Ideal time for home visits to newborns: an integrative review

Abstract This study aimed to analyze in the scientific production in online journals regarding the ideal time to conduct home visits (HVs) to newborns (NBs) in their first week of life, and the difficulties in doing so due to the lack of a consensus around the subject. This is an integrative review based on data available on the MEDLINE, BVS, Web of Science and PubMed databases. Eight studies published between 2010 and 2015 were identified. The thematic analysis evidenced two topics, namely, the ideal time for the first home visit to the newborn, and difficulties in implementing the home visit to the newborn in the first week of life. The results suggest that the first visits should take place in the first week of life, especially within the second day after birth. However, some impediments to the realization of the home visit are found, such as geographical barrier, poor quality of care delivered by professionals, low number of notifications of mother-baby binomial hospital discharge, and mothers’ lack of knowledge about the relevance of postnatal care. All this can impair the performance of health professionals, and requires investing in their professional qualification and service infrastructure.

Key words Newborn, Home Visit, Primary Health Care
Introduction

The neonatal period, from birth to the 28th day of life, is a time of vulnerability to the health of the newborn. Therefore, babies require indispensable care in their first days of life since about 2.6 million newborns die annually in the first month of life, with approximately one million of these deaths occurring in the first 24 hours, and about one million in the first six days of life. Also, some 30 million child deaths are expected from 2017 to 2030 in the neonatal period.

Given these worrying rates, it is well known that care for newborns (NB) will influence the individual’s life and health condition throughout adulthood. In this perspective, a study shows that 70% of neonatal deaths are avoidable, and one of the main reasons is the inefficient and negligent care by health services, although the number of deaths of children under 5 years of age was reduced from 9.9 million per year in 2000 to 5.6 million in 2016, thanks to the efforts of countries seeking improved children’s health, as per the 2017 Report on Levels and Trends in Child Mortality. According to the world scenario, Brazil showed consecutive annual declining child mortality rates between 1990 and 2015. However, this pattern was broken by an increase from 14.3 child deaths per thousand live births in 2015 to 14.9 in 2016. Thus, this number must be further reduced, considering that this age group has the highest concentration of child mortality.

The United Nations launched in 2015 the “2030 Agenda for Sustainable Development” to reduce child mortality rates, which aims, among other things, to continue the advance of its Millennium Development Goals and achieve progress in the unattained goals. This agenda consists of 17 Sustainable Development Goals and 169 targets, and aims to eliminate the deaths of NBs and children under five years of age from preventable causes, leading the reduction of infant mortality worldwide.

In Brazil, the health service uses strategies of significant influence on the well-being of the people, such as the Home Visit (HV) to provide efficient care to the neonates-puerperae binomial. It has a strong emphasis on Primary Health Care (PHC), as it provides care and education, besides the care that increases neonatal survival. Thus, the realization of the HV by the health team should be early, soon after birth.

The HV is a practice of continuous home care, underpinned by peculiar elements that give it meaning. It is a health care that aims to prevent disease, promote, treat and rehabilitate the patient’s health, and it can also complement or replace the care provided in other settings. Thus, with these characteristics, home care ensures an educational, humanized, comprehensive and resolute care.

Returning to the positive relationship between HV and health promotion, the Brazilian health system recommends that home care should include actions to promote health, prevent and treat diseases and provide home rehabilitation, with an assured continuity of care incorporated into Health Care Networks (RAS).

Given these benefits to the health of the individual and, in particular, the child’s health gains, home visits aimed at the newborn are crucial. Because of this need, the Ministry of Health recommends its implementation in the first week of postpartum life.

The HV to the newborn is a powerful tool of disease prevention and health promotion that results in a higher neonatal survival. However, this strategy is only successful when implemented at the right time and at a moment of child’s health greater vulnerability.

Few studies and organizations establish the ideal time to perform this HV to the newborn. However, they have shown that when these visits are performed within the first 48 hours after delivery, postnatal interventions can prevent deaths which affect children in this period. This intervention becomes more critical in developing countries since they show gaps in prenatal and childbirth care, which are risks to the mother-baby binomial.

In Brazil, the Ministry of Health recommends that the visit be held on the 5th day of the child’s life, called the “5th Comprehensive Health Day”, in which the essential health actions for the baby and the mother should be performed at the first contact following discharge from maternity. However, a study published in Brazil evidenced a worrying situation in which the HV to the newborn is being performed after one week of life, sometimes within 15 days after the child arrives at home.

In the document titled “Home visits for the newborn child: a strategy to improve survival”, the United Nations (UN) and the United Nations Children’s Fund (UNICEF) recommend the HV in the first week of life, when noting that most neonatal deaths occurring after 48 hours of life can be prevented through immediate neonatal care.

Considering that the first days of life are crucial for the survival of the newborn, the ideal
moment must necessarily be established, that is, the exact moment to perform a HV and to carry out the initial and protective health care. Also, understanding the main factors that hinder this visit and seeking to reduce them will achieve new child health gains.

Therefore, the relevance of this research to the general population and the scientific community is justified, and it is a means to achieve the well-being of the child-mother-family triad with a timely intervention to prevent the diseases that could harm the children’s health, seeking to promote their well-being adequately. Thus, this study aimed to analyze the ideal time for the home visit to the NB and the difficulties for its implementation from the scientific productions of the national and international literature.

Methods

This is an integrative review of the literature that aimed to summarize the results of studies on the subject. The elaboration of this type of study included several stages. Initially, the following guiding questions were elaborated: “What is the ideal time addressed in the literature for the home visit to the NB in the first week of life?”, and “What are the difficulties for the implementation of the HV to the NB?”

The literature search was carried out from October to December 2015, in the following electronic libraries: Medical Literature Analysis and Retrieval System Online (MEDLINE), PubMed, Virtual Health Library (BVS) and Web of Science. We used descriptors in Portuguese and English, as per the standardizations of the Health Sciences Descriptors (DeCs) and Medical Subject Headings (MeSH), and they were: “Recém-Nascido” or “Newborn”; and “Visita Domiciliar” or “Home Visit”. These descriptors were individually cross-referenced in the selected electronic libraries with the Boolean operator “AND” to ensure the inclusion of all papers relevant to the topic.

Inclusion criteria were: papers published in the 2010-2015 period; full-text papers available and indexed in electronic libraries; publications available in the English and Portuguese. We excluded incomplete studies and studies that did not meet the proposed theme.

The search returned a total of 1,646 paper after initial screening and following the established criteria. Then, titles and abstracts were carefully read by two researchers separately, which resulted in 430 studies.

The following information was extracted from the selected studies: title, authors, year of publication, journal, Journal Citation Report (JCR), Qualis, impact factor, language, objective, ideal time and difficulties for the HV to NB, period and study location. The choice of Qualis and the Journal Citation Reports (JCR) is justified as data to analyze the quality of the studies since they allow to evaluate the leading research journals in Brazil and the world, as per their classification and impact factor, respectively.

After recording, the data were systematically reviewed and then interpreted and discussed through thematic analysis. This was a three-stage process: pre-analysis, in which the first contact with the material was established, with the identification of the keywords; analysis of the material, selecting the representative parts of the papers included in the review; and management of the obtained results and interpretations.

Two thematic areas (TA) were built from the analysis of the papers, as follows: AT1- Ideal time for the first home visit to the newborn; AT2- Difficulties for home visitation to the newborn in the first week of life.

Results and discussion

Only eight papers were among the selected studies that addressed the ideal time to perform the HV to the NB, five of which were found in PubMed, one in the Web of Science and two in the Virtual Health Library, as shown in Table 1.

In this study, the journal selected in the study with the highest JCR, that is, with greater relevance in the area, was the PLOS Medicine, with 14.43. Given this data, it is shown that this journal serves as a reference when discussing topics involving home visits to the NB in the context of PHC. In turn, the journal with the lowest JCR (0.83) was Public Health Nursing.

In addition to these data, it was possible to observe, in Table 1, other relevant aspects in the papers selected, such as title, authors, year, journal, language, objective, HV ideal time, study period and location. Half of these studies were published in 2015 as shown in Graph 1. All studies have been published in English. Two studies were held in Tanzania and the others in different places such as China, Uganda, Ethiopia, Ghana and Malawi.
AT1 - Ideal time for the first home visit to the newborn

From the analysis of the studies that underpin the AT1, we could detect several indications about the ideal time for the HV to the neonate. Thus, one study conducted in Uganda\textsuperscript{18} and another in Bangladesh\textsuperscript{19} indicated that the ideal would be to perform three HVs to newborns in the first week after birth. On the other hand, studies in Tanzania\textsuperscript{20,21} advocate the implementation of two HVs in the newborns in the first days of the baby’s life. Therefore, it was recurrent in the surveys analyzed that the first home visits to the NB should occur during the first week of life. However, the most advisable is that HV takes place within the second day after birth\textsuperscript{10,20,21}.

When assessing the relevance of continuity of care to reduce perinatal, neonatal and maternal mortality, a meta-analysis study with randomized and quasi-randomized trials\textsuperscript{10} identified the effectiveness of home care to improve the child’s health and emphasized the importance of performing this visit to the newborn within 0-2 days postpartum. In this perspective, scholars standardized the implementation of the home visit by health professionals on the first, third and seventh days of the NB’s life and found the benefits of this strategy for neonatal and maternal health\textsuperscript{18}.

Thus, the ideal time for healthcare geared to the NB in the home setting is modified according to the place analyzed. However, the recommendation of the early home visit is shared by all the studies analyzed. A maternal and neonatal care program with home visits within the third day after delivery was implemented in Bangladesh, Malawi and Nepal. Despite the divergent number of mothers and newborns who received care in different countries, home visits to newborns and puerperae are recommended within the third postnatal day, through effective community health systems\textsuperscript{19}.

It should be noted that the deadline for a home visit up to the second day of life hinders the contact with the NB in the maternity ward since the baby is still in the hospital. Therefore, the indication of HV to NB on the second day of life, in the studies recommending the visit in this period\textsuperscript{20,21}, is probably because of the expressive number of home births and women’s lack of access to health facilities for childbirth, resulting in the primary cause of maternal and neonatal morbimortality in the country\textsuperscript{22}.

According to the report \textit{Every child alive: the urgent need to end newborn deaths}, the most dangerous countries of birth and with the highest rates of neonatal morbimortality are the ones with a low-income population, such as some located in Africa, that lack health professionals and trained midwives to provide safe care to the newborns and the puerperae\textsuperscript{23}.

Thus, primary health care right after birth is essential for improving health and reducing neonatal mortality\textsuperscript{24}, especially in environments where the population is vulnerable. Therefore, the implementation of the early postnatal home visit is essential for guidance on newborn care practices, such as exclusive breastfeeding, which should be promoted as soon as the professional contacts the mother-baby binomial\textsuperscript{21}.

Also, research in different regions of Ethiopia with high child mortality and low effectiveness of current health programs identified the need for new community health programs to ensure the early contact between health professionals and newborns through strategies such as home visits\textsuperscript{25}.

According to the above, the World Health Organization (WHO) also highlights the importance of NB care within 48 hours after delivery, considering that this is the crucial moment for child survival since it is a period in which more than 50% of neonatal deaths occur\textsuperscript{1}.

A survey that sought to evaluate the impact of the training of health professionals for the early identification of changes in the overall state of the neonate showed that 2/3 of the children who received a HV by a trained health worker on the day of birth had a higher probability of survival, due to the reduced risk of neonatal mortality. Furthermore, it also showed that a visit on the second day of life of the newborn reduced the risk of death by more than 50% among children who survived the first two days\textsuperscript{25}.

On the other hand, despite indicating the early implementation of the first HV within the second day of life, other studies\textsuperscript{20,21} show negligible rates of NBs who received the visit in this period, 18% and 15%, respectively. In the study\textsuperscript{20} that set three home visits during pregnancy and two in the early neonatal period, with additional visits for preterm neonates, found that, despite finding a positive association between early HV and neonatal well-being, a low adherence by professionals to this determination was noted.

One factor that may influence the successful visit to the neonate in the first two days of life is where the delivery took place, whether at home or a health institution\textsuperscript{14}. This was found in a study\textsuperscript{18} conducted in Uganda which concluded that only
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors/Year</th>
<th>Journal/Language</th>
<th>Period of study/Country</th>
<th>Suggested frequency of HV to NB</th>
<th>Objective</th>
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<tr>
<td>Coverage, quality of and barriers to postnatal care in rural Hebei, China: a mixed method study</td>
<td>Chen et al., 2014</td>
<td>BMC Pregnancy and Childbirth/English</td>
<td>Jul-2011/China</td>
<td>At least 3 HVs in postnatal care</td>
<td>To explore coverage, quality of care, reasons for not receiving postnatal care and obstacles to care delivery</td>
</tr>
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<td>Effect of home-based counselling on newborn care practices in southern Tanzania one year after implementation: a cluster-randomised controlled trial</td>
<td>Penfold et al., 2014</td>
<td>BMC Pediatrics/English</td>
<td>2009-2011/Tanzania</td>
<td>2 HVs in early neonatal care</td>
<td>To report the effect of the intervention on neonatal care practices in a community one year after full implementation</td>
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<tr>
<td>Effect of the Uganda Newborn Study on care-seeking and care practices: a cluster-randomised controlled trial</td>
<td>Waiswa et al., 2015</td>
<td>Global Health Action/English</td>
<td>Sep-2011 to Nov-2011/Uganda</td>
<td>3 HVs in the first week of life. Additional HVs, if necessary</td>
<td>To evaluate the effect of the home visit strategy coupled with the strengthening of health facilities in capturing and seeking newborn care, practices and services, and linking the results to Uganda's national policy</td>
</tr>
<tr>
<td>Effective Linkages of Continuum of Care for Improving Neonatal, Perinatal, and Maternal Mortality: A Systematic Review and Meta-Analysis</td>
<td>Kikuchi et al., 2015</td>
<td>PLoS ONE/English</td>
<td>Oct-2013 to Jan-2015/Ghana</td>
<td>1 HV until the second day of life of the NB</td>
<td>To evaluate the effectiveness of different articulations for the continuity of care, reducing perinatal, neonatal and maternal mortality in low- and middle-income countries</td>
</tr>
<tr>
<td>Effectiveness of a Home-Based Counselling Strategy on Neonatal Care and Survival: A Cluster-Randomised Trial in Six Districts of Rural Southern Tanzania</td>
<td>Hanson et al., 2015</td>
<td>PLoS Medicine/English</td>
<td>Jul-2010 to Jun-2013/Tanzania</td>
<td>2 HVs in the first days of life of the NB</td>
<td>To report a randomized cluster study of a household counseling strategy, designed for large-scale implementation in a population of 1.2 million people in rural Tanzania</td>
</tr>
<tr>
<td>Newborn care practices at home and in health facilities in 4 regions of Ethiopia</td>
<td>Callanghan-korou et al., 2015</td>
<td>BMC Pediatrics/English</td>
<td>Jan-2012/Ethiopia</td>
<td>Recommends an increasing number of HVs for the promotion of the recommended care to the newborn in Ethiopia</td>
<td>To describe the newborn care practices reported by recent delivery women (RDWs) in four regions of Ethiopia</td>
</tr>
<tr>
<td>Newborn Well-Child Visits in the Home Setting: A Pilot Study in a Family Medicine Residency</td>
<td>Lakin et al., 2015</td>
<td>Family Medicine/English</td>
<td>Jun-2012 to May-2013/USA</td>
<td>HVs performed by resident physicians in the first week and the first month of life of the newborn.</td>
<td>To establish a home visit program for newborns assisted by family medicine residents.</td>
</tr>
<tr>
<td>Reaching Mothers and Babies with Early Postnatal Home Visits: The Implementation Realities of Achieving High Coverage in Large-Scale Programs</td>
<td>Sitrin et al., 2013</td>
<td>PLoS ONE/English</td>
<td>Apr-2009 to Jun-2011/Bangladesh, Nepal, Malawi</td>
<td>3 HVs in the first week of life of the newborn, and the first visit is performed within the 3rd day.</td>
<td>To evaluate the coverage and content of home visits in pilot areas and the factors associated with receiving visits.</td>
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</table>
30% of babies born in a health institution were visited on the second day of life. Given this result, it is inferred that when delivery occurs in a health institution, the home intervention tends to be postponed, and it is not possible to perform it in the first days of the newborn’s life.

On the other hand, a randomized trial implemented in Uganda and with the support of the World Health Organization through the guideline called Joint Statement on home visits for the newborn child: a strategy to improve survival recommends the first home visit to the newborn on the first day of life, with two more visits on the 3rd and 7th day.

However, when analyzing the papers that underlie the present review, and other studies addressing this issue, we found no consensus as to the ideal time for the HV to the newborn. However, all emphasize the need for this visit to occur as early as possible.

Even in the lack of consensus in the literature regarding the ideal time, it is recommended that the HV be performed by qualified professionals, so that they may provide health care right after birth, regardless of the place of delivery. Finally, the establishment of the timeliest moment for an effective HV to the NB will bring immeasurable benefits to the child’s health. However, the implementation of this intervention also requires to manage the difficulties faced, based on the commitment of all professionals of the Health Care Network involved with the care of the newborn.

**AT2- Difficulties for home visitation to the newborn in the first week of life**

The successful home visit to achieve a definite goal for the health of the newborn requires a qualified and available health professional, as well as health services with favorable conditions for the mother’s gathering with the professional. Thus, the HV is subjected to these and other factors defining its performance, or not, which may be considered as hurdles to neonatal survival when they do not allow quality home care.

Depending on the studies of AT2 (Table 2), the low quality of care provided by health professionals to newborns and the lack of transportation to solve the problem of geographical distance, were the most recurring difficulties that interfere in achieving the HV (Graph 2), according to studies analyzed.

A randomized study conducted in rural areas of Tanzania, where 824 volunteers were trained to perform home visits and advise mothers and their family members on necessary neonatal care, and to analyze neonatal survival in this population, revealed several barriers that may lead to low coverage of postpartum care. The main one was the long distance traveled to get in touch with the mother-child binomial, besides the poor quality of the services provided in the health facilities.

A similar difficulty was the long time required by health professionals to travel to the NB’s home, as per study in the United States.

In the context of rural China, researchers highlighted the following difficulties to perform the home visit to the newborn: cultural influence, low level of maternal knowledge on the importance of postnatal care, reduced number of health professionals to attend to the mother-baby binomial, inadequate government financing for health and lack of transportation for the travel of professionals to their homes.

From the mentioned papers, we note that, while the studies are conducted in countries with different cultures, one of the most common difficulties among them for the effective accomplishment of the home visit to the newborn is the geographical hurdle, that is, the distance between the health facility and the home.

A study with 1,601 caregivers of children under two years of age and health professionals that aimed to quantify the coverage of the care provided to the babies in order to analyze their
The study carried out in Ethiopia\(^{25}\) pointed out that women have reduced the demand for health services upon noting the poor quality of care provided by the professionals to them and their children. Therefore, paying attention to

### Chart 2. Articles of the sample that defined Thematic Area 2.

<table>
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<tr>
<th>Identification code</th>
<th>Titles</th>
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<tbody>
<tr>
<td>AT2a</td>
<td>Newborn care practices at home and in health facilities in 4 regions of Ethiopia</td>
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<tr>
<td>AT2b</td>
<td>Effect of home-based counselling on newborn care practices in southern Tanzania one year after implementation: a cluster-randomised controlled trial</td>
</tr>
<tr>
<td>AT2c</td>
<td>Newborn Well-Child Visits in the Home Setting: A Pilot Study in a Family Medicine Residency</td>
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<tr>
<td>AT2d</td>
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<td>AT2e</td>
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<tr>
<td>AT2f</td>
<td>Coverage, quality of and barriers to postnatal care in rural Hebei, China: a mixed method study</td>
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<tr>
<td>AT2g</td>
<td>Reaching Mothers and Babies with Early Postnatal Home Visits: The Implementation Realities of Achieving High Coverage in Large-Scale Programs</td>
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</table>

**Source:** PIBIC, 2016.

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**Graph 2.** Distribution of the scientific production about the difficulties in effecting and welcoming home visits to the newborn.

**Source:** PIBIC, 2016.

...quality and to identify the reasons for not doing so found that the shortage of professionals, the inadequate training and lack of transportation interfere with the quality of home visits to the mother-baby binomial\(^{26}\).
this reality is paramount, since the poor quality of care hinders preventive and health promotion actions like the HV and can lead to a public health issue of even greater proportions to the general population.

In order to remedy this fragility, Brazilian Law No. 13.257 of March 8, 2016 ensures that the HV programs aimed at early childhood care and education should count on qualified professionals, supported by measures that secure their permanence and continuous training.

Another preponderant adversity found was the poor notification of hospital discharge of the mother-newborn binomial, increasing the difficulty of the health professionals in the early care of NBs, in which the delayed communication on the discharge of mother and child overly affected the low postpartum care coverage.

In Uganda, a study showed that, while women were discharged early, within 24 hours of delivery, the Community Health Workers visited them later than the women who gave birth at home. This was possibly due to the lack of notification of the mother-baby binomial discharge.

In Brazil, the systematic and formalized counter-referral of newborns in hospital care to the Family Health Strategy is crucial, since efficient communication between levels of care favors case sharing, the early performance of health professionals and the continuity of care to the neonates-puerperae binomial, mainly in primary care.

Considering that the share of live births in the Brazilian setting increased from 96.5% in 2000 to 98.4% in 2015, it is assumed that the number of newborns requiring health care in primary care after hospital discharge is also growing in the country. Thus, effective communication between primary, secondary and tertiary care will facilitate the work process of health professionals for the early identification of users.

Thus, it is necessary to adopt strategies to involve the family and the community in places where it is difficult for CHWs to identify pregnant women. For example, the establishment of women's groups in the community to facilitate the access of CHWs to the information about hospital discharge of the neonates-puerperae binomial, thus favoring an early routine visit by these professionals.

The lack of knowledge of the puerpera about the relevance of postpartum care for maternal and newborn health is another impediment to an effective HV. A study carried out in China reaffirms the need to explain to women the relevance of puerperal and neonatal care and their preventive and health promoting role for the mother-baby dyad. Thus, mothers' lack of knowledge will no longer be a difficulty for the HV since the puerperae will probably be uninclined to resist to the performance of a HV when knowing about its importance in the postpartum period.

Furthermore, another difficulty for the implementation of early HV concerns the Brazilian reality of cesarean births, because Brazil has the second highest cesarean rate in the world, with about 55.6%, which prevents the mother from being at home on the second day of the baby's life. However, in recent years, a Brazilian movement for the revival of humanized delivery has been noted, as well as women's seeking planned home delivery, which will require health professionals to perform early HV to the newborn.

In view of the above, we understand that the reduction of obstacles to the implementation of a HV in the first week of life will facilitate the provision of quality care at the right moment in which the neonate requires more attention, that is, at the ideal time of the HV to the NB that should occur in the first days of life.

Conclusion

The adoption of strategies and plans to reduce child and especially neonatal mortality is an action employed worldwide. Thus, studies confirm that the home visit to the newborn is a tool of great value and acceptability in health.

Papers that are part of the Thematic Area 1 argue that three home visits in the first week of the child’s life are required to bring benefits to the neonate's health and the ideal time for this intervention. Also, they recommend that the first contact of health professionals with the child during the HV should occur between birth and the second day of the life of the child.

On the other hand, the studies that make up the Thematic Area 2 identified that the main difficulties for the first week of HV are: traveling difficulty (distance, lack of transportation), higher workload of health professionals, poor notification of hospital discharge of the neonates-puerperae binomial, limited funding, cultural influence, poor quality of care provided by professionals to the newborn, and lack of maternal knowledge about the relevance of postnatal care.

Because of these results, the relevance of this study to redirect the view of health managers and professionals and the academic community
in favor of the early home visit to the newborn is unquestionable and seeks solutions to remedy the existing difficulties. Also, evaluative studies are recommended to investigate the effectiveness of the home visit in the first week of life to reduce child morbimortality. The main limitation of this study is the negligible number of international papers on the subject and the lack of a national study, which hindered the viewing of the Brazilian reality. Also, most of the studies analyzed occurred in countries where the number of births outside health institutions is significant and without the attendance of trained professionals. Thus, the indication of the HV to the newborn on the second day of life is questionable when the childbirth occurs in the institutional context. Another major limitation of the study is the lack of a selection of papers in Spanish.

Collaborations
AR Soares: study design, data collection, data analysis and interpretation and article writing. ATA Guedes and TKC Dias: analysis and interpretation of data and writing of the article. TMAV Cruz: data collection, data analysis and interpretation, article writing and critical review. N Collet and APS Reichert: study design, critical review and approval of the version to be published.

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