

The impact of Human Milk Banks in Iran on Neonatal Health

**Annual congress of Iranian Society of Pediatrics
46th Memorial Congress of Professor Mohammad Gharib**

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13 June 2025

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Tabriz University of Medical Sciences

Director of Human Milk Bank of Tabriz

Aims of this presentation

- Providing evidence supports for BM Banks and their benefits
- History of human milk banks in Iran
- Comparison of pre and post launch of milk banks in Iran

Collaboration and Support



Health status (mortality) (1/2)

Country	Neonatal	Infant	Under-5	Neonatal	Infant	Under-5		Maternal mortality ratio			Age-standardized mortality rates by major cause, 2019		
	Mortality rate per 1000 live births, UN-IGME 2020 estimates			Country reported				Per 100 000 live births, UN-MMEIG 2017 estimate		Country reported	Per 100 000 population		
	R	R	R	R	R	R	Y	Ratio	Ratio	Y	Communicable diseases	Noncommunicable diseases	Injuries
Afghanistan	35	45	58	23	41	50	2018	638	638	2017	204.3	881.2	187.6
Bahrain	3	6	7	4	7	8	2018	14	20	2018	32.2	644.3	25.7
Djibouti	30	47	56	—	—	—	—	248	—	—	311.2	610.9	96.9
Egypt	10	17	19	8	16	20	2020	37	43	2018	49.5	733.8	30.9
Iran, Islamic Republic of	8	11	13	8	12	14	2019	16	25	2019	34.4	445.7	47.9
Iraq	14	21	25	14	19	24	2020	79	34	2020	44.6	610.8	88.3
Jordan	9	13	15	11	9.5 ^b	12.4 ^b	2020	46	32	2019	29.6	441.2	34.6
Kuwait	5	8	9	5	8	9	2019	12	9	2019	33.1	324.4	31.2
Lebanon	4	6	7	5.5	13.2	14.5	2020	29	16.9	2020	31.6	526.9	32.8
Libya	6	10	11	7	11	12	2017	72	12	2017	47.4	479.0	61.7
Morocco	12	16	19	14	18	22	2018	70	73	2018	57.8	644.0	48.5
Occupied Palestinian territory	10	14	17	4	7	8	2020	40	28	2020	65.0 ^f	339.0 ^f	9.0 ^f
Oman	5	9	11	5	8	9	2020	19	29	2020	59.8	683.6	42.2
Pakistan	40	54	65	42	62	74	2018	140	140	2019	213.5	753.4	58.1
Qatar	4	5	6	3	5	6	2020	9	3	2020	30.9 (13.6) ^f	650.1 (306) ^f	32.4 (15.5) ^f
Saudi Arabia	3	6	7	4	6	9	2018	17	12	2018	44.1	558.1	83.7
Somalia	37	73	115	39	80	—	2017	829	—	—	654.7	769.2	134.6
Sudan	27	40	57	—	—	—	—	295	114	2018	151.6	625.7	71.3
Syrian Arab Republic	11	18	22	12	19	24	2018	31	68	2015	49.1	633.5	101.0
Tunisia	12	14	17	9	14	17	2018	43	—	—	36.8	462.5	38.7
United Arab Emirates	4	6	7	4	5	7	2019	3	3	2019	56.5 (10) ^a	528.4 (113) ^a	35.3 (12.2) ^a



International recommendations for donor human milk use by:

- World Health Organisation (WHO)
- The American Academy of Pediatrics (<https://www.aap.org/>) and
- The European Society of Pediatric Gastroenterology Hepatology and Nutrition (<http://www.espgan.org/>).

Efficacy of Donated Milk in Early Nutrition of Preterm Infants: A Meta-Analysis



nutrients



Article

Efficacy of Donated Milk in Early Nutrition of Preterm Infants: A Meta-Analysis

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Abstract: Background: Preterm birth is associated with an increased risk of many complications, which is a main public health problem worldwide with social and economic consequences. Human milk from breast feeding has been proved to be the optimal nutrition strategy for preterm infants when available. However, the lack of human milk from mothers makes formula widely used in clinical practice. In recent years, donated breast milk has gained popularity as an alternative choice which can provide human milk oligosaccharides and other bioactive substances. Objective: We aimed to conduct a systematic review and meta-analysis to evaluate the nutritional effects of donated breast milk on preterm infants compared with formula. Method: In the present study, we searched Medline, Web of Science, Embase, clinicaltrials.gov, the China national knowledge infrastructure, and the Cochrane central register of controlled trials for candidate randomized controlled trials (RCTs). Results: A total of 1390 patients were enrolled in 11 RCTs and meta-analysis results showed that

Li Y, Chi C, Li C, Song J, Song Z, Wang W, Sun J. Efficacy of Donated Milk in Early Nutrition of Preterm Infants: A Meta-Analysis. *Nutrients*. 2022 Apr 21;14(9):1724. doi: 10.3390/nu14091724. PMID: 35565692; PMCID: PMC9105142

Concluded that

- Donated breast milk could significantly reduce the incidence of NEC, the duration of parenteral nutrition, and the time of full enteral feeding.
- Although donated breast milk is inferior to formula in weight gain and body length growth of premature infants, this could be corrected by adding a fortifier to donated milk.

Evidence supporting the use of donor milk

- American Academy of Pediatrics recommends that all preterm infants should receive human milk and that pasteurized donor human milk should be used if mother's own milk is unavailable or its use is contraindicated. (Pediatrics, 2012).
- If you consider just reducing NEC, the Running of BM Banks is cost-benefit

Schanler, 1999. Sullivan, 2010.

Preterm Infants



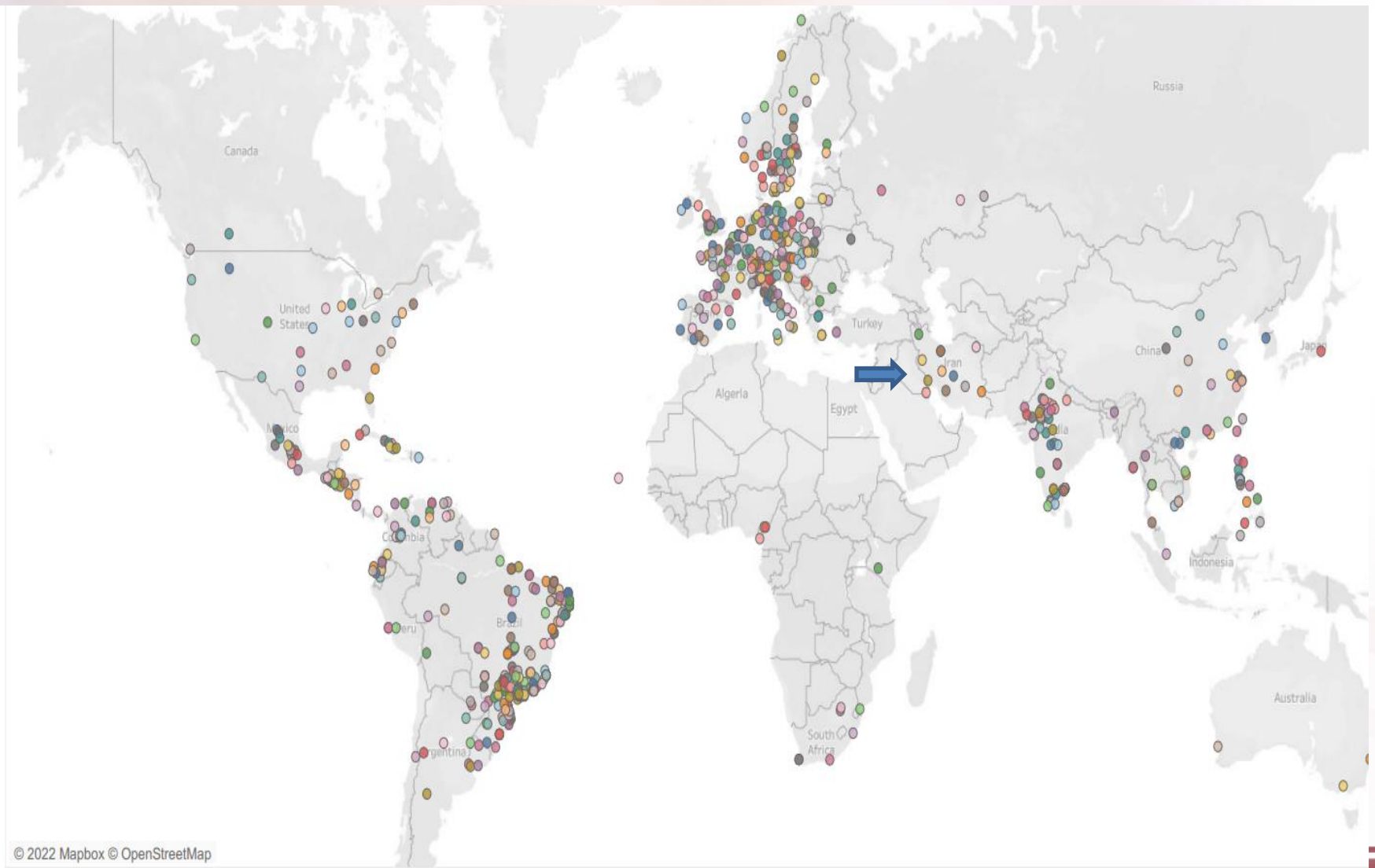
Human milk bank, or breast milk bank

- A human milk bank is a service established for collecting, screening, processing, storing and distributing donated human milk
- The optimum nutrition for newborn infants is breastfeeding, if possible, for the first year.
- Human milk banks offer a solution to the mothers that cannot supply their own breast milk to their infant
- Mothers' Milk Bank (MMB) says, this service provides mothers with an alternative to [infant formula](#)

International statement

WHO and UNICEF, made a joint statement in 1980:

- "Where it is not possible for the biological mother to breast feed, the first alternative, if available, should be the use of human milk from other sources.
- Human milk banks should be made available in appropriate situations."



European Milk Bank Association



Milk banking in Iran started in Tabriz in 2016



Poster for advertising the BM Bank

بانک شیر مادران
دانشگاه علوم پزشکی تبریز
Breast Milk Bank of
Tabriz University of Medical Sciences

بانک شیر مادر؛
مسئول جمع آوری و آماده سازی شیر مادر اهدایی برای نوزادان بیمار یا نارس

۱ اهدای شیر مادر

۲ بایستهبندی کردن شیرهای اهدایی

۳ آزمایش شیرهای اهدایی

۴ تجزیه سازی شیرهای اهدایی

۵ تست و استریل کردن ظروف

۶ تغذیه نوزاد از شیر مادر اهدایی آماده شده

سازمان بهداشت جهانی (WHO) برای نوزادانیکه به هر دلیل از شیر مادران خود محروم شده اند، شیر مادران دیگر را توصیه می کند.

مادران محترم می توانند جهت اهدای شیر با شماره تلفن ۳۵۵۷۷۲۲۵-۴۱ تماس حاصل فرمایند.

آدرس: تبریز- خیابان ارتش جنوبی، بیمارستان الزهرا، ساختمان شماره ۲، بانک شیر مادران

www.alzahrahosp.tbzmed.ac.ir

Transport from donor home



Start of pasteurization and Banking from May 2016

step 1

Receiving Donated milk



Step2 Bacteriologic Evaluation



Step 4 : Pasteurization (Holder Method)



Step 4 : Pasteurization (Holder Method)



Random Bacteriologic Evaluation and Analyzing the Breast Milk (Lactoscan)



Storing in Refrigerator or Freezer



Viruses and Breast Milk

- pasteurization is known to inactivate HIV 1 and 2
- Hepatitis B is not thought to be transmitted via breast milk
- although at risk babies are given hepatitis B immunoglobulin and vaccine to decrease any potential risk.
- It appears that there is also a low risk of transmission of Hepatitis C via breast milk.
- Cytomegalovirus is transmitted via breast milk .
- transmission usually does not cause symptomatic disease.
- Immuno-compromised or very premature infants should be fed on pasteurized milk, or milk donated from a seronegative mother

Sending to The NICU by portable Cool box





Funding

- All breast milk banks in Iran are "not-for-profit" organizations.
- All centers make no payment as it is thought by not paying the donor that you will attract the "right type of donors for the right reasons".
- We give some small gifts in different ceremonies to donors (Breast feeding weeks or Nursing day)
- For each 100 ml of pasteurized milk, we receive 0.5 USD from the Insurance systems

Is Donor Milk as Good as Mother's Milk?

Effect of pasteurization on milk components (adapted from Arnold [1]))

Component	Retention
Immune components	
C3 complement	0%
IgA	0–150%
IgG	0–82.8%
IgM	0%
Lactoferrin	0–123%
Lysozyme	0–393%
Cellular components	
Leukocytes	number decreased, 0% functionality
Lymphocytes	number decreased, 0% functionality
Enzymes, growth factors	
α 1-antitrypsin	61.8%
Lipoprotein lipase	completely destroyed
Bile salt stimulated lipase	completely destroyed
Esterase	completely destroyed
Transforming growth factor α	93.9%
Transforming growth factor β_2	99%
Whey:casein ratio	whey decreased relative to fat
Nutrients	
Fatty acids	94–100%
Vitamin A	103%
Folic acid	65–95%
Vitamin B ₁	65–85%
Vitamin B ₂	77–94%
Biotin	102–110%
Niacin	100–106%
Pantothenic acid	93–98%

Logo of Breast Milk Bank of TUOMS



Improved facilities for mothers in the units



CKMC unit and milk expression facilities



Facilitate KMC and Breastfeeding in NICU



Participation of parents in care is an integral part of NIDCAP



The first Human Breast Milk Bank in Iran established in Tabriz in 2016



Opening Ceremony of First Iranian Breast Milk Bank



A representative of UNICEF in Iran was at the opening ceremony



Message of representative of UNICEF in IRAN



Iran opens first human milk bank



The first human milk bank in Iran was recently opened in the Alzahra Teaching Hospital of TABRIZ affiliated to Tabriz University of Medical Sciences (TUOMS). TABRIZ is the capital city of East Azerbaijan province in the North West of Islamic Republic of Iran. The city is famous in Iran as the " City of the firsts" because many innovations and new activities at a national level have started from this city. The opening and inauguration ceremony of the HM bank was held on 15 July 2016. This ceremony was attended by a number of local and ministerial

Most popular posts

- 1 Joint EMBA and HMBANA statement on milk sharing has been released. >
- 2 EMBA and lactation collaboration – Discover the future for EMBA members >
- 3 Iran opens first human milk bank >
- 4 EMBA International Milk Banking Congress 2017 >
- 5 World Human Milk Donation Day 2017 >
- 6 Crowdfunding launched to fund new model of milk bank for the UK >

Upcoming Events

- 1 World Human Milk Donation Day 2017 - 19/05/2017 >
- 2 EMBA International Milk Banking Congress 2017 - 05/10/2017 >



Milk kinship and ethics in BM donation

- About 98% of the Iranian population is Muslim (89% Shi'a vs. 9% Sunni).
- For forming milk kinship, the following conditions are necessary:
 - the infant should be breastfed at least fifteen times or
 - be breastfed one complete day and night, or
 - be breastfed in an amount that can be said to have strengthened their bones and flesh.
 - Breast milk should be suckled directly from the breast
 - The milk should not be mixed with anything else.

These conditions will not apply to donated milk in breast milk banks

Current number of HMBs in Iran: 15



Announcement of policies of MOHME in developing BM Banks

ابلاغ سیاست بانک شیر مادر

شماره: ۱۳۳۵/۱۳۳۵
تاریخ: ۱۳۳۵/۰۶/۱۱
پوست: ۱۳۳۵/۰۶/۱۱

بسمه تعالی

جمهوری اسلامی ایران
وزارت بهداشت، درمان و آموزش پزشکی
معاونت بهداشت
معاونت درمان

معاون محترم بهداشت دانشگاه / دانشکده علوم پزشکی و خدمات بهداشتی درمانی ...
معاون محترم درمان دانشگاه / دانشکده علوم پزشکی و خدمات بهداشتی درمانی ...

موضوع: سیاست بانک شیر مادر

با سلام و احترام

با توجه به نقش ارزنده شیر مادر در کاهش مرگ و میر کودکان زیر ۵ سال به ویژه نوزادان نارس با وزن کمتر از ۲۰۰۰ گرم و حفظ حمایت و ترویج تغذیه ای نوزادان نارس با شیر مادر، اداره سلامت نوزادان دفتر سلامت جمعیت، خانواده و مدارس معاونت بهداشت، اقدام به سیاستگذاری برای تأسیس بانک های شیر مادر، در سطح مراکز دانشگاهی نموده است.

برای دستیابی به ایجاد مراکز بانک شیر مادر در کشور و بهره مندی از شیر اهدایی مادران در بخش های مراقبت تخصصی و ویژه نوزادان کشور، نیاز به همکاری و مشارکت دو جانبه معاونت های بهداشت و درمان در زمینه آموزش، حمایت و تشویق مادران و خانواده ها وجود دارد.

به همین منظور، سیاست بانک شیر مادر با همکاری تعدادی از صاحب نظران و کارشناسان با تجربه در حوزه نوزادان و کودکان این معاونت تدوین گردیده است و با هدف اطلاع رسانی و افزایش آگاهی پزشکان، ماما ها، پرستاران و مشاورین محترم شیرمادر در حوزه های بهداشتی و درمانی کشور، تقدیم می گردد.

مستفعی است سیاست ارسالی بانک شیر مادر به نحو مقتضی به اطلاع همکاران محترم حوزه بهداشتی، درمانی، رسانیده شود. (مستند سیاست بانک شیرمادر، پیوست نامه می باشد)

دکتر علیرضا ربیسی
معاون بهداشت

دکتر قاسم جان بابایی
معاون درمان

New HMB of Tabriz with 3 rooms



Breast Milk Bank of Shahid Akbarabadei (Tehran)



Breast Milk Bank of Shiraz



Breast Milk Bank of Shiraz








بانک شیر مادر

نکته قابل توجه:
محرمیت و خویشتن‌داری

دانش شیرازی در دو سال اول زندگی از پستان‌داری غیر از مادر خودش حداقل ۱۵ مرتبه به نوبت با ۲۴ ساعت پایی بهین آن که در ۲۴ ساعت خود از شیر دانه آب و آبجانبه داری ضروری مصرف کند. غلبه غلبه شود، میان شیر خود و شیر دانه و غلبه و فرزندان مادرش شیر دانه و شیر خود و شیر دانه محرمیت و خویشتن‌داری وجود می‌آید. بنا توجه به اینکه در برنامه اجتناب از شیر خود مستقیم از پستان تغذیه نمی‌شود و شیر دانه آبجانبه یا شیر خود و شیر دانه و شیر دانه شیر دانه به نوبت مصرف می‌شود تا نوبت شیر دانه به نوبت مصرف می‌شود.

آسان است فقط کافی است:

- به پایگاه های سلامت، پایگاه های پزشک خانواده و مراکز تابع سلامت مراجعه کنید.
- جهت کسب اطلاعات بیشتر: <http://zeinabhpsum.ac.ir>
- شماره تماس: ۰۷۱-۳۳۶۶۸۱۱۰۹۹ تماس حاصل فرمایید.
- به سامانه <http://zeinabhpsum.ac.ir> مراجعه نمایید.

طبق استفتاء، انجام شده از دفتر مراجع عظام،
تغذیه نوزادان نیازمند از شیر اهدایی بانک
شیر مادر پلا مانع است.




نیاز نوزادان نیازمند، با اهدای شیر مادر



مادر گرامی، آیا می‌خواهید شیر اضافه بر نیاز کودک خود را برای تغذیه نوزادان نیازمند اهدا کنید؟

آسان است فقط کافی است:

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- به سامانه <http://zeinabhpsum.ac.ir> مراجعه نمایید.

Breast Milk Bank of Yazd



Breast Milk Bank of Yazd



Breast Milk Bank of Kermanshah



Breast Milk Bank of Kermanshah

بانک شیر مادران
دانشگاه علوم پزشکی کرمانشاه
Breast Milk Bank of
Kermanshah University of Medical Science

بانک شیر مادران
مسئول جمع آوری و آماده سازی شیرمادر اهدایی برای نوزادان بیمار یا نارس



۱. اهدای شیر مادر
۲. غربالگری شیر مادر
۳. پاستوریزاسیون شیر مادر
۴. توزیع شیر مادر
۵. نظارت بر مصرف شیر مادر

مادران به اشتراک می‌گذارند (BMB) برای ارائه شیر مادر به نوزادان بیمار یا نارس. شیر مادر اهدایی به نوزادان بیمار یا نارس اهداء می‌شود. شیر مادر اهدایی به نوزادان بیمار یا نارس اهداء می‌شود. شیر مادر اهدایی به نوزادان بیمار یا نارس اهداء می‌شود.

آدرس: کرمانشاه - بیمارستان - مجتمع بیمارستانی امام رضا (ع) - کرمانشاه - طبقه ۳ - بانک شیر مادران

دست در دست هم
با توانمندسازی والدین
و تقویت تغذیه با شیر مادر
حال و آینده را بسازیم

هفته جهانی تغذیه با شیر مادر
۱۰ تا ۱۶ مرداد ماه



سیستمهای مختلف باید خانواده را در راستای
تأثیر گذاری مثبت و کمک موثر
به سلامت کودک ، تشویق و حمایت نمایند.



Breast Milk Bank of Mashhad

بانک شیر مادران

دانشگاه علوم پزشکی مشهد
Breast Milk Bank of
Mashhad University of Medical Science

مسئول جمع آوری و آماده سازی
شیر مادر اهدایی برای نوزادان
بیمار یا نارس
Email: OAH.IT@MUMS.AC.IR

سازمان بهداشت جهانی
برای نوزادانی که به هر دلیلی
از شیر مادران خود محروم شده اند،
شیر مادران دیگر را توصیه می کند.

آدرس: مشهد-خیابان آیت الله بهجت، نیش بهجت ۱۶
جهت کسب اطلاعات بیشتر با شماره ۰۵۳۶۵۲۰۹۷ تماس حاصل فرمایید.

Robin Nandy, the representative of UNICEF in Iran, praising the country for promoting breastfeeding

UNICEF commends Iran for promoting ^{Tourism} breastfeeding

August 1, 2022 - 19:59

Society



UNICEF commends Iran for pr

Global evidence on the Impact of DHM Studies demonstrating the impact of DHM on vulnerable infant

Sepsis	▶ DHM reduced risk of late-onset sepsis in vulnerable, low-birth weight infants by 19% in the first 28 days.⁶ ▶ DHM has a greater protective effect compared to formula.⁷
Necrotizing enterocolitis	▶ Human milk feeding, whether Mother's own milk or DHM reduce necrotizing enterocolitis by as much as 79% when formula is avoided.⁸ ▶ Four systematic reviews across study designs and countries found that DHM protects preterm infants against necrotizing enterocolitis more than formula.^{9,10,11,12}
Retinopathy of prematurity	▶ Human milk feeding in the NICU is associated with lower rates of severe retinopathy of prematurity.^{13,14}
Feeding tolerance	▶ Preterm infants fed unfortified DHM had greater feeding tolerance, fewer vomits, less gastric stasis, and reduced diarrhoea compared with formula-fed infants.¹³
Reduced length of stay in NICU	▶ Cost of providing DHM to preterm infants is mitigated by a reduced risk of complications and shorter length of stay in NICU.^{6,15} ▶ Fewer hospital readmissions for illness in the year after NICU discharge have been noted.^{16,17}

Global evidence on the Impact of DHM Studies demonstrating the impact of DHM on vulnerable infant

Cost saving	▶ The percentage of infants who are EBF at discharge is about 13% higher in NICUs with a HMB.¹⁸ ▶ A study reported saving ~US\$8,167 per infant using DHM through shortened length of stay and reduced cases of NEC and sepsis.¹⁵ ▶ Estimated savings to NICU or health care plan for every dollar spent on DHM: ~US\$11.¹⁹ ▶ In Brazil, the national HMB network has saved \$540 million in health care costs annually.²⁰
Neuro-developmental outcomes and long term benefits	▶ Later in childhood and adulthood, preterm infants fed human milk have shown to have lower rates of metabolic syndrome^{21,22} greater white matter, brain volumes and significantly greater score for mental, motor and behaviour ratings.^{16,17}



Original Article

Short-term Outcomes of Launching Mother's Milk Bank in Neonatal Intensive Care Unit: A Retrospective Study

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Abstract

Background: The WHO and UNICEF have suggested pasteurized donor milk (PDM) as the best alternative for infants who do not receive enough milk from their mothers.

Objective: This study aimed to assess the short-term outcomes of launching the first mother's milk bank in North-West of Iran.

Methods: The present retrospective study included 366 premature infants (181 pre-launch and 185 post-launch) who were hospitalized in Al-Zahra Hospital of Tabriz, Iran. The study included infants with birth weight <2000 g and/or gestation age <32 weeks who were born before and after the launch of mother's milk bank. Frequency of necrotizing enterocolitis (NEC), retinopathy of prematurity (ROP), late onset sepsis (LOS) and mortality rate were compared. Data were analyzed using SPSS 23 with the chi-square test, Fisher exact test, independent t test, and logistic regression test.

Results: In total, NEC grade ≥ 2 was reported in 9 cases; 8 cases (4.41%) in pre-launch and one case (0.54%) in post-launch (adjusted OR=0.091; 95% CI=0.010 to 0.849, $P=0.035$). ROP was reported in 21 cases in two groups. Nineteen cases (10.5%) belonged to the pre-launch group and 2 cases (3.7%) to the post-launch group (adjusted OR=0.105; 95% CI=0.022 to 0.488, $P=0.004$). LOS was also found in 17 cases (9.39%) in the pre-launch group and 4 cases (2.16%) in the post-launch period, suggesting a significant difference between the two groups (adjusted OR=0.297; 95%CI=0.089 to 0.995, $P=0.049$). There was no significant difference in mortality of infants during hospitalization between the two groups ($P=0.789$); however, it was decreased from 15 to 8.

Conclusion: Launching the human milk bank significantly improved the outcomes of premature infants.

Keywords: Milk bank, NICU, Premature infants, Short-term outcomes

Cite this article as: Hosseini M, Farshbaf-Khalili A, Seyyedzavvar A, Fuladi N, Hosseini N, Talashi S. Short-term outcomes of launching mother's milk bank in neonatal intensive care unit: a retrospective study. Arch Iran Med. 2021;24(5):397-404. doi:

Results

- **Retinopathy of prematurity** was reported to be 21 cases in two groups. 19 cases (10.5%) belonged to pre-launch group and 2 cases (2.2%) were for post-launch group (Adjusted OR=0.139: 95%CI=0.031 to 0.631, $p=0.011$).
- **Necrotizing Entrocolitis (NEC) grade ≥ 2** , in both group, was 8 cases in pre-launch and 1(05%) for post-launch (Adjusted OR=0.108 95%CI=0.031 to 0.909, $P=0.04$).
- **LOS** was also 17 (9.4%) cases in pre-launch group and 4 (2.2%) in post-launch period suggesting a significant difference between two groups ($P=0.034$ 0.908, Adjusted OR=0.285: 95%CI=0.089).
- **There was no significant difference in mortality of infants after 7 days of birth** between two groups ($P=0.527$), however it was decreased from 15 to 8 after the launching.

RESEARCH

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Comparison of the short-term neonatal outcomes of preterm neonates before and after the launch of human milk bank in Iran: a retrospective descriptive study

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Abstract

Background Preterm delivery continues to be a major concern in the global health system. Where accessible, mother's milk is the optimal option for neonate nutrition. In recent years, donor milk as the best substitute for mother's milk where this is not available has become a popular option. The safest method to obtain this milk is from human milk banks. Thus, this study aims to compare the short-term outcomes of preterm neonates pre- and post-launch of human milk bank in Iran.

Methods This is a retrospective descriptive study conducted over two time periods pre- and post-launch of the human milk bank at Shahid Akbar Abadi Hospital in Tehran. 580 neonates were included in the study during the pre-launch period from November 2018 to June 2019. In the post-launch period, 580 neonates were also included in the study from April 2021 to November 2021. Individual data were gathered using a maternal and neonatal form. Data on outcomes were collected in a neonatal outcomes form, including necrotizing enterocolitis, late onset sepsis, mortality, feeding intolerance, time of initiating supplementary nutrition, and discharge date. In all statistical tests, $P < 0.05$ was considered statistically significant.

Results The results showed that the NEC frequency in neonates pre- and post-launch period was not statistically significant (12 vs. 6, $P = 0.11$). Sepsis occurred in 90 cases of neonates pre-launch and the figure was diminished to 80 neonates post-launch. Sepsis (90 vs. 80, $P = 0.02$) and feeding intolerance (420 vs. 402, $P = 0.01$) were significantly different in post-launch period. The mortality rate was significantly reduced after the launch of human milk bank ($P = 0.002$, 44 vs. 18). The number of neonates who received supplementary nutrition earlier than 30 days was significantly higher post-launch period (420 vs. 460, $P = 0.003$). In addition, the number of neonates discharged from the hospital post-launch increased significantly (407 vs. 460, $P = 0.001$).

Conclusions Comparing neonatal outcomes showed that sepsis, feeding intolerance, mortality, and the neonates achieving supplementary nutrition earlier than 30 days and being discharged were reduced in post-launch period.

The short-term neonatal outcomes of preterm neonates pre and postlaunch of human milk banks in Shahid Akbarabadei Hospital of Tehran

- This is a retrospective descriptive study conducted over two time periods pre- and post-launch of the human milk bank at Shahid Akbar Abadi Hospital in Tehran.
- The inclusion criteria consisted of preterm neonates with LBW < 2000 g and/or gestational age < 32 weeks.
- 580 neonates were included in the study during the prelaunch period from November 2018 to June 2019.
- In the post-launch period, 580 neonates were also included in the study from April 2021 to November 2021.
- Individual data were gathered using a maternal and neonatal form.
- Neonatal outcomes form, including :necrotizing enterocolitis, late onset sepsis, mortality, feeding intolerance, time of initiating supplementary nutrition, and discharge date.

Results:

Table 3 Univariate analysis of frequency distribution and percentages of neonatal outcomes in both groups before and after launch of the human milk bank

Variables		Human milk bank pre-launch group (n = 580) N (%)	Human milk bank post-launch group (n = 580) N (%)	P-Value*
NEC stage 2 or higher		(2) 12	(1) 6	0.11
LOS (Yes)		90 (15.5)	(13.7) 80	0.22
Mortality (Yes)		(7.5) 44	(3.1) 18	0.002
Feeding intolerance	0 or 1 interruption in feeding	160 (27.5)	178 (30.6)	0.14
	two or more interruptions in feeding	420 (72.4)	(69.3) 402	
Supplementary nutritional achievement	Mortality	(7.5) 44	(3.1) 18	0.003
	Dispatch	(2.4) 14	(1.7) 10	
	Over one month	102 (17.5)	(15.8) 92	
	Under one month	420 (72.4)	460 (79.3)	
Hospital discharge time	Unknown	(7.9) 58	(4.8) 28	0.001
	Over one month	115 (19.8)	(15.8) 92	
	Under one month	407 (70.1)	460 (79.3)	

* Fisher's exact test

Results

- the **NEC** frequency in neonates pre- and post-launch period was not statistically significant (**12 vs. 6, P=0.11**).
- **Sepsis** occurred in 90 cases of neonates pre-launch and the figure was diminished to 80 neonates post-launch. Sepsis (**90 vs. 80, P=0.02**)
- **Feeding intolerance** (**420 vs. 402, P=0.01**) were significantly different in post-launch period.
- The **mortality rate** was significantly reduced after the launch of human milk bank (**P=0.002, 44 vs. 18**).
- The number of neonates who received **supplementary nutrition** earlier than 30 days was significantly higher post-launch period (**420 vs. 460, P=0.003**).
- In addition, the number of neonates **discharged from the hospital** post-launch increased significantly (**407 vs. 460, P=0.001**).

Conclusion

- Since 2016, Iran has launched HMBs throughout the country.
- Alzahra Teaching Hospital of Tabriz was a pioneer
- The country has the largest network of HMBs in the Middle East, reaching 15 centers until 2025
- Several International recommendations are for using donor human milk
- Short term outcome of infants in the country significantly improved after launching HMBs in Iran

Thank you



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