

Strategies for implementing a human milk bank: position of managers and health professionals

Estratégias para implantação de banco de leite humano: posição de gestores e profissionais de saúde

Estrategias para la implantación de un banco de leche humana: opinión de gestores y profesionales de salud

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Objective: to identify the position of health professionals and managers in the maternal and child area for the implementation of a Human Milk Bank in a University Hospital. **Methods:** a mixed methods study carried out in 2016, with a first quantitative stage and a second qualitative one (focus group). Descriptive and quantitative statistics and content analysis were used for qualitative data. **Results:** in the first stage, 119 professionals participated and, in the second, 11. Three theoretical categories were constructed: *Protection of Breastfeeding in the Human Milk Bank*; *Promotion of Breastfeeding at the Human Milk Bank*; and *Support for Breastfeeding at the Human Milk Bank*. Participants recognized that, in the implementation of the Human Milk Bank, the promotion, protection and support of breastfeeding would be achieved, in order to help improve maternal and child health. There was divergence regarding the conditions of physical infrastructure, human resources and cost for implementation, but they pointed out the economic and sustainable benefits. **Conclusion:** there is a need for investment in continuing education and intersectoral and interinstitutional agreements to implement the Human Milk Bank as a public health policy.

Descriptors: Milk banks; Lactation; Breast feeding; Maternal and child health.

Objetivo: identificar a posição de profissionais de saúde e gestores da área materno-infantil para implantação de um Banco de Leite Humano em um Hospital Universitário. **Método:** estudo por métodos mistos realizado em 2016, com uma primeira etapa quantitativa e uma segunda qualitativa (grupo focal). Utilizou-se estatística descritiva e quantitativa e análise de conteúdo nos dados qualitativos. **Resultados:** na primeira etapa, participaram 119 profissionais e, na segunda, 11. Três categorias teóricas foram construídas: *Proteção ao Aleitamento Materno no Banco de Leite Humano*; *Promoção ao Aleitamento Materno no Banco de Leite Humano*; e *Apoio ao Aleitamento Materno no Banco de Leite Humano*. Os participantes reconheceram que, na implementação do Banco de Leite Humano, alcançaria-se a promoção, proteção e apoio ao aleitamento materno, de modo a auxiliar na melhoria da saúde materno-infantil. Houve divergência quanto às condições de infraestrutura física, recursos humanos e custo para implantação, mas pontuaram os benefícios econômicos e sustentáveis. **Conclusão:** há necessidade de investimento em educação permanente e de pactuação intersectorial e interinstitucional para efetivar a implantação do Banco de Leite Humano enquanto política pública de saúde.

Descritores: Bancos de leite; Lactação; Aleitamento materno; Saúde materno-infantil.

Objetivo: identificar la opinión de los profesionales de la salud y de los gestores del área materno-infantil para la implantación de un Banco de Leche Humana en un Hospital Universitario. **Método:** estudio por métodos mistos realizado en 2016, con una primera etapa cuantitativa y una segunda cualitativa (grupo focal). Se utilizó la estadística descriptiva y cuantitativa y el análisis de contenido de los datos cualitativos. **Resultados:** en la primera etapa participaron 119 profesionales y en la segunda 11. Se construyeron tres categorías teóricas: *Protección de la lactancia materna en el Banco de Leche Humana*; *Promoción de la lactancia materna en el Banco de Leche Humana*; y *Apoio a la lactancia materna en el Banco de Leche Humana*. Los participantes reconocieron que la puesta en marcha del Banco de Leche Humana lograría promover, proteger y apoyar la lactancia materna, para contribuir a mejorar la salud materno-infantil. Hubo divergencias en cuanto a las condiciones de infraestructura física, recursos humanos y coste de implantación, pero se observaron beneficios económicos y sostenibles. **Conclusión:** es necesario invertir en la educación permanente y en la colaboración intersectorial e interinstitucional para lograr la implantación del Banco de Leche Humana como política pública de salud.

Descriptores: Bancos de leche; Lactancia; Lactancia materna; Salud materno-infantil.

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INTRODUCTION

Among the proposals that are committed to providing life-saving interventions for the most vulnerable newborns (NB), the Human Milk Bank (HMB) is included. It is a strategy to protect, promote and support breastfeeding (BF), linked to specialized maternal and/or child care services. Brazil has a role in global leadership and technical cooperation for the establishment of HMB in almost all countries in Central and South America¹, being the largest and best structured Network of Human Milk Banks (NHMB) in the world².

The most vulnerable NBs, especially those who are hospitalized in Neonatal Intensive Care Units (NICU), may be unable to suckle from their mothers' breasts due to their clinical condition. This may be due to prematurity and/or low birth weight with an unsatisfactory sucking reflex, some type of infectious disease or immunological deficiencies or pathologies of the gastrointestinal tract³.

The supply of human breastmilk (BM) in the NICU meets the nutritional and immunological needs of newborns according to their gestational age, gastrointestinal maturity and improves neurobehavioral performance. As the BM digestibility is better, there is a faster evolution of enteral nutrition, suspending parenteral nutrition and withdrawing the central venous access on average five days earlier, when compared to NB who used artificial milk formula in a prevalent way⁴.

BM is the first and best option for NBs, and the HMB strategy is established globally. There are approximately 500 institutions operating in over 37 countries. In Europe, there are 210 active banks, mostly in France, Italy and Sweden⁵.

In Brazil, the NHMB has 224 banks distributed in all states of its territory and has the potential for social transformations and the formulation of public policies in the area of women's and children's health⁵. In the state of Rio Grande do Sul, there are 10 banks and 1 collection point, with geographic concentration in the metropolitan region (50%) and lack of coverage in the central region of the state³.

Despite the increase in HMB in response to regional and local demands, these services face challenges in their implementation. The expansion of this strategy, considering the characteristics of the service, professionals and users for decision-making in evidence-based practices, is a gap in knowledge. Thus, the present study aimed to identify the position of health professionals and managers in the maternal-infant area for the implementation of a Human Milk Bank in a University Hospital.

METHODS

This is a study with a mixed methods approach⁶ that adopted the sequential transformative strategy⁷ (QUAN → qual) in which the initial phase was the quantitative one, with data collection from March to July, followed by the second qualitative phase, from August to November, 2016. Data production took place in a University Hospital (UH), a reference for high-complexity care, located in a municipality in the Southern region of Brazil. There is no HMB in the municipality.

The inclusion criteria for participating in the study were: being a manager of the maternal-infant area and a health professional working in the NICU, in the Rooming-in and in the Obstetric Center. Contractors who did not belong to the effective staff of the Institution or who were absent during the collection period were excluded.

For the collection of quantitative data, the participants were invited from a list of professionals from each unit, and the invitation was made in person at the workplace when the research proposal was presented. Non-probability convenience sampling was used.

A questionnaire was applied with 15 assertions in the form of a Likert-type scale, with five degrees: totally agree, partially agree, neither agree nor disagree, partially disagree and totally disagree. A pre-test was developed in the research group. The collected data were entered in the Epi-Info® program, version 7.0. The sum of agreement between items 1 and 2 was considered favorable (totally agree and partially agree), and the data were processed using descriptive statistics.

Through the sequential transformative strategy⁷, the results of the application of the questionnaire trigger discussions for the qualitative phase, developed through the focus group technique (FG)⁸. The FG was composed of participants listed based on their management activity in the unit where they were allocated, which does not mean that they were just managers. The participants developed assistance and/or coordination/management activities at the unit, as well as representatives in the maternal-infant care line.

The invitation to continue the study was carried out through text message, in which the date, place and time of the group session were confirmed. After the first meeting, which took place in a meeting room inside the UH, the dates and times were agreed with the participants, respecting the care routine. The FG was developed in three recorded sessions, each lasting one hour.

The sessions were conducted by a moderator and two observers with experience in the FG technique and in the BF theme. The conduction of the group discussion followed a script described in a synoptic table (Chart 1).

Chart 1. Key moments of the research group sessions on HMB implementation strategies in a university hospital, Santa Maria, 2016.

| | Focal Group Sessions | | |
|------------------------------|---|---|---|
| | 1 st encounter | 2 nd encounter | 3 rd encounter |
| Session opening | Ethical commitment group agreement. Presentation of the objectives of the meeting. | Summary of the previous session and clarification of its purpose. Reinforcement of the group contract. | Synthesis of the meetings to resume and confirm the central ideas of the participatory discussion. |
| Introduction of participants | The dynamics of web presentation was used and the badges were delivered. | The participants had already met each other | |
| Operation clarifications | In each meeting, clarification was made about the dynamics of participatory discussion and the role of each member of the group. | | |
| Debate | Beginning of discussions with the question: “From the position of the actors involved, what are the demands for the implementation of the HMB in the HUSM?”. Questions to aid in the debate: “What are the Institution's difficulties in implementing the HMB?”; “What facilities?” | Organization into subgroups to start the questioning dynamics. After the group's reflection, creation of a new poster composing an organizational chart of actions for the implementation of the HMB in the HUSM. | Discussions such as questioning: “For each action in the organization chart, what are the strategies for implementing the HMB?” and “For the implementation of the HMB, what are the necessary referrals and agreements?” |
| Synthesis | Central ideas of the participatory discussion resumed and confirmed | | |
| End of session | Final acknowledgments | | |

For the interpretation of qualitative data, thematic content analysis⁹ was used. In the pre-analysis, a process of skimming the text was developed (transcriptions and field diaries). When exploring the material, chromatic coding was performed (colors to mark words and/or phrases) and the findings were categorized, according to strategies for promoting, protecting and supporting breastfeeding. In the interpretation, the categorized material was reread, critical reflection of the results, proposition of inferences and subsequent discussion.

Participants received the letter P with subsequent consecutive numbering, indicated according to the session (FG/s1, FG/s2 or FG/s3). The project was approved by the Research Ethics Committee, under opinion No. 1,387,356, and, before participation, there was the orientation of the study and after signing the Free and Informed Consent Term (ICF).

RESULTS

A total of 119 professionals participated in the quantitative stage, of which 61% worked in the NICU and 39% in rooming-in. As for the training of these professionals, 45% were nursing technicians, 33% were nurses, 12% were physicians, 5% were physical therapists, 2% were

speech therapists, and 1% were nutritionists, psychologists, social workers and occupational therapists; 58% were hired under the Brazilian Consolidation of Labor Laws (CLT). Regarding the length of service, 37% worked at the UH between 1 and 5 years, 23% < 1 year and 14% between 6 and 10 years.

Of those with a university education, 43% had a specialization, 9% had a master's degree and 6% had a PhD. And 63% indicated continuing education as complementary training. The participants' position regarding the implementation of a HMB was mostly favorable (95%) (Table 1).

Table 1. Position of managers and health professionals in the maternal and child area for the implementation of a human milk bank in a university hospital, Santa Maria, 2016.

| Assertives | | Favorable | |
|----------------------|--|-----------|-----|
| | | % | No. |
| PROTECTION | | | |
| HMB | Develop actions to protect breastfeeding | 98 | 116 |
| | Will help ensure human milk as a first choice food for at-risk newborns and/or sick babies | 98 | 116 |
| This Hospital | Need a HMB | 97 | 115 |
| | Has the infrastructure conditions to implement a HMB | 64 | 76 |
| | Has human resources conditions to implement a HMB | 69 | 82 |
| PROMOTION | | | |
| HMB | Develop actions to promote breastfeeding | 97 | 115 |
| | Contribute to women's health care | 94 | 112 |
| | Contribute to newborn health care | 100 | 119 |
| | Contribute to child health care | 100 | 119 |
| | Contribute (offering BM) to illness prevention and reduction of neonatal mortality | 98 | 116 |
| SUPPORT | | | |
| HMB | Develop actions to support breastfeeding | 96 | 114 |
| | It will help nursing mothers donate their milk voluntarily | 58 | 69 |
| | It will help nursing mothers in preventing lactation complications | 99 | 118 |
| | It will help nursing mothers to maintain lactation while their children cannot breastfeed, for example, when they are in the ICU | 100 | 119 |
| | Will serve potential donor nursing mothers | 81 | 96 |

From the FG, three theoretical categories were constructed: *Protection of Breastfeeding in the Human Milk Bank*; *Promotion of Breastfeeding at the Human Milk Bank*; and *Support for Breastfeeding at the Human Milk Bank*.

Protection of Breastfeeding in the Human Milk Bank

Professionals and managers had favorable opinions (85%) and thought that this increased the possibilities for BM to be the first food option for at-risk newborns and/or sick babies (98%). As for the benefits of implantation for the institution, the participants expressed the contribution to the qualification with high-risk pregnancy; in addition to innovating,

expanding financial resources of infrastructure and personnel:

The HMB will bring [...] even financial benefits to the hospital. (P1, GF/s2)

It would be an innovation for the hospital, important for the service and for the population. (P3, GF/s1)

It would be a gain for the population and region. (P6, GF/s1)

There is a need to implement a collection unit or HMB for the hospital to be qualified as a high-risk reference, with financial return. (P7, GF/s1)

However, the participants assert that the hospital has weaknesses for the implementation of the HMB due to the physical infrastructure (64%), pointing out the need to prioritize this service:

I don't see that we currently have infrastructure for the HMB, so much so that the hospital's proposal is the collection point. (P2, GF/s1)

The HMB was not included in the physical expansion project. Managers need to understand this importance. (P5,GF/s1)

As long as there is no incentive from managers and understanding of the benefit for babies, HMB will not be a priority. (P2, GF/s2)

Regarding the issue of human resources conditions to implement a HMB, 69% of participants were favorable. But, when presented in the group stage, the group differed in opinion:

It seems to be very professional, but they are busy with routines that would not be able to meet another demand. (P8,GF/s1)

There are human resources to implement the HMB, including a multidisciplinary team. (P4, GF/s2)

Another issue that generated disagreement among the participants was the cost of implementing a HMB. The group understood that the investment to structure the HMB is high, however, it can be turned into short-term benefits, such as the reduction in the costs of milk formulas:

When estimating the cost to implement the HMB, regardless of the value, the return would be immediate. (P4, GF/s2)

Funds are necessary to implement and maintain the HMB. In addition to the physical structure, the equipment is not cheap [...] We have a monthly expense with formulas in the NICU [...] with the HMB these costs would decrease. (P9, GF/s2)

Promotion of Breastfeeding at the Human Milk Bank

In the group stage, the participants recognize that one of the potential for implementing the HMB is the scope of the hospital, since it is a reference institution for the region and which implies a significant demand for deliveries and potential mothers who donate BM:

We are a reference NICU for the region. (P1, GF/s1)

We have a high number of deliveries, and these puerperal women are potential donors. (P2, GF/s1)

We serve mothers who are potential donors [...] In addition to the expressive demand of newborns who need breast milk. (P3, GF/s1)

We are a reference for 44 municipalities. (P4, GF/s1)

These reports reiterate the findings of the quantitative stage, in which the majority (97%) of the professionals recognized the HMB's contribution in BF promotion actions. This is in line with the position that the implementation of the HMB will contribute to women's health care (94%) and mostly (100%) will contribute to the health care of newborns and children:

The benefits that the institution offers to mothers who have their babies hospitalized enhance the implementation of the HMB: free access, food, transport and accommodation. [...] the kangaroo unit is also a facilitator. (P2, GF/s1)

We need to strengthen the HMB in the maternal and child care line. (P4, FG/s1)

Respondents claim that the media and the institution's press office are allies to publicize the benefits of BM, reaching a greater portion of the population and guaranteeing BM stocks. Aspects related to institutional organization are also seen as facilitators, such as teaching and research centers, through which training is promoted to professionals:

The dissemination of BF by the media is important, its strengthened by it. The institution has education centers to train professionals on the importance of the HMB. (P1, GF/s1)

There is an education center [...] the training schedules are already routine for professionals [...] this facilitates the implementation of the HMB, because we need these professionals to understand that it is important. (P4, GF/s2)

Support for Breastfeeding at the Human Milk Bank

Regarding the support actions, it is observed that the participants realized that with the implementation of the HMB, the institution will develop actions to support BF (96%) and will help the nursing mothers to maintain lactation while their children are unable to breastfeed directly (100%), which reinforces that these participants positively identified the attributions of a HMB. However, these professionals had difficulties in developing educational actions to guide BF management and storage of milk for donation:

Often, we have to ask the mother to use it up and discard it, as we do not having a place to store this milk. When the baby needs it, sometimes the mother does not have the adequate amount. (P5,GF/s1)

In the ICU, the mother is closer to the child, participates in care and should be able to breastfeed or exhaust milk. We prioritized technologies (antibiotics, respirators) and we are rescuing humanization, which is ensuring the best of what the institution can offer. (P5,GF/s1)

We started to rethink the humanization of care, so it is a very propitious moment for the implementation of the HMB. (P8,GF/s1)

To meet the demand of nursing mothers, it is observed that the HMB can develop actions

to prevent complications of lactation, as identified by the participants (99%). When the topic was discussed in the group meetings, the professionals reported the difficulty of meeting this demand due to the number of personnel in the assistance:

It is difficult to guide mothers to breastfeed or pump their milk, as it takes time. I would need more professionals to dedicate themselves to this. (P8,GF/s1)

Because it is a referral hospital for high-risk pregnancy, with a significant demand for deliveries and with a large NICU, there is a wide flow of potential nursing mothers who donate BM who use the institution. It was noticed in the individual stage that, although 81% of the participants recognize that the UH assists nursing mothers who are potential BM donors, only 58% understand that the implementation of a HMB will help nursing mothers donate their milk. In the group stage, dissatisfaction with the inexistence of this service in the hospital emerged. Professionals, in turn, signal the demand for HMB in the institution by reporting that the population of nursing mothers seeks a service to donate milk:

[...] we often have our hands tied for not having the HMB. (P1, GF/s1)

We receive calls at the maternity ward or the mother herself asks during hospitalization: and now that the breast is full of milk, where can I take it? and we have nowhere to send this woman to in the municipality. (P4, GF/s1)

People call the lactary asking if we accept milk donations. In the maternity ward too. People look for a reference that we don't have. (P9, GF/s2)

DISCUSSION

BM donor banks are essential for the protection, promotion and support of breastfeeding and must be universally available. The World Alliance for Breastfeeding Action¹⁰ advocates the establishment of HMB that are context specific, culturally acceptable and follow regulations and guidelines.

In Brazil, for the protection of breastfeeding, the HMB comply with regulations such as Law No. 13.257/2016, which deals with public policies for early childhood, which indicates, in its Article 20, that NICU services must have a HMB or a BM collection unit. This implied the expansion of Article 9 of the Brazilian Statute of Children and Adolescents (Law No. 8069/1990) which mentions the responsibility of institutions to provide adequate conditions for BF¹¹.

In order to comply with the legislation and achieve qualification as a high-risk reference, there is a need to create a HMB. With this qualification, the units receive a financial incentive¹². A study that proposed to analyze the process of implementing the HMB in a university hospital pointed to the existence of a complex power game that involves health professionals and the

institution itself. However, they showed that the successful implementation of the HMB corresponds to institutional support, understanding this as an intervention device that proposes the necessary changes to the quality of maternal and child care¹³.

For the operation of the service, human resources are needed in an adequate quantity to the demand of care work and food technology, and composed of a qualified multidisciplinary team. The staff planned for the operation of the HMB varies according to the complexity and scope of each unit, being prohibited the simultaneous work in other sectors during the performance of the processing of the pumped BM, to avoid contamination¹⁴.

For the implementation of the HMB it is also necessary to understand the costs to enable financial planning. The first step is to collect data from the institution, such as the demand for care (number of donors, volume of milk collected/processed), number of obstetric beds and NICU, physical space for implementation, in addition to financial availability. This is all necessary to predict the amount of equipment needed for its implementation and operation¹⁴.

The operating costs of HMB are similar across countries and are high, so they require financial assistance from government and society. Therefore, measures must be recommended to reduce the operational costs of the HMB¹⁵. The cost analysis showed that feeding NBs with BM provided by the HMB was significantly more expensive than with unpasteurized breast milk or formula. The total annual cost included material, personnel and other overhead costs. But the cost of pasteurization was minimal¹⁶. However, a retrospective descriptive cohort survey conducted in a children's hospital in the northeastern region of the United States showed that the cost and use of pasteurized BM in HMB is a low-cost intervention compared to many other interventions for the care of hospitalized babies¹⁷.

In order to promote BF in the HMB, with a view to raising the awareness of potential donor nursing mothers, another work pointed out the relevance of using the media to maintain BM stocks. Involving the donors ends up making them promoters of BF practice through the exchange of successful breastfeeding experiences during the collection with other mothers¹⁸.

It is noticed that professional training has a fundamental role, however there are professionals who admit they did not receive enough information or were focused on biological and technical aspects of breastfeeding. They indicate the need for permanent education in health through training during professional practice, expanding social, cultural and emotional aspects¹⁹.

The debate on continuing education actions for professionals working in the area of breastfeeding and HMB in Brazil is not new, and must stay focused on competences, involving knowledge, skills and values that will guarantee the legitimacy of projects that integrate

education and work²⁰.

Studies point to the importance of educational practices based on the “Ten Steps to Successful Breastfeeding”, focusing on actions in HMB^{21,22}. And they show that the training on breastfeeding (Step 5) had a higher prevalence of exclusive breastfeeding, which demonstrated the fundamental role of the health professional in the guidelines²¹. In the case of Nursing, these guidelines can compose the nursing process as an instrument of Systematization of Nursing Care in the HMB, considered an organizer of the work²².

Continuing education also contributes to the prevention of care for the clinical fragilities of NBs hospitalized in the ICU, which culminates in the need for technologies to prevent the worsening and morbidities with an outcome in mortality. But it will be necessary for professionals to include care for nursing mothers in their work activities through actions to maintain lactation²³. The participants highlighted that offering BM through the HMB would be a way of humanizing neonatal care, considering that this is the best food for the NB. This is in line with the concept close to the HMB being a strategy for humanizing maternal and child care²⁴.

In order to support BF in the HMB, the guidelines provided by the HMB professionals in relation to adequate pumping techniques have a positive impact on the maintenance of lactation in the practice of puerperal women. In addition, allowing the NB to be fed by BM favors their health, in the short and long term²⁵⁻²⁷. The puerperal women recognize that they received support actions, qualified and resolute assistance in the HMB in the face of breast complications that can interfere with BF²⁵.

Professionals receive this demand from the population, which seeks a HMB for donation, as they recognize the benefits of BM, especially for babies who are in the ICU. Donors feel valued for contributing to the recovery of pre-term newborns and/or at risk. Evidences indicate that among the reasons that lead nursing mothers to donate their milk are: breast complications (engorgement); excess milk production; knowledge of the importance of BM for hospitalized babies; altruism; and previous experience of breastfeeding difficulties. Therefore, the implementation of the HMB benefits not only the nursing mother who needs support at the moment her BM is donated, but also benefits the NBs who need this demand²⁸.

There are protocol standards for creating and operating HMB in quality levels to provide security to users of donated milk. An example is the guide developed in Spain²⁹. This guide advocates that there is at least one HMB in each autonomous community, a territorial unit with legislative autonomy and its own legal powers, such as the Brazilian states. This process must be constantly updated to accompany recommendations based on evidence and consensus, such

as the European Milk Bank Association, which established safe operations for Europe³⁰ and the RBLH, which established national standards.

CONCLUSION

The participants presented a favorable position for the implementation of the HMB and recognized that such implementation makes it possible to promote, protect and support BF, improve maternal and child health, in addition to economic and sustainable benefits for society. In the discussions carried out in the group stage, the barriers to the implementation of the HMB in the UH were pointed out.

In turn, based on this study, it is suggested the need to invest in continuing education actions for health professionals in the maternal and child area, considering the themes of BF, maintenance of lactation, donation and storage of BM, having with a view to making them more apt for assistance in breastfeeding and for the implementation of HMB. There is a need for intersectoral and interinstitutional agreements to implement the HMB as a public health policy.

A limitation of the study is the use of a non-validated instrument for collecting quantitative data and carrying out the study in a single institution. In turn, the data can be considered for services with demand for the implementation of a milk bank and that have infrastructure and personnel characteristics similar to the scenario studied.

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