

"Exploring the Vital Role of Human Milk Banks: A Comprehensive Review"

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Abstract

Asia's first human milk bank was established at SION hospital in Mumbai on November 27, 1989 by Dr. Armida Fernandez, the pioneer of milk banking in India. Approximately 3000 to 5000 newborns receive assistance from this milk bank annually. It takes between 800 and 1200 litres of human milk a year to nourish sick and vulnerable newborns in the Neonatal Intensive Care Unit. The Human Milk Bank (Comprehensive Lactation Management Centre) provides assistance to new moms so they can pump milk, breastfeed their newborns, and supply extra milk to hospitalised unwell infants. There are now ten operational milk banks in India. A programme known as a "human milk bank" gathers, preserves, and distributes human breast milk following screening. Breast milk is given to sick and preterm newborns who are at risk, as well as in certain cases when mothers are unable to give their kids enough milk. Breastfeeding moms who are unrelated to the babies receiving the milk donated it. There is a screening process that mothers must go through in order to donate their excess breast milk. This includes a health examination and a questionnaire. Every breast milk donation is examined, heated to a high temperature, and then frozen to be given to infants in need.

Keywords: Human Milk, Breastfeeding, Infant Nutrition, Lactation, Maternal Health, Breast Milk Composition, Breastfeeding Benefits.

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INTRODUCTION

The service of gathering, screening, and storing breast milk is provided by hospitals and assisted living facilities. Relatively healthy nursing moms have generously given this milk. When it comes to biologically born babies, this milk is essential for meeting their nutritional requirements. A newborn's growth and development can be facilitated by the nutrients found in this milk, which is why some people call it "liquid gold." The optimal biological fluid for baby nourishment is human milk, which is a magnificent substance. Human milk is a customised and ever-changing source of nutrition for babies. It is made up of a complex and dynamic combination of nutrients, hormones, antibodies, and other bioactive ingredients. This review attempts to completely explore the composition of human milk and its numerous advantages for both the newborn and the breastfeeding mother.

The nutritional makeup of human milk will be covered in detail in the first section of the review, along with how the right amounts of lipids, proteins, carbs, vitamins, and minerals are balanced to promote healthy growth and development. Particular focus will be placed on the special qualities of human milk, such as the

existence of stem cells, enzymes, and antibodies, all of which support the growth of the baby's immune system.

The ensuing sections will examine the advantages of nursing, including both immediate benefits like immunity to infections and long-term benefits like less risk of developing chronic illnesses. The evaluation will also discuss how breastfeeding affects mother health, with a focus on how lactation helps with postpartum recuperation and how it may have long-term health advantages for moms.

The effects of exclusive breastfeeding for the first six months of life will also be covered, providing insight into the possible long-term health benefits for babies. The obstacles and difficulties associated with breastfeeding will also be discussed in this section, along with suggestions for worldwide promotion and support of breastfeeding habits.

Definition: A human milk bank is an organisation that collects, screens, processes, stores, and distributes donated human milk.

What are the Benefits of Donating Breast Milk?

Breast milk provides nourishment, promotes healthy growth, and shields newborns from illness and infection.

For premature and ill newborns, breast milk is even more crucial. This means that they have a better chance of surviving.

A great deal of defenceless neonates are denied access to their mothers' milk for varying lengths of time due to unavoidable circumstances including the mother's illness, death, and delays in the processing of the milk. Under certain circumstances, donor human milk from a milk bank can save a life.

Who Is Qualified to Donate?

- Anyone who is willing to donate their excess expressed breast milk as a nursing mother can participate in the program/initiative.
- Breast milk donation is permitted for any nursing woman in good health.
- The mother's health must be good in order for her to contribute.
- The ensuing further requirements need to be fulfilled: Avoid smoking abstaining from alcohol and drugs keeps a balanced way of living rejects being tested for HIV, syphilis, hepatitis B, and TB.

Beneficial to:

1. Premature newborns or newborn babies who need gastrointestinal surgery since their moms have died.
2. Babies having a low birth weight.
3. As the mother regains consciousness after undergoing LSCS while under general anaesthesia, the infant may benefit for a few hours.
4. Those whose moms have been split owing to a major medical illness, such as PPH.
5. Adopted kids from foster care facilities
6. Every other orphaned child.
7. Mothers who do not produce breast milk.
8. Mothers with nipples that are flat or inverted, or
9. Mothers that have many pregnancies such as twins, triplets, or more.

The Human Milk Process:

- Registration and screening of donor mothers
- Milk expression of the donor mother.
- The technique of pasteurisation involves raising milk to a specific temperature to eradicate any potential bacteria while maintaining the milk's ability to fight infections and retain its nutritious value.
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ability to fight infections and retain its nutritious value.

- After the milk has been cooked and promptly cooled, precautions are put in place to preserve the milk until it is given to the newborn.
- Sterile techniques are employed throughout the pasteurisation process.
- Donor breast milk samples bear the donor number, selection date, and batch number and date of pasteurisation written on them.
- At -18°C, pasteurised milk can be kept for a period of six months.
- Only three months of frozen milk can be used for preterm infants; once thawed, it can be refrigerated for up to 24 hours before consumption.
- Keeping items in the freezer
- A baby's prescription.
- Infants that are in need receive milk.

Infrastructure

At least the equipment for milk banking, a technician's workstation, and some storage space for paperwork, management, donor counselling, etc., require a 250 square foot partitioned room. In the realm of breast milk expression, confidentiality is crucial.

Equipments:

Pasteurizer/Shaker-Water Bath:

Donor milk needs to be heat treated (Pretoria Holder pasteurisation method) for 30 minutes at a temperature of 62.5°C before it is used.

Deep Freezer: To keep milk at a temperature of -20 degrees Celsius, a deep freezer is required in the milk bank.

Refrigerators:

These are necessary to maintain the milk's temperature until the entire day's collection is complete, at which point it can be blended and pooled in preparation for additional processing.

Hot air oven/autoclave: This is necessary to sterilise the items needed in the centralised sterile service department or milk bank.

Breast Milk Pumps:

Since hospital-grade electric pumps are very painless and easy to operate, they are preferred for milk banking due to their ability to produce larger amounts of expressed milk.

Containers:

Throughout the world, milk is gathered and stored in single-use hard plastic containers composed of polycarbonates, pyrex, or propylene.

Generator: Each milk bank ought to possess a centralized, exclusive source of uninterrupted power supply, also known as a generator.

Population of Donors

Healthy lactating mothers with healthy offspring who willingly donate their excess breast milk to other newborns without sacrificing the nutritional needs of their own infants make up the donor population.

Breast Milk Collection

1. After receiving the necessary guidance, breast milk is collected.
2. Assessing appropriateness of contribution
3. Getting written approval that has been informed through correspondence.
4. After obtaining a medical history, doing a physical examination, and taking a sample for laboratory testing, the donor is directed to a designated breast milk storage facility within the milk bank or the milk collecting centre.

Storage

Until the culture is negative, pasteurized milk that is awaiting a report on its culture should be kept in a separate freezer or freezer area. The same container can be used for both pasteurization and storage.

CONCLUSION

In conclusion, it becomes clear that human milk is an exceptional and unique material that serves purposes beyond basic sustenance. Its dynamic composition—which is abundant in vital nutrients and bioactive factors—makes a major contribution to newborns' ideal growth and development. In order to support and encourage breastfeeding practices, which ultimately improve the health and well being of mothers and infants, it is imperative that healthcare professionals, legislators, and the general public have a thorough understanding of the complexity of human milk.

Conflict of Interest: There is no conflict of interest.

Source of Funding: This is not funded by any other source.

Ethical Consideration

We have ensured the quality and integrity of research by following the principle of non-maleficence (no harm). Confidentiality and anonymity have assured.

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