

The role of human milk banks in promoting maternal and infant health: a systematic review

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Abstract *Aimed at strengthening breastfeeding policies, human milk banks (HMBs) play an important role in promoting, protecting and supporting this practice. The objective of this study was to undertake a systematic review to identify activities developed by HMBs that demonstrate their role in promoting maternal and infant health. Searches for relevant articles were performed in the following databases: PubMed, Virtual Health Library (BVS), and BVS Breastfeeding linked to the portal of the Brazilian Human Milk Bank Network. Eleven articles were included in the final sample. The main topics covered by the articles were: the characteristics of breast milk donors; the importance of information provided by HMB professionals on maintaining breastfeeding for hospitalized premature infants; weight gain in premature babies fed on donated milk; HMB breastfeeding support actions; and factors influencing human milk donation. The actions developed by HMBs have a positive impact on the promotion of maternal and infant health, representing an important strategy for promoting breastfeeding and supporting the feeding of babies who are not able to feed directly at the breast.*

Key words *Milk Banks, Human Milk, Breastfeeding, Health Promotion*

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Introduction

The importance of breastfeeding is widely acknowledged. Benefits include an increase in the probability of chances of survival through health promotion and child development across low, middle and high-income populations^{1,2}. In addition to antibodies, breast milk contains other factors such as antimicrobial and immunomodulating activity, enzymes, cytokines, components of the complement system, oligosaccharides, nucleotides, lipids, and hormones, which contribute to immunity and the maturation of the newborn's immune system³.

The World Health Organisation (WHO) states that human milk is the most complete food for babies and recommends exclusive breastfeeding for six months and continued breastfeeding up to two years of age or beyond with complementary feeding⁴. The immunological benefits of human milk make it the best option for premature newborns⁵.

Despite widespread acknowledgement of the benefits of this practice, breastfeeding rates are lower than would be expected. A survey of breastfeeding undertaken in state capitals and the Federal District in 2008 showed that the prevalence of exclusive breastfeeding of infants under six months of age was 41%. This rate is classified as reasonable, while rates of between 50 and 89% are considered good and rates above 90%, very good⁶.

Brazil stands out on the global stage for the measures it has taken to promote breastfeeding in the realm of public health. Examples include the implementation of UNICEF's Baby Friendly Hospital Initiative, the regulation of infant food advertising and marketing norms by Law 11.474/2007, the expansion of human milk banks (HMBs) and the creation of the Brazilian Human Milk Bank Network (RHMB, acronym in Portuguese), and improvements in maternal and newborn care¹.

With the aim of strengthening breastfeeding policies, HMBs have played an important care role for postpartum and breastfeeding women by promoting, protecting and supporting breastfeeding. HMBs provide support for women having trouble breastfeeding and collect, process and control the quality of colostrum, transitional milk and mature milk⁷. This support is particularly important for vulnerable groups, with HMBs being an important factor in the survival of premature newborns. In addition to the support provided to mothers of premature babies, special care is taken in the handling and storage

of collected milk, essential elements in ensuring food and nutrition security in these groups⁸.

However, raising awareness of the advantages of breastfeeding and opting for this practice is not always enough. To exercise the option, mothers need to be in an environment that is conducive to breastfeeding and receive support from a qualified professional as and when necessary. The actions developed by HMBs are an effective way of stemming the decline in breastfeeding. In addition to the handling of expressed breast milk, they also develop educational activities designed to promote and support breastfeeding and act as breastfeeding referral centers for pregnant and breastfeeding women⁹.

With the aim of supporting and drawing together theoretical aspects of this topic, we conducted a systematic review to identify the activities developed by HMBs that demonstrate the role these facilities play in promoting maternal and infant health, addressing the lack of reviews in this area.

Methods

Searches for relevant articles without any restrictions on publication date were undertaken between August and September 2017 in the following databases: PubMed, Virtual Health Library (BVS), and BVS Breastfeeding, linked to the portal of the RHMB. We searched for articles that highlighted the role played by HMBs in promoting maternal and infant health, based on the following guiding question: "What role do HMBs play in promoting maternal and infant health?"

We used the following terms from the Medical Subject Headings (MeSH) and Health Sciences Descriptors (DeCS), together with the Boolean operator "and": "*Bancos de Leite*" ("Milk Banks"); "*Leite Humano*" ("Human Milk"); "*Mães*" ("Mothers"); "*Brasil*" ("Brazil"). The search results for each database are shown in Box 1.

The following inclusion criterion was employed: full-text scientific articles in English, Spanish and/or Portuguese that addressed the guiding question or contained data on the development (or absence) of educational and breastfeeding promotion actions. Duplicate articles, theses, dissertations, and editorials were excluded. We also searched publications cited in the references of the identified articles to locate other relevant publications.

A preliminary screening of titles and abstracts was performed independently by two of

Box 1. Synthesis of the searches of PubMed, BVS and BVS BF.

Database	Descriptors	Total
PubMed	Milk banks AND human milk AND Brazil	88
BVS	Bancos de leite AND leite humano AND mães	36
BVS BF (RHMB)	Bancos de leite AND leite humano AND mães AND Brasil	46
TOTAL		170

the researchers, followed by full text screening of the selected articles. The articles included in the final sample were selected by consensus.

Results

The database searches yielded 170 articles, 11 of which met the inclusion criteria (Figure 1). The selected articles and their main characteristics are described in Box 1 and 2.

Three of the studies (27.3%) focused on the characteristics of breast milk donors^{7,10,11}, two (18.2%) assessed the impact of counseling provided by HMB professional staff on maintaining breastfeeding for hospitalized premature babies^{12,13}; two (18.2%) investigated weight gain in premature babies fed on donated milk^{14,15}, three (27.3%) addressed HMB breastfeeding support actions¹⁶⁻¹⁸, and one (9%) explored factors influencing human milk donation¹⁹.

The studies were concentrated mostly in Brazil's Southeast region (45.5%), followed by the South (36.4%), where most of the facilities with baby-friendly status are located, revealing the importance of these regions for the promotion of breastfeeding²⁰.

The studies investigating the characteristics of milk donors focused on the following information: socioeconomic status, age, level of education, marital status, occupation, place of residence, and prenatal care and delivery^{7,10,11}.

One of the articles assessed general information on breastfeeding received by donors¹¹, showing that only 14% of the respondents had not received any information. However, a significant proportion of respondents received inaccurate information on specific questions such as breast engorgement, how to increase breast milk production and breast milk functions other than feeding (20.8%, 29.1% and 31.3%, respectively).

The same study also investigated breastfeeding frequency among milk donors, showing that half of the respondents breastfed on demand and

18.9% breastfed every 2 to 3 hours. Doctors recommended HMBs to a little over a quarter of the breastfeeding women. Integrated Health Centers were recommended to a smaller proportion of mothers. These findings highlight the importance of the commitment of health professionals to counseling pregnant women on the benefits of breastfeeding and informing mothers about HMBs and the possibility of donation.

Two studies (18.2%) highlighted difficulties experienced by women in maintaining lactation during the hospitalization of premature babies in neonatal intensive care units^{12,13}.

Azevedo and Mendes¹² explored mothers' perceptions of the importance of information received on breastfeeding during the hospitalization of their premature babies. The majority of mothers reported that they recognized the importance of the information and that it made them feel more secure and brought them closer to the health professionals. The authors also highlighted that, although the environment was initially uncomfortable and/or scary for mothers, the HMB was important for expressing breast milk, stimulating milk production and preventing breast engorgement.

Brod et al.¹³ found that, although postpartum women were aware of the importance of breastfeeding for both them and their babies, they lacked consistent knowledge and information on breastfeeding. The study also assessed the impact of professional counseling on expressing breast milk, showing that the advice provided was considered to be positive.

Two of the articles (18.2%) investigated weight gain in newborns fed on breast milk or pasteurized milk from HMBs^{14,15}. Silva et al.¹⁵ found that weight gain was greatest in extremely low birth weight infants fed on mixed milk (mother's breast milk and HMB milk), followed by very low birth weight babies fed on their mother's breast milk.

Aprile et al.¹⁴ described the growth and clinical evolution of very low birth weight babies fed

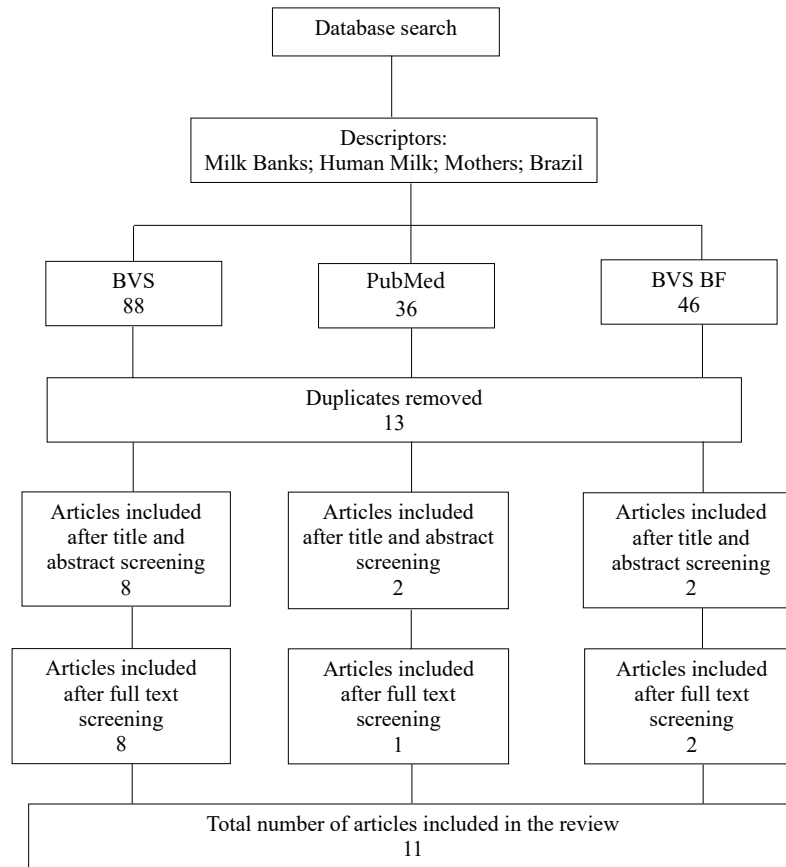


Figure 1. Number of articles selected after inclusion and exclusion criteria with descriptors.

with HMB milk. The study included 40 very low birth weight infants: 10 fed with their mother's milk and 30 fed with HMB milk.

With regard to growth, the 50th percentile for babies fed with their mother's milk was equivalent to a weight gain of 12.1 g/day and a length gain of 0.75 cm/week, versus 15.8 g/day and 1.02 cm/week for those fed with HBM milk. The study therefore concluded that HMB milk provided for satisfactory growth and good clinical evolution for very low birth weight infants¹⁴.

Three studies (27.3%) investigated breastfeeding support provided by HMBs (27.3%)¹⁶⁻¹⁸. Figueiredo *et al.*¹⁷ compared the duration of exclusive breastfeeding among mothers who received counseling on breastfeeding and those who did not. The findings showed that mothers

in the first group who had less children and returned to work sooner and mothers in the second group who had a low level of education and income were more likely to interrupt exclusive breastfeeding early, suggesting that socioeconomic factors and lack of encouragement have a negative influence on duration of exclusive breastfeeding.

In a study of a referral HMB, Silva *et al.*¹⁸ examined educational practices based on the Ten Steps to Successful Breastfeeding, finding that women who receive breastfeeding training breastfed exclusively and on demand. The study also showed that health professionals play an important role in training mothers/babies to breastfeed and in promoting skin-to-skin contact and exclusive on-demand breastfeeding. Finally,

Box 2. Impact of HMBs on breastfeeding according to the selected studies.

Year	Reference	Title	Journal	Main Topic	Study Type	Results
2006	Dias et al. ¹¹	Characteristics of milk donors at the Maringá University Hospital Human Milk Bank, Paraná, Brazil	Acta Sci Health Sci	Milk donor characteristics	Cross-sectional	41.7% of the donors were aged between 20 and 29 years, 33.3% had completed secondary education and 66.6% received information on breastfeeding. Lack of information on breast engorgement (20.8%), stimulating milk production (29.1%) and functions of breast milk other than food (31.3%) was relevant. The information and counseling received by the milk donors contributed to more positive breastfeeding experiences and supported decision-making related to educational programs for the general population and the reorientation of health professional practices.
2008	Thomaz et al. ¹⁹	Human milk donation experiences: motives, influencing factors and regular donation	J Hum Lact	Motivation behind donation	Cross-sectional	The women were motivated to donate by the understanding of the need for milk and how it is used. The quantity of donated milk could be increased through more specific training for health professionals and greater discussion of the need for milk in prenatal appointments.
2008	Azevedo et al. ¹²	Maintaining lactation: a challenge for mothers of hospitalized premature babies	Rev Gaúcha Enferm	Maintaining lactation during the hospitalization of premature infants	Qualitative group case study	The study highlights the importance of the advice offered by health professionals on maintaining lactation in cases where mothers are separated from their infants due to hospitalization.
2009	Santos et al. ⁷	Characteristics of milk donors at a University Hospital Human Milk Bank	Acta Sci Health Sci	Milk donor characteristics	Cross-sectional	11% of the milk donors were adolescents, 41.8% had completed secondary education, and 37.4% received information on donating milk and HMB services from health professionals. The support given to mothers with trouble breastfeeding during the first days after birth was vital for ensuring they continued to breastfeed and become donors.
2010	Aprile et al. ¹⁴	Growth of very low birth weight infants fed on milk from a human milk bank selected according to the caloric and protein value	Clinics	Human milk and weight gain	Cross-sectional	HMB milk provided for a satisfactory and good clinical evolution for very low birth weight infants. The use of pasteurized human milk made it possible to individualize feeding, offering suitable milk in terms of protein and calorie composition for each growth stage.
2014	Silva et al. ¹⁵	Weight gain in premature infants according to milk type	Rev Eletrônica Enferm	Human milk and weight gain	Quantitative, descriptive, comparative, prospective	The breast milk of mothers of premature infants offered best nutrition and weight gain in low weight newborns. Weight gain was greater in newborns fed on their mother's milk and donated milk; frequent visits to the HMB were necessary to express and process the milk given to premature newborns.

it continues

Box 2. Impact of HMBs on breastfeeding according to the selected studies.

Year	Reference	Title	Journal	Main Topic	Study Type	Results
2015	Afonso et al. ¹⁰	Characteristics of the users of a human milk bank in Juiz de Fora, Minas Gerais	Rev APS	Milk donor characteristics	Cross-sectional	Most of the milk donors lived in the center of the city, had completed secondary education, had a stable job, were first time mothers, and had only one living child. Most of the respondents used private services for their prenatal care. Breastfeeding problems were the main motive for seeking the HMB, highlighting the important role played by HMBs in promoting breastfeeding.
2015	Figueiredo et al. ¹⁷	Human milk banks: breastfeeding support and duration of exclusive breastfeeding	Rev Bras Crescimento Desenvolv Hum	HMB support and breastfeeding	Cross-sectional.	Breastfeeding information provided in frequent contact with HMB professionals during consultations and visits was an important factor in combating early weaning.
2016	Brod et al. ¹³	Knowledge and practices of the mothers of premature newborns regarding the maintenance of breastfeeding	Rev Pesqui Cuid Fundam	Maintaining lactation during the hospitalization of premature infants	Qualitative study	The findings reveal the impact of counseling provided by HMB professionals on expressing breast milk; advice on alternative methods to maintain feeding/nutrition was essential for breastfeeding
2016	Branco et al. ¹⁶	Breastfeeding support and protection: the contribution of human milk banks	Rev Pesqui Cuid Fundam	HMB support and breastfeeding	Qualitative study	The rooming-in support provided by HMB health professionals facilitated breastfeeding without disturbances. Education in essential for satisfactory breastfeeding, contributing to infant health. The advice provided by the HMB health professionals reinforced this approach.
2017	Silva et al. ¹⁸	Educational practices in a human milk bank based on the Ten Steps to Successful Breastfeeding	Cien Saude Colet	HMB support and breastfeeding	Retrospective study	The findings highlight the important role played by HMB health professionals in training mothers/infants to breastfeed and encouraging skin-to-skin contact and exclusive on-demand breastfeeding.

the findings suggest that counseling requires improvement in order to reduce the use of artificial teats and pacifiers and encourage exclusive breastfeeding.

With regard to the practices of health professionals working in HMBs in relation to the legal protection of breastfeeding and milk banks as a space for supporting the clinical management of breastfeeding, Branco et al.¹⁶ show that these questions remain a challenge. In this regard, although professionals understand the importance of supporting the clinical management of breastfeeding, a number of challenges persist in implementing breastfeeding laws and guidelines.

One study (9%) investigated the factors influencing donation among milk donors in a HMB in the State of Alagoas¹⁹. The most common motive reported by donors was “encouragement by a health professional” (61.3%), demonstrating the vital role that health workers play in motivating mothers to become human milk donors.

Discussion

This review demonstrated important points that highlight the role HMBs play in promoting maternal and infant health. The main topics covered by the articles were: the characteristics of breast milk donors; the importance of information provided by HMB professional staff on maintaining breastfeeding for hospitalized premature infants; weight gain in premature babies fed on donated milk; HMB breastfeeding support actions; and factors influencing human milk donation.

With the aim of developing breastfeeding promotion, protection and support actions and helping to ensure the provision of breast milk to babies with special needs, such as premature infants and other situations, HMBs were first introduced in 1943 in the Fernandes Figueiras Institute and have expanded over the decades, playing a vital role in promoting breastfeeding across the country²¹.

The participation of milk donors is essential, since HMBs can only operate and meet the objectives of collecting and distributing human milk with their help, prioritizing infants with special nutritional needs, such as premature infants, babies born to mothers with infections, such as enteroinfections, immunological deficiencies, especially allergy to heterologous proteins, and other cases diagnosed to be special²².

Understanding who these women are, their sociodemographic profile and other characteristics of donors, as seen in some of the articles in-

cluded in this review^{7,10,11}, is of utmost importance for tailoring actions designed to promote breastfeeding and milk donation in regions or groups in which this practice is not common. The studies found that most donors had completed secondary education and were aged between 20 and 29 years. Few studies investigated income and marital status, with only one article detailing these characteristics, showing that having a steady job was one of the factors influencing milk donation¹⁰.

Santos et al.⁷ found that 24.2% of milk donors in a HMB in Londrina gave birth in hospitals with baby-friendly status. Studies have shown that there was an improvement in the implementation of the Ten Steps to Successful Breastfeeding after the introduction of this initiative in hospitals, changing hospital routines and practices and leading to an increase in the donation of breast milk^{23,24}.

HMB staff and professionals involved in maternal and infant care should receive routine training to meet the specific needs of mothers and infants, particularly those related to initial breastfeeding difficulties. Professionals should also be trained to help recruit donors, as suggested by Branco et al.¹⁶, who showed that health professionals play a key role in encouraging mothers to donate milk.

Another point highlighted by the studies included in this review were the challenges faced by mothers in maintaining lactation while their babies are hospitalized. Meier et al.²⁵ stress that breastfeeding is a low priority in comparison with other nutritional therapies adopted in neonatal intensive care units (NICU). NICU team members and patients tend to have inconsistent information, combined with a lack of information on the management of lactation to increase milk supply and duration of breastfeeding. Giugliani²⁶ suggests that the existence of HMBs in hospitals improves mother/child interaction and helps mothers of newborns admitted to NICUs to maintain lactation. An example of this is a study that found that hospitals with HMBs help to implement newborn care practices such as the kangaroo method²⁷.

Breastfeeding support provided by HMB health professionals includes helping mothers whose babies have been admitted to a NICU stimulate milk flow until the baby is able to suck at the breast and be discharged and exclusively breastfed²⁶.

It is important to highlight that breast milk composition changes over time, resulting in an increase in the concentration of proteins, sodi-

um, calcium, lipids, and anti-infective agents²⁸. The advantages of breastfeeding, especially for preterm infants, include the fact that the nutritional and immunological properties of human milk facilitate gastrointestinal maturation. Breastfeeding also strengthens the mother/child bond and reduces the chance of infection, hospital stay and readmission²⁹.

Another topic addressed by the studies was the intention to donate, with the findings showing that frequency of donation was greater among women who were approached while still in hospital to raise awareness about the importance of donation. It is important to mention that the volume of milk donated and stored in HMBs is still low in comparison to demand, hampering efforts to reduce neonatal and infant mortality. In this regard, greater efforts are needed to raise awareness of the importance of milk donation among breastfeeding women³⁰.

Conclusion

Studies of the role of HMBs in promoting maternal and infant health are scarce and further research is needed to inform public health strategies designed to promote breastfeeding.

The selected studies demonstrate that HMBs play an important role in supporting breastfeeding, resulting in positive outcomes for both mother and child. The findings also show that health professional counseling contributes to ensuring the maintenance of breastfeeding of hospitalized premature infants, successful breastfeeding among mothers who seek support in HMBs, and the recruitment of donors.

Organized under the RHMB, HMBs in Brazil represent an important strategy for promoting breastfeeding and supporting the feeding of babies who are not able to feed directly at the breast. The actions developed by HMBs have a positive impact on the promotion of maternal and infant health.

Collaborations

All authors participated in drafting and revising this article and approving the final version to be published.

References

1. Brasil. Ministério da Saúde (MS). *Bases para discussão da política nacional de promoção, proteção e apoio ao aleitamento materno*. Brasília: Ed. MS; 2017.
2. Victora CG, Bahl R, Ramos AJD, França GVA, Horton S, Krasevek J, Murch S, Sankar MJ, Walker N, Rollins NC. Breastfeeding in the 21 st century: epidemiology, mechanisms, and lifelong effect. *Lancet* 2016; 387(10017):475-490.
3. Palmeira P, Costa-Carvalho BT, Arslanian C, Pontes GN, Nagao AT, Carneiro-Sampaio MM. Transfer of antibodies across the placenta and in breast milk from mothers on intravenous immunoglobulin. *Pediatr Allergy Immunol* 2009; 20(6):528-535.
4. Organização Mundial da Saúde (OMS). *Estratégia global para alimentação de crianças e adolescentes*. Genebra: OMS; 2003.
5. Schanler RJ. Outcomes of human milk-fed premature infants. *Semin Perinatol* 2011; 35(1):29-33.
6. Brasil. Ministério da Saúde (MS). *II Pesquisa de Prevalência de Aleitamento Materno nas Capitais Brasileiras e Distrito*. Brasília: Ed. MS; 2009.
7. Santos DT, Vannuchi MTO, Oliveira MMB, Dalmas JC. Perfil das doadoras de leite do banco de leite humano de um hospital universitário. *Acta Sci Health Sci* 2009; 31(1):15-21.
8. Branco MBLR, Alves VH, Rodrigues DP, Souza RMP, Cruz AFN, Marinho TF. Promoção do aleitamento materno nos Bancos de Leite Humano do Estado do Rio de Janeiro. *Rev Enferm* 2015; 5(3):434-443.
9. Giugliani ERJ, Lamounier JA. Aleitamento materno: uma contribuição científica para a prática do profissional de saúde. *J Pediatr* 2004; 80(5):117-118.
10. Afonso VW, Do Valle DA, Ribeiro URVCO, Monteze NM, Ribeiro LC, Vargas ALA, Oliveira BM. Perfil das usuárias de um banco de leite humano, em Juiz de Fora, MG. *Rev APS* 2015; 18(1):85-91.
11. Dias RC, Baptista IC, Gazola S, Rona MSS, Matioli G. Perfil das doadoras do banco de leite humano do Hospital Universitário de Maringá, Estado do Paraná, Brasil. *Acta Sci Health Sci* 2006; 28(2):153-158.
12. Azevedo M, Mendes ENW. Manutenção da lactação: um desafio para mães de prematuros hospitalizados. *Rev Gaúcha Enferm* 2008; 29(1):68-75.
13. Brod FR, Rocha DLB, Santos RP. Saberes e práticas de mães de recém-nascidos prematuros perante a manutenção do aleitamento materno. *Rev Fund Care Online* 2016; 8(4):5108-5113.
14. Aprile MM, Feferbaum R, Andreassa N, Leone C. Growth of very low birth weight infants fed with milk from a human milk bank selected according to the caloric and protein value. *Clinics* 2010; 65(8):751-756.
15. Silva RKC, Souza NL, Silva RAR, Silva JB, Ladislão NBPR, Oliveira SIM. O ganho de peso em prematuros relacionado ao tipo de leite. *Rev Eletr Enf* 2014; 16(3):535-541.
16. Branco MBLR, Alves VH, Rodrigues DP, Souza RMP, Lopes FO, Marinho TF. Proteção e apoio ao aleitamento materno: uma contribuição do banco de leite humano. *Rev Pesqui Cuid Fundam* 2016; 8(2):4300-4312.

17. Figueiredo MCD, Bueno MP, Ribeiro CC, Lima PA, Silva IT. Banco de leite humano: o apoio à amamentação e a duração do aleitamento materno exclusivo. *Rev Bras Crescimento Desenvolv Hum* 2015; 25(2):204-210.
18. Silva CM, Pellegrinelli ALR, Pereira SCL, Passos IR, Santos LC. Práticas educativas segundo os “Dez passos para o sucesso do aleitamento materno” em um Banco de Leite Humano. *Cien Saude Colet* 2017; 22(5):1661-1671.
19. Thomaz ACP, Loureiro LVM, Oliveira TS, Montenegro NCMF, Júnior EDA, Soriano CFR, Cavalcante JC. The Human Milk Donation Experience: Motives, Influencing Factors, and Regular Donation. *J Hum Lact* 2008; 24(1):69-76.
20. World Health Organization/United Nations Children's Fund (WHO/Unicef). *Innocenti Declaration on the protection, promotion and support of breastfeeding. Meeting “Breast-feeding in the 1990s: A global initiative”*. Florence: WHO/Unicef; 1990.
21. Maia PRS, Almeida JAG, Novak FR, Silva DA. Rede Nacional de Bancos de Leite Humano: gênese e evolução. *Rev Bras Saúde Matern Infant* 2006; 6(3):285-292.
22. Brito NOS, Fonseca PCB, Araújo SRL, Pereira ISSD, Silva TF. Perfil das mulheres cadastradas no banco de leite humano de uma maternidade. *Rev Enferm UFPE* 2015; 9(12):1161-1167.
23. Vannuchi MTO, Monteiro CA, Réa MF, Andrade SM, Matsuo T. Iniciativa Hospital Amigo da Criança e aleitamento materno em unidade de neonatologia. *Rev Saúde Pública* 2004; 38(3):422-428.
24. Vannuchi MTO. *Implantação e avaliação da Iniciativa Hospital Amigo da Criança na unidade de neonatologia do Hospital Universitário Regional do Norte do Paraná, Londrina. 2002* [tese]. São Paulo: Universidade de São Paulo; 2002.
25. Meier PP, Patel AL, Bigger HR, Rossman B, Engstrom JL. Supporting breastfeeding in the neonatal intensive care unit: Rushmother's milk club as a case study of evidence-based care. *Pediatr Clin North Am* 2013; 60(2):209-226.
26. Giugliani ERJ. Rede Nacional de Bancos de Leite Humano do Brasil: tecnologia para exportar. *J.Pediatr. Editorial* 2002; 78(3):183-184.
27. Colameo AJ, Rea MF. O Método Mãe Canguru em hospitais públicos do Estado de São Paulo, Brasil: uma análise do processo de implantação. *Cad Saúde Pública* 2006; 22(3):597-607.
28. Tamez RN, Silva MJP, organizadores. *Enfermagem na UTI neonatal: assistência ao recém-nascido de alto risco*. Rio de Janeiro: Guanabara-Koogan; 2009.
29. Alves AML, Silva EHAA, Oliveira AC. Desmame precoce em prematuros participantes do método mãe-canguru. *Rev Soc Bras Fonoaudiol* 2007; 12(1):23-28.
30. Luna FDT, Oliveira JDL, Silva LRM. Banco de leite humano e estratégia saúde da família: parceria em favor da vida. *Rev Bras Med Fam Comunidade* 2014; 9(33):358-364.

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