospital is very far or mother cannot go or not willing to go to hospital; KMC may be initiated at home preferably under the guidance of ASHA/ community health workers.

Kangaroo Mother Care is a cost-effective, simple, evidence based, high impact intervention to promote LBW quality survival. Despite its numerous benefits- both short and long term, implementation of continuous KMC and scale up of KMC has not been successful. Barriers need to be overcome for successful KMC programs.

Overcoming barriers in KMC implementation

- KMC ward –where growing preterm babies can be cared in KMC by the mothers. Recreation and education of the mothers can be provided by appropriate audiovisual aids.
- Comfortable reclining chairs – back pain is one of the most frequent barrier for KMC acceptance
- Extra pillows – for maintaining 45° position while providing KMC during sleep

9. Low Milk Production



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Breastfeeding is the most natural way to feed a newborn baby and has been a culture in India since time immemorial. However, with changing lifestyle, the breastfeeding rates have declined over last few decades. Though our mothers start breastfeeding naturally, at the slightest problem encountered they do not hesitate to shift to alternative milk. The most common reason cited by mothers is “not enough milk”. Mostly it is a non-problem requiring simple measures. But if inadequately managed, this simple problem has deep implications in form of stopping of breastfeeding in first few weeks after delivery and resorting to quick solutions such as formula feeds or animal milk.

Lactation is the physiologic completion of reproductive cycle. The breast develops throughout pregnancy and prepares to take over the role of fully nourishing the infant. Following birth, the success of lactation depends on two important reflexes: the prolactin (milk production reflex) and oxytocin (milk let down reflex). Prolactin release is influenced by early establishment of feeding with the baby suckling frequently and for extended periods. Oxytocin supports is released not only by nipple stimulation like prolactin but also by visual, tactile, olfactory and auditory stimulus.

It is important to know that human neonates are born with significant stores of energy in body fat and has capability to mobilize energy from these sources. This knowledge is important as often a new nursing mother and at times clinicians doubt her capacity to produce milk without understanding the physiology. This creates unnecessary worry, lack of confidence, anxiety coupled with non-scientific counselling by doctors, nurses or relatives creates an impression of not enough milk in the mind of mother. The mothers with psychological conflict have more lactation failure associated with low prolactin levels and lack of let-down reflex.

Approach to an issue of “not sufficient milk”

Detailed history is the first vital step in identifying the risk factors of insufficient milk syndrome. Mothers feel that there is not enough milk in clinical situations such as frequent crying or waking up of the baby, baby sucking for a short time, irritable baby, little milk on expression, small size breast, empty / sagging breast on palpation, cracked nipples /malformed nipples.

It is essential to differentiate between delayed lactogenesis and primary lactational failure based on the history as the management is entirely different.

Primary lactation failure is caused by factors affecting mammogenesis leading to insufficient breast tissue or hypoplastic breasts, breast surgery such as mastectomy, breast reduction or cyst removal. Severe systemic or Sheehan’s syndrome caused due to post-partum haemorrhage leading to pituitary ischemia/infarction results in lack of/ absence of prolactin.

Delayed lactogenesis is mainly related to factors leading to inadequate breast stimulation. The common problems hampering this includes, improper positioning and attachment while breastfeeding, infrequent feeding, prolonged separation of mother-baby dyad, prelacteal feeds, top feeding with formulas or water and use of feeding bottles and pacifiers.

Examination of mother infant couple: Examination of the infant to rule out any neonatal factors and of the mother for local breast and nipple problems is crucial. It is always rewarding to observe mother infant couple while breastfeeding with regards to positioning and attachment at the breast

(latching on). The most common cause of sore, cracked nipples is incorrect positioning and ineffective latch-on.

Management: It is important to distinguish between a mother whose milk production is low and a mother who feels her milk production is low but whose baby is receiving enough milk.

The following table provides an approach to the management.

Normal weight gain + Normal urine output + Exclusive breastfeeding	Normal weight gain + Normal / low urine output + Partial breastfeeding	Poor / No weight gain + Normal / low urine output + Exclusive / Partial breastfeeding
↓	↓	↓
<ul style="list-style-type: none"> Reassure mother that her baby is receiving enough milk and is growing well. 	<ul style="list-style-type: none"> Reassure mother that her baby is growing well. Explain benefits of exclusive BF and disadvantages of artificial feeding. Identify the reasons for supplementation. Advise appropriate management Advise how to increase milk production. 	<ul style="list-style-type: none"> Take detailed breastfeeding history Examine neonatal factors Examine for maternal factors Observe mother infant couple while feeding. Rule out psychological problems, if any. Advise how to increase milk production. Follow up for weight gain.

Counselling and reassurance to the mothers is the cornerstone in managing the problem of low milk production as most of the times it is the perception of the mother and not a reality.

Management of the neonatal factors: The mothers of preterm, low birth weight infants as well as those of infants with local orofacial anomalies or systemic diseases need strong support and encouragement from health care professionals. She should be made aware that her small or sick baby needs only her own milk to get better faster.

Correct techniques of breast-feeding: Teaching these mothers the fundamentals of correct technique reduce physical discomfort during feedings, improves infant attachment to breast and improves lactation. Nipple soreness, breast engorgement further increasing the chances of an unsuccessful

lactation. So identifying and rectifying any such trivial looking practices, that prevents proper stimulation and emptying of breast goes a long way in establishing successful lactation. Management of local breast and nipple problems should be done appropriately.

Prevention of Low Milk Production:

Prenatal measures: Prenatal breastfeeding education: counselling expectant mothers with addressing their concerns at prenatal visits goes a long way in lactation success. Prenatal examination of breast and nipple-areola complex helps to assess lactation potential and provides an opportunity for timely detection of any problems.

Postnatal measures: Breastfeeding practices for successful lactation include early initiation of breastfeeding preferably within half an hour after birth, encouragement for breast crawl, continuous rooming-in, cue-based demand feeding, avoiding prelacteal or supplemental feeds.

Breastfeeding support: Family should be counselled regarding their important role for breastfeeding by nurturing and encouraging new mother and providing help with household duties and infant care at home. The mother should be educated about the various facts related to breastfeeding and guided on a path of successful breastfeeding.

Mothers want to do best for their babies. As neonatal care givers it is our fundamental duty to provide practical information and necessary support to enable mothers to continue nursing their babies and support the nature's way of nourishing the young infants. It is said, "God could not be everywhere so he made mothers."

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10. COVID-19 and Breastfeeding



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Authors Declaration: This writeup is inclusive of synopsis of the WHO & CDC guidelines

WHO & CDC recommendations:

Breastfeeding is the cornerstone of infant and young child survival, nutrition and development and maternal health. The World Health Organization recommends exclusive breastfeeding for the first 6 months of life, followed by continued breastfeeding with appropriate complementary foods for up to 2 years and beyond. Early and uninterrupted skin-to-skin contact, rooming-in and kangaroo mother care also significantly improve neonatal survival and reduce morbidity and are recommended by WHO.

WHO recommends that mothers with suspected or confirmed COVID-19 should be encouraged to initiate or continue to breast feed. Mothers should be counselled that the benefits of breastfeeding substantially outweigh the potential risks for transmission. The implications of transmission risk needs to be considered in terms of COVID-19 prevalence in breastfeeding mothers and the severity of COVID-19 infection in infants when transmission occurs compared to the adverse consequences of separation and using breastmilk substitutes and also separation of newborns and young infants from mothers. Exclusively breastfed infants, the risk of mortality is 14-fold higher in infants who are not breastfed. Over 820 000 children's lives could be saved every year among children under 5 years, if all children 0-23 months were optimally breastfed. For mothers, breastfeeding protects against breast cancer and may protect against ovarian cancer and type 2 diabetes

Mother and infant should be enabled to remain together while rooming-in throughout the day and night and to practice skin-to-skin contact, including kangaroo mother care, especially immediately after birth and during establishment of breastfeeding, whether they or their infants have suspected or confirmed COVID-19. Skin-to-skin contact and kangaroo mother care facilitate breastfeeding as well as improve thermoregulation, blood glucose control, and maternal-infant attachment, and decrease the risk in mortality and severe infection among low birth-weight infants. Beyond the neonatal period, positive effects of mother-infant holding include improved sleep patterns, lower rates of behavioural problems in the child and higher quality parental interaction.

At present, data are not sufficient to conclude vertical transmission of COVID-19 through breastfeeding. It is still not clear whether the virus can or cannot be transmitted through breast milk. Current evidence suggests that breast milk is not likely to spread the virus to babies and that the risk of a newborn getting COVID-19 from their mother is low, especially when the mother takes steps (such as wearing a mask and her washing hands) to prevent spread before and during care of the newborn.

In infants, the risk of COVID-19 infection is low, the infection is typically mild or asymptomatic, while the consequences of not breastfeeding and separation between mother and child can be significant. At this point it appears that COVID-19 in infants and children represents a much lower threat to survival and health than other infections that breastfeeding is protective against. The benefits of breastfeeding and nurturing mother-infant interaction to prevent infection and promote health and development are especially important when health and other community services are themselves disrupted or limited. Adherence to infection prevention and control measures is essential to prevent contact transmission between COVID-19 suspected or confirmed mothers and their newborns and young infants.



Newborn Care amidst Pandemic

Place of Delivery & Intrapartum Care:

- There should be a separate labour room and operation theatre for COVID-19 positive pregnant women, with the neonatal resuscitation corner located at least 2 metres away from the delivery table.
- Labour to be managed as per standard obstetric guidelines.

Cord Clamping:

- As transplacental viral transmission has not been clearly demonstrated, delayed cord clamping >1 minutes is recommended for improved maternal and infant health and nutrition outcomes.

Neonatal Resuscitation:

- The resuscitation of neonate should be done in a separate resuscitation corner that is at least 2 metres away from the delivery area .
- Neonatal resuscitation should be according to standard NRP 2017 guidelines or standard facility based operating protocol by minimal number of personnel for resuscitation wearing full set of PPE including N-95 mask.

Rooming-In/ Bedding-In & Skin to Skin Contact:

- **Zero Separation** should be the principle to be followed. Mothers should not be separated from their infants unless the mother is too sick to care for her baby or baby is too sick and requires neonatal intensive care management.
- **Early and uninterrupted skin to skin contact (SSC) and rooming-in** of the neonates throughout day and night with their mothers should be encouraged and practised as soon as possible after birth. SSC should also be given to stable preterm and low birth weight babies. The risk of **horizontal transmission is very low**. Infection in neonates is mostly asymptomatic or mild as compared to adults. Therefore, continue SSC, as, consequences of not breastfeeding and separating mother and child are detrimental both to the neonate and mother.
- Skin to Skin Contact and Kangaroo Mother Care helps to establish breastfeeding as well as improves thermoregulation, blood glucose control, mother-baby bonding, and decreases the risk of mortality and severe infections among low birth-weight babies.
- **Beyond neonatal period also the positive effects** of rooming in, skin to skin contact and infant holding are seen in the form of improved sleep patterns, decrease in behavioural problems in children and better social interaction and IQ.

Breastfeeding Practices & Recommendations:

- As per WHO recommendations, mothers should be encouraged to initiate **breastfeeding within the first hour of life and continue exclusive breastfeeding for first six months**.
- Breastfeeding is encouraged in all babies irrespective of baby's and mother's COVID status. **Counsel mothers / families that the benefits of breastfeeding**, far outweigh the potential risk



of transmission of infection to the new born.

- **While breastfeeding the mother must take utmost precaution for respiratory (including wearing of mask) and hand hygiene** and strictly follow the principles of appropriate **Infection Protection and Control (IPC) measures**. Practice respiratory hygiene, including during feeding. If you have respiratory symptoms such as being short of breath, use a medical mask when near your child.
- **If mother is unable to breastfeed the baby** due to any reason, then mother's own expressed breast milk (MOM) can be given. The breast milk should be provided safely following the appropriate IPC measures.
- **If mother is seriously ill/ not available / expired** then give pasteurized donor human milk. If this is not possible, give appropriate breast milk substitutes or infant formula or locally available, unmodified, boiled / top milk animal milk to the baby until mother recovers.
- **If the newborn or infant is ill and requires specialist care** (such as neonatal unit), arrangements should be made to allow the mother free access to the unit, with appropriate IPC measures. She should continue to breastfeed as breast milk will boost baby's immune system, and will help the baby to fight infections.

Expressed Breast Milk/ Temporary Separation/ Pasteurised Donor Human Milk

- If rooming-in and direct breastfeeding is not possible because of sickness in the mother or baby, the neonate (if tolerating enteral feeding) should be fed expressed breast milk (EBM) of the mother by a nurse or a non-infected, non-comorbid caretaker.
- **Expression of breast milk is primarily done manually through hand expression or Dedicated mechanical breast pump** can also be used.
- The **mother and anyone/caretaker** helping the mother (**who is COVID-19 negative** and has no co-morbidities) should **wash their hands before expressing breast milk or touching any pump** or bottle parts and ensure proper pump cleaning after each use. After each pumping session all parts of the pump, tubing and feeding utensils should be thoroughly washed and cleaned with soap and water.
- The **EBM should be fed to the child preferably using a clean cup and spoon** by a healthy caregiver, preferably one who is **fully vaccinated against COVID-19** and not at increased risk for severe illness from COVID-19 and with whom the baby feels comfortable may feed expressed breast milk to the child.
- **If this person is not vaccinated and is living in the same house** or has been in contact with the breastfeeding person, they should wear a mask while feeding the child for the duration of the lactating parent's recommended period of isolation and during their own quarantine thereafter
- If mother is critically ill or unable to express breast milk, **pasteurized donor human milk (PDHM)** may be fed to the baby while the mother is recovering.
- If pasteurised donor human milk (PDHM) is not available, appropriate term/ preterm infant formula or locally available, unmodified, boiled / top milk/ animal milk to the baby until mother recovers may be used.

COVID-19.

- People without suspected or confirmed COVID-19 and who have not been in close contact with someone who has COVID-19, or who have been fully vaccinated for COVID-19 do not need to take special precautions when feeding at the breast or expressing milk.
- Counsel breastfeeding persons on precautions to take while feeding at the breast or expressing milk when the breastfeeding person has suspected or confirmed COVID-19 or has been in close contact with someone who has COVID-19 and is not fully vaccinated.

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5. What information should be given to the mother regarding expression and storage of breastmilk?

Mother should be educated about maintaining her milk output by regular milk expression, by hand or pump and storage of her milk for her baby when she is away at work. Expression at home can be done manually or using milk expression pumps that are manual, battery operated or electrical. Breast milk should be stored in clean pyrex or polypropylene or steel containers. Commercially available milk storage bags are also available which are safe to use.

The expressed milk for later use should be refrigerated at 4°C. Several expressions through a day can be combined. Once the container is filled, it should be stored in the freezer compartment at -20°C. Once the milk is frozen, warm milk should not be added to it. Double-door refrigerator with separate freezer is preferred for storing frozen breastmilk.

Freshly expressed milk at room temperature should be used or consumed within 4 to 6 hours. It can be stored for 5 days at 4°C when it is kept at back end of main body of refrigerator. When the milk is frozen, it can be stored for 6 to 12 months at -20°C.

6. What guidance should be provided to the mother regarding thawing frozen breastmilk?

The oldest milk should be used first. Milk should be thawed by placing in refrigerator the previous night. Thawed milk can be kept in refrigerator at 4°C for 24 hours. Once the milk is thawed it should not be re-frozen. Before feeding, thawed milk should be brought to room temperature by holding it in a bowl of warm water.

Special tips for working mothers to continue breastfeeding:

- Always breastfeed whenever you are with the baby
- Nurse your baby before and after work.
- Express milk at work
- Do extra expressions/pumping on holidays and weekends
- Avoid stress.
- Nurse at night.
- Maintain good nutrition.

Government schemes which support breastfeeding in working mothers:

Fully paid maternity leave for 6 months and paternity leave for 2 weeks can be availed in organized sectors. This benefit is given for 2 children. However, the informal sector which employs 80% of women force, does not have this sort of legislation for protecting mother-infant dyads.

Pradhan Mantri Matru Vandana Yojana: This scheme helps women in both formal and informal work sectors. This scheme provides cash incentive of Rs 5000 to women over three instalments to partially compensate for loss of wages. This allows her to recover from stress of delivery and also help her in exclusive breastfeeding her baby. This benefit is given for the first living child only.

Many women in the postpartum period are vulnerable to a range of mental health disorders. During pregnancy and postpartum they experience a wide range of overwhelming emotions such as anticipation, excitement, happiness, fulfilment, as well as anxiety, frustration, confusion, or sadness which makes them highly vulnerable to various psychiatric disorders. Generally postpartum psychiatric disorders are classified as maternity blues, postpartum depression, postpartum psychosis and anxiety disorder of puerperium.

EPIDEMIOLOGY

Postpartum depression (PPD) is observed in 10-13% of new mothers and maternity blues is seen in 50-75% of postpartum women. The Diagnostic and Statistical Manual for Mental Disorders-Fifth Edition (DSM-5) defines PPD as onset of symptoms beginning during pregnancy or within the first four weeks postpartum. Some researchers recommend that this time frame be extended to onset within the first six months postpartum. Women with family history of mental disorders are more vulnerable.

ETIOPATHOGENESIS

Generally multifactorial.

- Decrease in levels of progesterone and oestrogen.
- Serotonin and dopamine imbalance
- Psychological stressors

Risk factors associated with postpartum disorders: primigravida; unmarried mother; caesarean sections or other perinatal or natal complication; past history of psychotic illness, especially anxiety and depression; family history of psychiatric illness, previous episode of postpartum disorder; stressful life events during pregnancy and near delivery; history of sexual abuse; vulnerable personality traits and social isolation/unsupportive spouse.

SIGNS AND SYMPTOMS

Usually characterised by a dramatic change from her previous functioning. The patient can have a wide range of presentation from mild anxiety to bizarre delusions, mood swings, confused thinking, and grossly disorganized behaviour.

Postpartum disorders have been classified into five major categories: (i) postpartum blues (PBs), (ii) postpartum depression (PPD), (iii) postpartum psychosis (PP), (iv) postpartum post-traumatic stress disorder (PTSD), and (v) postpartum anxiety and obsessive-compulsive disorder (OCD).

POSTPARTUM BLUES

PBs, also known as “baby blues” or “maternity blues,” is a phase of emotional lability following childbirth, characterized by frequent crying episodes, irritability, confusion, and anxiety. It is very common and experienced by most of the women because of the lack of strong familial support and bonding. The symptoms arise within the first 10 days and peak around 3–5 days. Generally, symptoms do not interfere with the social and occupational functioning of women. PB is self-limiting with no requirement for active intervention except social support and reassurance from the family members.

PB can be attributed to changes in hormonal levels of women, further compounded by the stress following delivery.

POSTPARTUM DEPRESSION

It is characterized by pervasive depressed mood, disturbances of sleep and appetite, low energy, anxiety, and suicidal ideation, feelings of guilt or inadequacy about mother's ability to care for the infant, and a preoccupation with the infant's well-being or safety.

POSTPARTUM PSYCHOSIS

Most commonly symptoms include elation, lability of mood, rambling speech, disorganized behaviour, and hallucinations or delusions. This is the most severe form affecting mother-infant relationship.

POSTPARTUM POSTTRAUMATIC STRESS DISORDER

It is generally characterized by tension, nightmares, flashbacks, and autonomic hyperarousal that can continue for some weeks or months.

ANXIETY DISORDERS SPECIFIC TO THE PUERPERIUM

Many mothers are excessively worried and preoccupied about the health and safety of their children which is known as "maternity neurosis". Mothers may remain awake listening to the infant's breathing, and frequent checking resulting in sleep deprivation.

OBSESSIONS OF CHILD HARM

Associated with compulsive checking of infant for wellbeing.

CONSEQUENCES

Effect on baby:

There is negative long-term consequences to the infant's social, emotional, cognitive, and physical development. Depressed or anxious mom, may not be able to provide the nurturing that her baby needs to grow and thrive. She is less likely to read to, cuddle with, and interact with her baby putting him or her at risk for several negative health outcomes, such as: Failure to thrive, Delayed development, Sleep difficulties, Behavioural and emotional problems, and Learning problems.

Effect on feeding:

While postpartum depression may reduce rates of breastfeeding, not engaging in breastfeeding may increase the risk of postpartum depression. Additionally, there is some evidence that breastfeeding may protect against postpartum depression or assist in a swifter recovery from depressive symptoms.

In a recent study it was observed that Breastfeeding mothers experienced a decrease in negative mood from prefeeding to postfeeding. Moreover, bottle-feeding mothers experienced a decrease in positive mood from prefeeding to postfeeding. Thus, breastfeeding may offer both, acute and long-term benefit. Longer duration of breastfeeding has also been found to be beneficial for prevention and treatment of postpartum depressive symptoms.



MANAGEMENT

Postpartum blues are transient and self-limited, resolves on its own and requires no treatment other than validation, education, reassurance, and psychosocial support. Treatment of PPDs in some cases requires psychotherapy and/or pharmacologic treatment along with reassurance, familial and social support. Many medications to treat postpartum mood and anxiety disorders are safe to use while breastfeeding. Safety and hazards of use of psychotropic medications during lactation should be addressed. Olanzapine and Quetiapine were considered the most acceptable. Chlorpromazine, Haloperidol, and Risperidone were classified as possible with breastfeeding, with medical supervision. Breastfed infants must be carefully observed for hydration status, excessive sedation, feeding difficulties, and failure to gain weight, which are possible signs of drug toxicity, and inform mothers to contact the health care worker. The use of lithium for breastfeeding mothers has generally been discouraged because of concerns regarding secretion of the drug through breast milk and its toxicity.

CONCLUSION

Early identification of women at high-risk for developing PPD and timely initiation of therapeutic approaches, consisting of pharmacological and /or psychotherapy along with continuation of breastfeeding are the key factors to the successful management of PPD and breastfeeding protection.



PURPOSE

To teach, demonstrate and help mothers in expression & storage of breast milk.

A) EXPRESSION OF BREASTMILK:

Expressing means squeezing milk out of your breast so that you can store and feed baby later.

INDICATIONS FOR EXPRESSION OF BREASTMILK :

- Mother & baby are separated, for example baby is in special care /NICU or mother is sick;
- To prevent & relieve Breast engorgement;
- Baby is not able to latch or suck well for example extreme premature, sick babies , postoperative babies, hypotonic babies ;
- Working mother;
- Milk donation in Human Milk Bank;
- Boost continuous milk supply. The woman's milk supply is low then expressing milk can stimulate further production of breastmilk;
- Hindmilk expression for weight gain;
- The woman's nipples are cracked or damaged and need a period free of suckling to relieve pain.

METHODS OF EXPRESSION OF BREASTMILK

- By using hands- preferred method
- By using pumps:
 - Manually operated
 - Battery operated
 - Electrical pumps

POINTS TO EMPHASISE:

- Hand expression is the most useful way to express milk. It needs no appliance, so a woman can do it anywhere, at any time.
- It is easy to hand express when the breasts are soft. It is more difficult when the breasts are engorged and tender. So teach a mother how to express her milk in the first or second day after delivery rather emphasis on frequent breastfeeding with correct position and attachment in stable babies. Do not wait until the third day when her breasts are full.
- A mother should express her own breast milk. The breasts are easily hurt if another person tries to do so be very gentle in demonstration.



EQUIPMENT

Clean, wide-mouthed container.

Mechanical or electrically operated pumps (if expression is done using pumps)

HOW OFTEN A MOTHER SHOULD EXPRESS MILK?

It depends on the reason for expressing the milk, but usually as often as the baby would breastfeed (8-12 times/day)

- To establish lactation to feed a low-birth-weight (LBW) or sick newborn
 - She should start to express milk on the first day, as soon as possible. She may only express a few drops of colostrum at first, but it helps breastmilk production to begin.
She should express as often as her baby would feed. Hence it should be done at least every 3 hrs, including the night hrs. If she expresses only a few times or if there are long intervals between expressions, she may not be able to produce enough milk.
- To build up her milk supply (if it seems to be decreasing after a few weeks) : express very often for a few days (every 1/2-1 hr) and at least every 3 hrs during the night.
- To relieve symptoms such as engorgement or leaking at work
 - express only as much as necessary
- To leave milk for a baby while she is out at work:
Express as much as possible before she goes to work, to leave for the baby. It is also very important to express while at work to help keep up the supply .

Procedure of Expression of breastmilk :

a) Manual expression:

Step 1: Wash hands with soap and water.

Step 2: Preparation of container

1. choose a sterile steel cup, glass with a wide mouth.
2. Sterile container: wash container with soap & water. Keep in steriliser which are easily available in market OR in boiling water for 10 minute.

Step 3: Massaging the breast before expression

1. Find a comfortable place to express breastmilk which is relaxing, warm and free of distractions. Listen to soft, relaxing music if possible. Ask a helper to rub her back and give back message for few minutes .
2. Take a cold packs or chilled cabbage leaves and wrap the breast in it, let it be there for 5 -10 mins.



3. With palm & fingers massage the breast using circular motion of fingers. Use pulp of fingers only with modest pressure. Massage the breast towards nipple gently. Massage should not hurt her.
4. Provide massage for 5-10 min on each breast before expression of milk.

Both back & breast massage are useful for milk expression. Step 3 is very important for stimulation of oxytocin reflex.

Step 4: Expression of breastmilk .

1. She should think lovingly of the baby or look at a picture/ a sound recording of your baby if at working place/ seperated.
2. Ask her to put her thumb above the nipple and areola and her first finger below the nipple and areola opposite the thumb in C grip manner. She supports the breast with her other fingers.
3. Ask her to press her thumb and first finger slightly inward towards the chest wall. She should avoid pressing too far or she may block the milk ducts.
4. Press her breast behind the nipple and areola between her fingers and thumb She must press on the lactiferous sinuses beneath the areola. Sometimes in a lactating breast it is possible to feel the sinuses. they are like pods or peanuts. If she can feel them she can press them.
5. Press and release press and release. This should not hurt if it hurts the technique is wrong
6. At first no milk may come but after pressing a few times milk starts ton drip out. It may now in streams if the oxytocin reflex is active.
7. If you intend to completely drain your breasts, rotate your hand to another position around the nipple (C, U, backward C, upside-down U) to express from all areas of the breast and begin the process again.
8. Avoid rubbing or sliding her fingers along the skin. The movement of fingers should be more like rolling .
9. Avoid squeezing the nipple itself. Pressing or pulling the nipple cannot express the milk .It is the same as the baby sucking only the nipple.
10. Express one breast for at least 3 -5 min until the flow slows then express the other side and then repeat both sides. she can use either hand for either breast and change when they tire.

Explain that to express breast milk adequately takes 20-30 min especially in the first few days when only a little milk may be produced. It is important not to try to express in a shorter time.

Advantages:

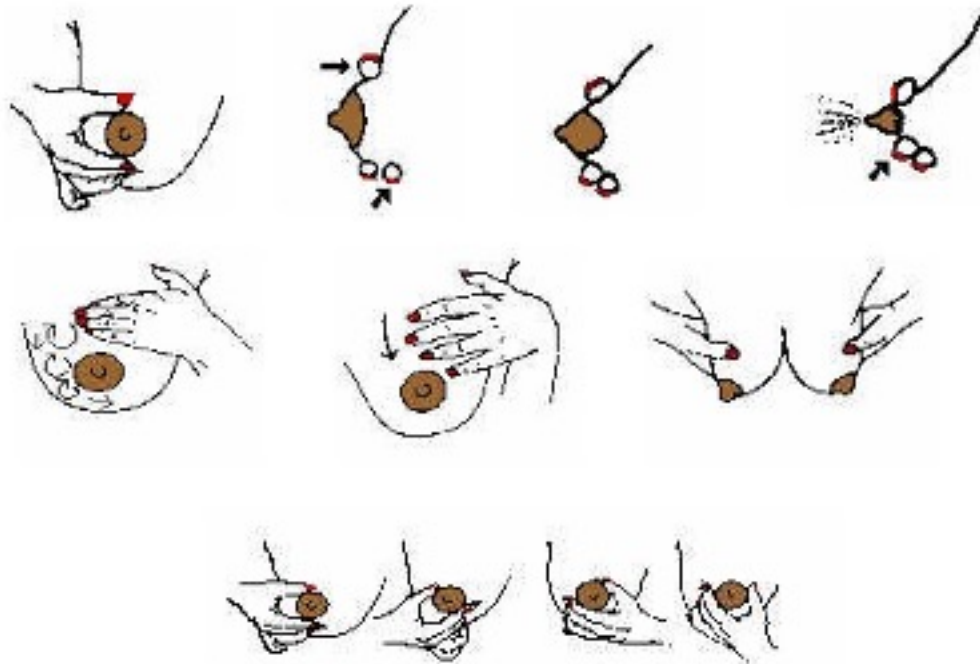
- Natural and cost effective

- No equipment needed
- Quiet and readily available
- Can be more comfortable and effective than a breast pump

Disadvantages:

- Requires practice
- Time consuming
- Doesn't work for everyone

HAND MILK EXPRESSION



b) Milk expression by Breast pump:

There are 2 different types of breast pump:

Manual (hand/battery operated) and Electric.

A) Manual breast Pumps:

Mechanical device to express breast milk by breast pump which is

Affordable, easily available, portable (no requirement of battery/electricity) & user friendly.



Disadvantages:

- Expensive, less affordable,
- May not be readily available,
- Electricity is required,
- Nipple trauma can happen with prolonged vacuum.

Hospital Grade Electric Milk Expression Pumps



Manual & Battery Operated Milk Expression Pumps



Breast pump hygiene

Women who use breast pumps must take particular care to ensure the pump is clean before use. To clean a breast pump women should:

1. Begin by thoroughly washing and drying their hands
2. Disassemble the breast pump fully, ensuring that all the pieces have been separated;
3. Rinse each piece of the breast pump which has been in contact with the breast or breastmilk in cold water;
4. Using a brush which is only used for cleaning the breast pump (and not for washing dishes or other purposes), remove all grease, milk and dirt from the pieces using a small quantity of dishwashing liquid;
5. Rinse all the parts in hot water, twice;
6. Drain and dry the pieces of the breast pump on a clean paper towel and cover the drying pieces with another sheet of paper towel;
7. Once dry, store the kit in a clean plastic container, plastic wrap or paper towels to prevent contamination.
8. Clean in a dishwasher (if recommended by pump kit manufacturer). Wash. Place disassembled pump parts in dishwasher. Be sure to place small items

into a closed-top basket or mesh laundry bag so they don't end up in the dishwasher filter. If possible, run the dishwasher using hot water and a heated drying cycle (or sanitizing setting); this can help kill more germs.

Some women may also wish to sterilise their breast pump from time to time, either by boiling for 5mins or using a commercially available dishwasher / steriliser. However, it is recommended that women whose babies are sick and hospitalised sterilise their breastmilk pump everyday to reduce the likelihood of infection.

Procedure of milk expression by breast pump:

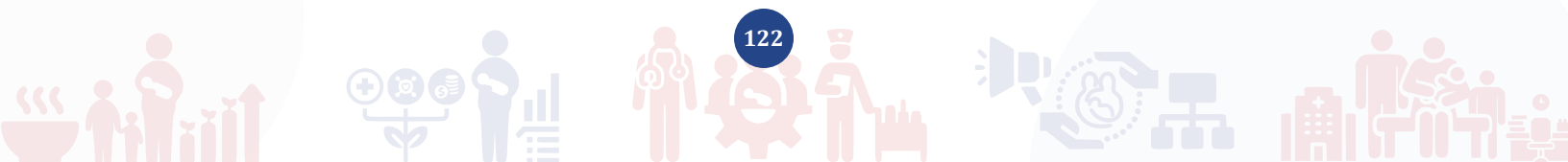
Step 1,2 & 3 will be same as of manual hand expression.

When using a breast pump women should:

1. Clean the pump thoroughly before the first use, even if it is brand new. Women should also ensure that the pump has been cleaned according to the above mentioned instructions ;
2. Assemble the pump according to the manufacturer's instructions;
3. If the pump is electric, set the pump to the lowest sucking actio;
4. Attach the cup to the breast from which milk is to be expressed, ensuring that the nipple is in the centre of the cup and there is good skin contact between the cup and breast;
5. Start the pump. If the pump is electronic this means turning it on. For a manual breast pump, women should begin gently pumping the suction device of the pump;
6. If the nipple hurts when the pump begins, remove the cup and check the nipple is properly positioned at the centre of the pump;
7. If the cup feels comfortable, increase the suction to a higher setting on an electric pump, or pump the suction device more strongly (but not more quickly) for a manual pump;
8. Leave the cup in place until the breast has been emptied;
9. Repeat the above steps for the second breast.

Women should keep their pump upright while they are expressing to prevent milk flowing into the suction tubes and damaging the device.

Some women find it is useful to spend a couple of minutes expressing milk from their breasts by hand after using a breast pump. This helps ensure that the breast is fully drained. This is particularly important for women who are concerned that they are producing insufficient breastmilk, as completely draining the breast at each expression encourages greater breastmilk production.



B) Storage of expressed breast milk

After expression breast milk can be stored either at room temperature or in the refrigerator

Breastmilk must be stored correctly to reduce the potential for bacterial growth. Suggestions include:

- Use fresh breastmilk whenever possible.
- Express into clean and sterilised containers. These may be steel, glass, plastic (BPA-free) or sealable plastic bags.
- Label each container with the time and date breastmilk expression.
- Store breastmilk in the back of the fridge where it is coolest (4°C or lower), not in the fridge door. This will help protect the breast milk from temperature changes from the door opening and closing Use fridge thermometers for exact temperature. This will help to protect the quality of the breast.
- If you don't think you will use freshly expressed breast milk within 4 days, freeze it right away.
- When freezing breast milk:
 - Store small amounts to avoid wasting milk that might not be finished. Store in 2 to 4 ounces or the amount offered at one feeding.
 - Leave about one inch of space at the top of the container because breast milk expands as it freezes.
- Do not top up refrigerated or frozen breastmilk with fresh breastmilk unless it has been chilled.
- The shelf life of frozen breast milk depends on your freezer. If your freezer is inside the fridge, storage time is 2 weeks. If your freezer is separate from the fridge with its own door, storage time is up to 3 months. Breastmilk can be stored for 6 to 12 months in a deep freezer (-18°C or lower).

Human Milk Storage Guidelines: CDC Recommendation

Human Milk Storage Guidelines			
Storage Location and Temperatures			
Type of Breast Milk	Countertop 77°F (25°C) or colder (room temperature)	Refrigerator 40°F (4°C)	Freezer 0°F (-18°C) or colder
Freshly Expressed or Pumped	Up to 4 Hours	Up to 4 Days	Within 6 months is best Up to 12 months is acceptable
Thawed, Previously Frozen	1-2 Hours	Up to 1 Day (24 hours)	NEVER refreeze human milk after it has been thawed
Leftover from a Feeding	Use within 2 hours after the baby is finished feeding		

Thawing and heating of breastmilk:

- Always thaw the oldest breast milk first. Remember first in, first out. Over time, the quality of breast milk can decrease.
- There are several ways to thaw your breast milk:
 - o In the refrigerator overnight.
 - o Set in a container of warm or lukewarm water.
 - o Under lukewarm running water.
 - o Special thawing machines available in milk banks.
- Never thaw or heat breast milk in a microwave. Microwaving can destroy nutrients sIgA & other immune components in breast milk and create hot spots, which can burn a baby's mouth.
- If you thaw breast milk in the refrigerator, use it within 24 hours. Start counting the 24 hours when the breast milk is completely thawed, not from the time when you took it out of the freezer.
- Once breast milk is brought to room temperature or warmed, use it within 2 hours.
- Never refreeze breast milk after it has thawed.

Suggested reading:

1. Expressing & storing of breastmilk NHS UK,
2. WHO Guidelines of expressing & storage of breastmilk;
3. Rebecca Mannel ,Core curriculum for Lactation Consultant Practice third edition, chapter 33,milk expression ,storage & handling page number 621-639;
4. CDC Guidelines on Proper Storage and Preparation of Breast Milk,11 june 2021

14. FAQs: COVID19 Vaccine for pregnancy and breastfeeding



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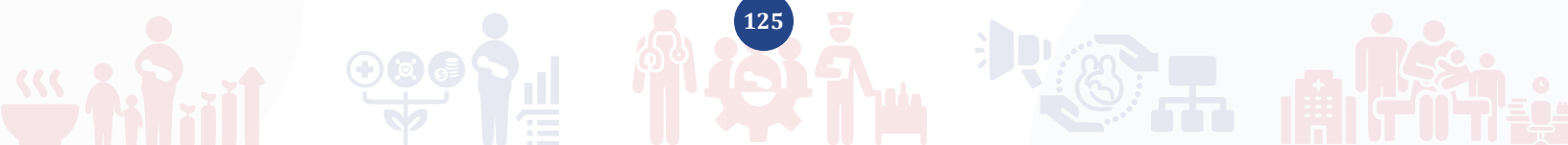
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Training:

Those involved in support groups should receive training in Infant & Young Child Nutrition (IYCN), basic breastfeeding management and problem solving, as well as training in counselling skills and the dynamics of support groups. Training programs vary from 20 to 80 hours. Lessons spread over time allow for better assimilation of knowledge as does hands on training.

The role of Mother Support Group counsellor:

A person working in the Mother Support Group could be called a Mother Support Group Counsellor. The role of a counsellor is to carry out these activities:

1. Pre-delivery counselling:

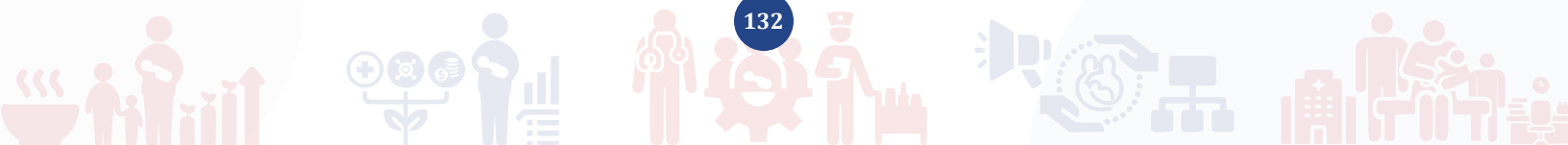
Mothers in their seventh month of pregnancy, are asked to attend the antenatal breastfeeding session, by the counsellor, at the hospital where they are going to deliver. They are asked to be accompanied by a relative, so that more members of the family are educated about breastfeeding.

The reason for calling in the early third trimester is: if the session is taken too early in the pregnancy, then they may forget what has been told. If taken too late, they may deliver prematurely, thus missing the session. This session is usually held once or twice a month.

Attendance for these sessions is important and hence it should be noted on the antenatal card.

The counsellor speaks about the following topics.

- Benefits of Breastfeeding
- Initiation of breastfeeding
- Importance of colostrum and skin to skin contact
- Frequency of feeding - how often to feed and how long
- Briefly about positioning and attachment to the breast
- How to overcome problems like low milk supply / engorgement / cracked nipple
- Duration of exclusive breastfeeding & total breastfeeding
- Adequacy of breast milk.
- Whether Pre-lacteal feeds /water to be given
- Feeding during illness
- Mother's diet
- How to continue breastfeeding when mother resumes her work outside the home.
- Size of the breast; does it matter?
- Nipple protractility
- Getting the family ready to support and encourage the mother, in her breastfeeding



journey.

- Baby caring practices.
- Normal behaviour patterns upto 6 months of age.

In a government hospital, the mothers who come for Antenatal checkup can be provided with the information on breastfeeding, in groups.

2. In the Labour room - The counsellor can put the baby in skin to skin contact soon after birth, thus enabling early initiation of breastfeeding within one hour of birth.
3. Post delivery counselling: In a private maternity home, or in a govt. maternity ward, the counsellor meets each mother in the postnatal ward and assesses the breastfeed. The positioning and attachment of baby to the breast is taught/ corrected/ fine tuned. This practical assistance enables the mother to have a successful and rewarding breastfeeding experience.

The counsellor helps in resolving the problems faced by the mother like cracked /sore nipples and engorgement etc.

Mothers with perceived low milk supply, are educated about how to check for adequate milk supply. Mothers with actual low milk supply are shown ways to enhance the supply.

The counsellor gives a brief talk and provides essential information about breastfeeding to the group of mothers.

4. The counsellors conduct training of healthcare providers, like medical/ paramedical personnel, who come in contact with pregnant and lactating mothers.
Anganwadi workers / Asha workers are trained in the skill of breastfeeding.
5. In the community: The mother support group counsellors spread awareness and bust myths about breastfeeding. School & College students, local bodies/clubs are educated about the benefits of breastfeeding. Thus helping create a society that supports breastfeeding mothers.
6. BFHI Certification: The counsellors assess hospitals / maternity homes for compliance with the ten steps to successful breastfeeding, as stated in the Baby Friendly Hospital Initiative .

Key Learning Points:

1. A mother supported by other mothers is more likely to exclusively breastfeed the baby for a longer duration
2. Peer support positively influences breastfeeding duration in a cost effective manner
3. Breastfeeding women are supported by sharing information and providing encouragement and practical help along with other measures.



16. Technology in Breastfeeding



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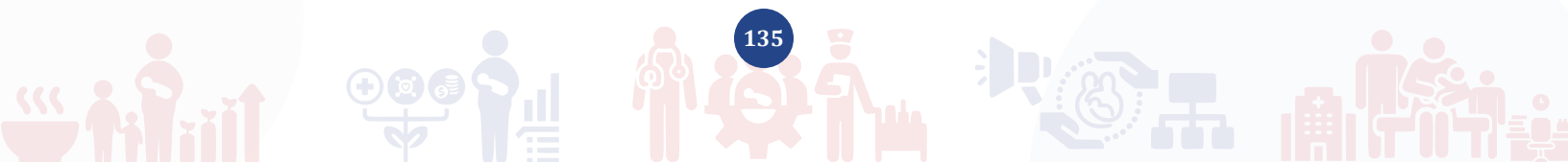
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Breastmilk is the ideal nutrition for infants. However breastfeeding is a challenge for many mothers and many of them seek pregnancy, birth and infant care information from the internet. There are multiple applications, blogs and articles available online but not all of them give correct information to this vulnerable group of patients who are already overburdened with pregnancy and postpartum stress.

A Study by Alaa Ali et al on effectiveness of internet based Electronic technology intervention on Breastfeeding demonstrates :

- Internet based e-technologies are transforming the access and delivery of breastfeeding intervention.
- The study shows that web-based interventions that provide Education as well as ongoing Support are best models of e-technology
- In the pandemic situation where social distancing is a norm ,internet is the way forward for learning breastfeeding practices

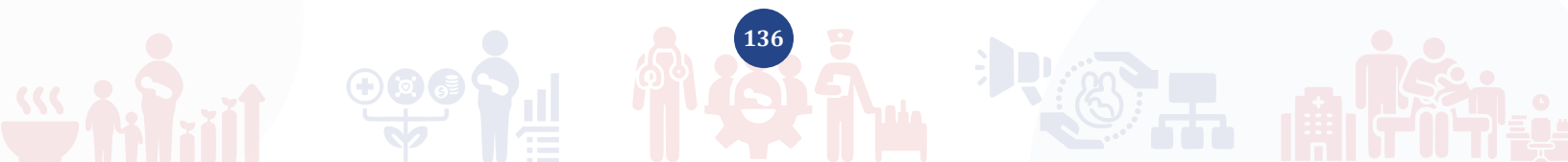
Hence the need for a portal where experts of the field of maternal and child health help these mothers seek answers to common questions related to breastfeeding and childcare. In this technological age where information is available on the cellphone at a tap of a finger what better than a cellphone application to aid the breastfeeding mothers.

SHISHUPOSHAN APP

“Shishuposhan” app was conceptualised and curated by Mumbai Breastfeeding Promotion Committee (MBPC), Breastfeeding Promotion Network Of India (BPNI)- Maharashtra, United Nations Children’s Fund (UNICEF)- Maharashtra & Department of Community Medicine - Seth G.S. Medical College & KEM Hospital (Mumbai). The application is available on Google playstore and it can be used free of cost. It is a userfriendly application with options of English, Hindi and Marathi language making the application useful for women from all walks of life .

The application creates awareness by addressing breastfeeding and baby nutrition topics as below:

- Importance of Breastfeeding or mother’s milk for the baby
- Advantages for mother
- Breastfeeding preparation during pregnancy
- Breastfeeding after caesarean delivery
- Benefits of colostrum
- Frequency and Duration of breastfeeding
- correct position to hold baby while breastfeeding
- cause of cracked or sore nipples
- Know if the baby is getting enough breastmilk.



It also provides guidelines for :

- working mother
- Baby care, Baby caring practices, Baby Feed
- Complementary Feeding and Nutrition for Baby, Quantity of complementary food
- Expression of Breastmilk
- Different methods to hold a baby
- family and community support
- complementary feeding
- general cleanliness and hygiene etc.

The application helps mothers boost their confidence about breastfeeding and develop a stronger bond with their child.

In the COVID era where many mothers are away from family and in the current situation where one may avoid physical consultation, mothers can visit the FAQ(Frequently asked questions) section of the application for addressing common breastfeeding and childcare issues.

Till date the application has been downloaded more than 50 thousand times. Doctors and other healthcare workers should encourage patients to download the application from their antenatal period to initiate breastfeeding preparedness among patients. The application can also be downloaded by fathers and other family members for breastfeeding and childcare awareness. The aim is to provide expert advice to mothers and families and reach out to a larger population and make mothers self-reliant. Truly “ Shishuposhan app is a digital friend of lactating mothers.”

BPNI- i DECIDE

- It is a new initiative by BPNI(Breastfeeding Promotion network of India) to help pregnant women and husbands to make informed decision on feeding their babies is launched.
- iDECIDE aims to facilitate an enabling environment for would be parents to secure accurate knowledge, make feeding decisions and inform the attending doctor during pregnancy itself.
- Its objective is to ensure success in early initiation of breastfeeding within an hour of birth, skin-to-skin contact immediately after birth and safe preparation, handling and storage of infant formula if administered due to medical reasons.
- DECIDE has five video modules and reading materials (in different languages).It would help you to gain maximum knowledge to make the feeding decision.

DIVINE GARBHSANSKAR- YOUTUBE VIDEOS

- Divine Garbhsanskar by BK Dr Shubhada Neel is a unique 3 Dimensional Antenatal Care

programme

- Vision is to help the expectant mother to create a value & virtue based child.
- It is committed to empower the women through science-based methodology of relaxation and meditation.
- The program uses 3-Dimensions, Holistic Diet, Exercise and Rajyoga Meditation during pregnancy and childbirth.

WHO WEBSITE

Target 2025: To improve maternal, infant and young child nutrition

- WHO actively promotes breastfeeding as the best source of nourishment for infants and young children, and is working to increase the rate of exclusive breastfeeding for the first 6 months up to at least 50% by 2025.
- WHO and UNICEF created the Global Breastfeeding Collective to rally political, legal, financial, and public support for breastfeeding.
- The Collective brings together implementers and donors from governments, philanthropies, international organizations, and civil society
- WHO's Network for Global Monitoring and Support for Implementation of the International Code of Marketing of Breast-milk Substitutes, also known as NetCode, works to ensure that breast-milk substitutes are not marketed inappropriately.

We hope that these applications and videos will be helpful for expectant and postpartum mothers and families and help us fulfil the theme for World Breastfeeding Week 2021

“ Protect Breastfeeding: A shared responsibility”.

Some useful links are listed below that will help mothers and families in breastfeeding and childcare:

- Breastfeeding Promotion Network of India:
<https://bpnimaharashtra.org/>
<https://www.facebook.com/mahbpni/>
- Divine Garbhasanskar:
<https://youtu.be/BSdm1iDlie4>
- COVID 19 and breastfeeding:
<https://youtu.be/oGvgkXDrNh0>
- BPNI i DECIDE:
www.idecide.org.in
- WHO breastfeeding guidelines

17. Comprehensive Lactation Management Centre



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INTRODUCTION

Ma, at whose breast humanity is nourished and civilization is cultured

It is universally accepted that breast milk is the optimum exclusive source of nutrition for the first six months and continues to be the significant part of the healthy infant diet for two years and beyond. Human breast milk provides a bioactive matrix of benefits that cannot be replicated by any other source of infant nutrition. According to a joint statement made by the WHO and UNICEF, "where it is not possible for the biological mother to breastfeed, the first alternative, if available, should be the use of human milk from another healthy mother. Human milk banks should be made available in appropriate situations." The cost to benefit of establishing human milk banks has been well proven, and thus this intervention is seen in a continuum of efforts towards achieving exclusive breastfeeding up to six months of age and continuing breastfeeding beyond.

According to the medical journal of Lancet, suboptimal breastfeeding results in more than 800000 child deaths annually. Suboptimal breastfeeding was estimated to be responsible for 1.4 million child deaths and 44 million DALYs. It is estimated that 13% of the under-five deaths can be prevented by breastfeeding which means 1 in 8 of the young lives lost each year could be prevented through breastfeeding alone, making it one of the most effective ways to prevent diseases and malnutrition that results in child death. When mother's own milk is unavailable for the sick, hospitalized newborn, pasteurized human donor breast milk should be made available as an alternative feeding choice.

History of Human milk banking:

Wet nursing began as early as 2000BC and extended until the 20th century. As the availability of wet nurses dwindled, breast milk banks were introduced early in the 20th century. The first official milk bank was opened in Vienna at the outset of 20th century. In 1911, another milk bank was started in Boston. The first milk bank in U.K was started at Queen Charlotte's hospital in London in 1937. In the U.S., mother's milk bank of Wilmington Delaware, was started in 1947. With the emergence of infant formula, extensive advertising of formula products, there were only 3 functional milk banks existing in the early 70's. However, extensive research supporting the nutritional and immunological superiority of the breast milk, re-established the undeniable importance of breast milk over formula. This increased the demand for donated human milk and human milk bank regained its popularity. The American Academy of Pediatrics was the first to publish guidelines for milk bank operations in 1943. To address the growing practice of milk banking, the Human Milk Banking Association of Northern America (HMBANA) was established in 1985. Asia's first human milk bank was established at SION hospital, Mumbai on the 27th November 1989 under the eminent guidance of Dr. Armida Fernandez, the pioneer of milk banking in India. Currently there are over 550 milk banks approximately all over the world including approximately 80 milk banks only in India. In 2019, the Human Milk Bank Association of India was formed. It is a network of medical practitioners who work in the field of human milk banking and related areas including child nutrition, infant feeding, and maternal health in India in order to develop scientific and evidence-based practices and recommendations in the field of human milk banking.

Human milk banks around the world	
Region	Number of human milk banks
Brazil	217
Europe	223
North America	16
South Africa	20
Australia	5
Singapore	1
India	80
Myanmar	2
Cuba	7
Columbia	5
Taiwan	1

Milk banking in India:

As per the “National Guidelines on Establishment of Lactation Management Centres in Public Health Facilities”, Breast milk banks in India are known as Comprehensive Lactation Management Centres (CLMC) and Lactation Management Unit (LMU) depending on the level of health facilities where these units are established. The foremost endeavor of the health care providers in a health centre is to promote and conserve the natural act of breastfeeding. Lactation management centres are intended to emphasize the importance of breastfeeding. The primary function of such centres is to make sure that every child receives breast milk. In case of insufficiency or unavailability of mother’s own milk, Donor Human Milk (DHM) is the next best alternative to bridge the gap, thereby improving exclusive breastfeeding rates. The Government has set a target of ensuring 70 percent infants to have access to breast milk by the year 2025. Target will be subsequently increased to 100 percent.

There is currently a limited supply of donor breast milk in India and it should be prioritized to sick, hospitalized neonates who are the most vulnerable and most likely to benefit from exclusive human milk feeding.

Definition of CLMC and LMU:

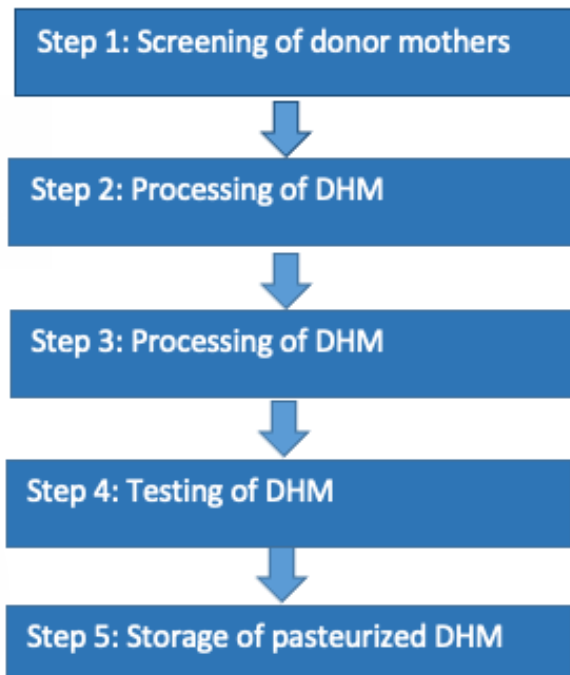
Comprehensive Lactation Management Centre (CLMC) is an elaborate set up established for the purpose of collecting, screening, processing, storing and distributing donor human milk (DHM). CLMCs are established at Government Medical Colleges or District Hospitals with high delivery load and availability of newborn treatment units such as NICU/SNCUs. It serves as ancillary support to the baby friendly hospital practices of promoting and supporting breastfeeding. It is a non-profit set up.

Lactation Management Unit (LMU) would be established in District hospitals/ Sub district hospitals. This unit should be established in the vicinity of SNCU. No screening of mother is required as babies



are fed by milk expressed by their own mothers. The expressed breast milk using electric/manual pumps are carefully labelled and dispensed. There is no requirement for pasteurization or culture tests on the expressed breast milk.

The processes in CLMC have six basic steps:



Who can donate?

Any healthy lactating mother can volunteer (no incentives) to donate milk to CLMC after signing an informed consent form and going through a medical check fulfilling the eligibility criteria and serological tests (HIV, HBsAg, VDRL).

Who is to receive DHM?

Donor milk is given to babies only on prescription on priority basis. The highest priority is the most vulnerable group of neonates who are admitted in the NICU due to complications at birth such as prematurity, low birth weight, sepsis.

The milk bank at B.J.Govt.Medical College, NICU:



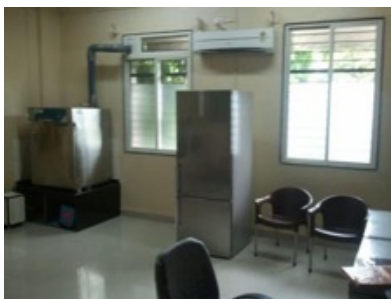
1. milk collection room



2. Electric breast pump



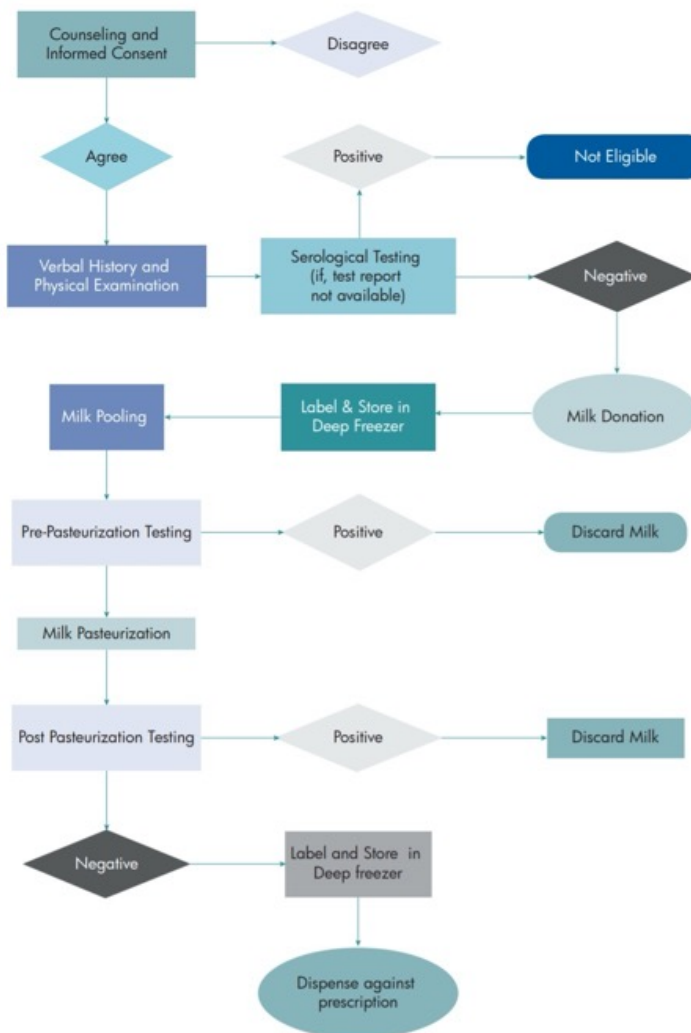
3. Deep Freezer



4. Refrigerator and hot air oven



5. Pasteurizer



The donation of milk is a non-incentivized process and remains a completely voluntary activity. Quality assurance of the entire process are extensively detailed in the guidelines and adhered to in the milk banking process

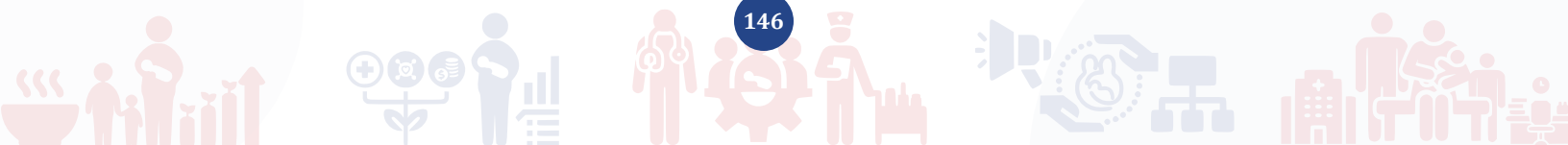
Mobile Milk Collection Unit:

A **state of art Human Milk Collection Unit**, the first in the country was inaugurated at B.J.Govt. Medical College and Sassoon General Hospital, Pune in collaboration with Rotary Club of Poona, on August 1, 2016 which is the first day of the World Breastfeeding Week. The idea of having a milk van for human milk collection was a unique innovation, **conceptualized by Dr. Sandhya Khadse** and the total implementation including designing was done by her team comprising of Dr.Chhaya Valvi, Dr.Rajesh Kulkarni and Dr.Uday Rajput. It is the **one and only of its kind** in the country. **This unique idea received BMJ award in 2018 for the best innovation for strengthening maternal and child care practices.** The milk collection van includes a refrigerator, an air conditioner, specially designed chairs, baby cradle and an inverter. The van will now go to the residences of the voluntary donor mothers and collect the excess milk which will be delivered at the human milk bank. After pasteurization, it is utilized for the preterm, sick babies in the NICU. This concept of human milk collection should be widely adapted and it will help in improving donation rates and will ensure the successful running of milk banks in any place.



Impact of the COVID19 pandemic on milk banking:

The Indian guidelines for the current COVID-19 pandemic regarding breastfeeding is to continue breastfeeding with precautions and expressed breast milk if isolation of the mother is possible. The ongoing pandemic warrants for extra precautions to ensure safe and secure functioning of human milks. This includes



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