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Why we should care about full-term infants admitted to a neonatal intensive care unit

Por que devemos nos preocupar com os bebês a termo internados em uma unidade de terapia intensiva neonatal

Por qué deberíamos preocuparnos por los bebés nacidos a término ingresados en una unidad de cuidados intensivos neonatal

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ABSTRACT | This study aims to analyze why we should care about full-term newborns admitted to a neonatal intensive care unit. This is a documented, descriptive, and retrospective study of 262 full-term newborns. Variables used: newborns' characteristics; main diagnosis, length of stay, follow-up by a multidisciplinary team; post-discharge referral. Most newborns were boys (52%), had a 5-minute Apgar score of nine, and most newborns and their mothers were white (61.1% and 48.9% respectively). Respiratory dysfunction was the main diagnosis (28.8%). Length of stay was eight days. There was a significant difference regarding length of stay (p=0.013), in which those with cardiorespiratory and other diseases stayed less time compared to those with malformation or maternal diseases. The social service was the most sought (81.2%) service, whereas physical therapy the least sought (18%). Newborns with higher weight were hospitalized for less time. Those that underwent physical therapy had longer stay (p<0.001). Main outcome was hospital discharge (68.7%) and referrals to the Basic Health Unit (57%). This study outcomes indicated newborns with less severe conditions, low number of specific studies for the full-term population, other diagnoses that refer to non-intensive care.

Keywords | Full-Term Birth; Neonatal Intensive Care Unit.

RESUMO | O objetivo deste estudo foi analisar a razão pela qual devemos nos preocuparmos com os bebês a termo internados em uma unidade de terapia intensiva neonatal. Trata-se de estudo documental, descritivo e retrospectivo de 262 recém-nascidos (RNs) a termo. As variáveis utilizadas foram: características dos RN; diagnóstico principal, tempo de permanência e acompanhamento pela equipe multiprofissional; e encaminhamento pós-alta. Houve prevalência do sexo masculino (52%), de Apgar 9 no 5º minuto e da raça/cor branca do RN e da mãe (61,1% e 48,9%, respectivamente). O diagnóstico principal foi a disfunção respiratória (28,8%), e o tempo de permanência foi de oito dias. Houve diferença significativa entre os tempos de permanência (p=0,013), em que as doenças cardiorrespiratórias e outras doenças levaram a um menor tempo de internação em relação à má formação ou às doenças maternas. O serviço social foi o mais procurado para o acompanhamento (81,2%) e a fisioterapia, o menos buscado (18%). RNs com maior peso ficaram menos tempo internados, e os acompanhados por fisioterapia apresentaram tempo de permanência mais elevados (p<0,001). O principal desfecho foi a alta hospitalar (68,7%) e encaminhamentos para a Unidade Básica de Saúde (57%). Os achados deste estudo apontam

Study conducted at the Hospital Mateno Infantil Presidente Vargas (HMIPV).

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a presença de bebês menos graves, baixo número de estudos específicos para a população a termo e outros diagnósticos que nos remetem a cuidados não intensivos.
Descritores | Nascimento a Termo; Unidade de Terapia Intensiva Neonatal.

RESUMEN | El objetivo de este estudio fue analizar el motivo de preocupación por los recién nacidos a término ingresados en una unidad de cuidados intensivos neonatal. Se trata de un estudio documental, descriptivo y retrospectivo, realizado con 262 recién nacidos (RN) a término. Las variables utilizadas fueron: características de los RN; diagnóstico principal, tiempo de estancia y seguimiento por el equipo multidisciplinar; y derivación posterior al alta. Hubo predominio del sexo masculino (52%), Apgar 9 al 5º minuto y raza/color blanca del RN y de la madre (61,1% y 48,9%, respectivamente). El principal diagnóstico fue disfunción respiratoria (28,8%), y la estancia hospitalaria fue de ocho días. Hubo una diferencia significativa entre el tiempo de estancia (p=0,013), en que las enfermedades cardiorrespiratorias y otras enfermedades resultaron en una menor estancia hospitalaria con relación a malformaciones o enfermedades maternas. El trabajo social fue el más buscado para el seguimiento (81,2%), y la fisioterapia, el menos buscado (18%). Los RN con mayor peso tuvieron una menor estancia hospitalaria, y aquellos que recibían seguimiento de fisioterapia tuvieron mayor tiempo de estancia (p<0,001). El principal desenlace fue el alta hospitalaria (68,7%) y las derivaciones a la Unidad Básica de Salud (57%). Los hallazgos de este estudio apuntan a la presencia de recién nacidos menos graves, un bajo número de estudios específicos para la población a término y otros diagnósticos que nos remiten a cuidados no intensivos.
Palabras clave | Nacimiento a Término; Unidades de Cuidado Intensivo Neonatal.

INTRODUCTION

Birth—the transition from fetal to extrauterine life—is a remarkable process in the life of women and those involved at this moment[1]. During birth, however, complications may occur that would lead the newborn to be taken to a neonatal intensive care unit (NICU). Newborns hospitalized in the NICU are characterized as being at risk, especially those that have special comorbidities and are thus requiring greater care[2].

The risks of hospitalization in the NICU are classified into three categories: usual, intermediate, and high-risk. A high-risk newborn is when the newborn presents risk factors such as: prematurity (birth before 37 weeks of gestational age—GA), low birth weight (less than or equal to 2,000 grams), severe asphyxia (a 5-minute Apgar score less than seven), severe malnutrition, inadequate intrauterine growth and/or development, vertical transmitted diseases, and neonatal positive screening[3]. In addition to the aforementioned factors, the Brazilian Ministry of Health (MH) also considers as high-risk newborns those from a family of low socioeconomic status, families with a history of child death under 5 years of age, children explicitly rejected, or those infants born from an adolescent mother (aged under 20 years) with low schooling level (less than eight years of schooling)[4].

There are several studies on neonatal morbidity and mortality rates of at-risk infants, especially of preterm newborns[5]. This fact may be explained due to the growing number of premature childbirths; thus, increasing the risks of neuromotor, cognitive, and language deficits, among others, in this population. When performing a search on PubMed for papers published in the last five years using the words "preterm newborns" and "neonatal intensive care unit," approximately 3,823 studies were found. When seeking "full-term newborns" and "neonatal intensive care unit," only 246 were found. That is, there are almost four times fewer studies investigating full-term babies in NICU[6], and it is not because they are hospitalized in smaller numbers.

About 40% of all admissions to Hospitals in Australia are filled by full-term newborns[7]. These hospitalizations are linked to respiratory comorbidities of newborns and the need for observation after neonatal resuscitation, iatrogenesis, cesarean delivery, high incidence of labor induction, and the mother's diseases, such as gestational diabetes and hypertension. In Brazil, there is also a high number of full-term newborns who are admitted to the NICU with adequate birth weight and from an uneventful pregnancy, suggesting that these are avoidable hospitalizations[8].

In a previous study on the profile of newborns hospitalized in the NICU, an expressive number of full-term newborns was found, which is surprising, since it was expected to find a higher number of premature newborns. Thus, the following questions were raised: (1) What is the incidence of hospitalization in the NICU of full-term newborns in the hospital where we [the authors] work? (2)

What are the characteristics of these newborns? (3) What makes full-term newborns to remain in the NICU? (4) Why should we care about full-term newborns in the NICU? (5) How high-risk are the newborns admitted to this unit? And (6) How often is physical therapy requested during the hospitalization of these full-term newborns? Thus, this study analyzes the hospitalization of full-term newborns in a neonatal intensive care unit. We understand that each hospital has its history of hospitalization of full-term newborns and that our results may not represent the history of most hospitals; our intention, however, is to draw the attention of health professionals who are part of this scenario and to promote further research on this population.

METHODOLOGY

This is a documentary, descriptive, and retrospective study, with non-probabilistic sample, so that all newborns who met the inclusion criteria participated in the research. This study is part of a project entitled "*Análise do perfil sociodemográfico do bebê de risco em um hospital público de Porto Alegre*," which performed the calculation of the sample size via the WinPEPI software version 11.43. To achieve a 95% confidence level, a 5% margin of error and a population estimate of approximately 600 babies admitted to the NICU, a minimum total of 242 medical records of full-term newborns was necessary.

From January 2019 to May 2020, 479 babies were admitted to the *Hospital Materno Infantil Presidente Vargas* (HMIPV), in Porto Alegre (RS), a reference public hospital in the care of high-risk pregnancy. In this period, 262 full-term newborns (54.6%) and 217 premature newborns (45.4%) were identified.

All newborns born after the 37th gestational weeks who were admitted to the NICU during the stipulated period were included. Newborns were excluded from the study if their medical records: (1) had no record of gestational age; or (2) were not located in the Hospital Information System (SIHO), which identifies the patients and registers the information of their care.

Firstly, the newborns who met the inclusion criteria were selected. To meet this study objectives, newborns were characterized; using three blocks of variables: (1) characteristics: gender, gestational age, newborns weight, type of childbirth, race/skin-color, 1-minute and 5-minute Apgar score, mother's age and race/skin-color, and number of prenatal consultations; (2) what led to the hospitalization of the full-term newborn in the NICU: main diagnosis, length of stay in the NICU, and follow-up by the multidisciplinary team throughout hospitalization, which answers the question of how often physical therapy is requested during the hospitalization of the full-term newborns in the NICU; and (3) post-discharge referrals: main outcomes resulting from hospitalization and main types of post-hospital discharge referrals.

The information was analyzed after being stored in a database by the research team (physical therapy residents). The analyses were performed in the Statistical Package for the Social Sciences (SPSS) software version 21.0, using descriptive and inferential statistics. The quantitative variables were described by mean and standard deviation or median and interquartile range. Categorical variables were described by absolute and relative frequencies. Spearman's correlation test was used to evaluate the association between numerical variables and length of stay in the NICU.

To estimate a possible association, the main diagnoses were organized into six groups: cardiorespiratory, social, neurological, mother's diseases, malformation, and others. For the cardiorespiratory group, the following diagnosis were included: meconium aspiration, heart disease, cyanosis, bronchopulmonary dysplasia, tachypnea, tuberculosis, bronchopneumonia, acute fetal distress, persistent pulmonary hypertension of the newborn, hyaline membrane disease, and bradycardia. For the social group: low socioeconomic status and exposure to psychoactive and chemical substances. In the neurological group: asphyxia, convulsion, hydrocephalus, anencephaly, encephalocele, microcephaly, meningomyelocele, tremors, investigation of skull fracture, ventriculomegaly, brain malformation, acrania, and agenesis of the callous body. In the mother's disease group: exposure to herpes, syphilis, intrauterine growth restriction, eclampsia, congenital cytomegalovirus, oligohydramnios, exposure to human immunodeficiency virus (HIV), isoimmunization, and placenta praevia. For malformation: fistula, ambiguous genitalia, congenital adrenal hyperplasia, malformation, omphalitis, thoracic hemangioma, gastrointestinal hemorrhage, diaphragmatic hernia, cleft lip, intestinal obstruction, umbilical hernia, osteogenesis imperfecta, ureterocele, micrognathia, and gastroschisis. Among other factors, the following stand out: genetic syndromes, low weight, hypoglycemia, hypothyroidism, jaundice, sepsis, tocotrauma, small for gestational age, urinary infection, fetal anemia, and hyperthermia.

In the comparison of medians, the Mann-Whitney and Kruskal-Wallis tests were applied in conjunction with Dunn's. A 5% significance level was adopted ($p<0.05$).

RESULTS

A total of 262 full-term newborns from the NICU were analyzed. Most newborns who remained in the NICU were boys (52%); white (61.1%); gestational age of 39.1±1.3 weeks (mean±SD); birth weight of 3,191±539 grams; vaginal childbirth (55.3%); the 5-minute Apgar score presented a median (P25-P75) of nine (8–9); mean ± SD of maternal age was of 30.1±12.8 years; 48.9% of the mothers were white; and median number of consultations (P25-P75) of 7 (4–11).

Table 1 shows the reasons why full-term newborns were admitted to the NICU: respiratory dysfunction predominated as the main diagnosis, followed by jaundice and exposure to psychoactive substance/exposure to chemical substance (EPS/ECS) during pregnancy. The following diagnoses were not included in the table since they were found in a smaller amount: low weight, convulsion, and tachypnea (adding up to three newborns each); meconium aspiration, maternal exposure to herpes and syphilis (two newborns each); ambiguous genitalia, congenital adrenal hyperplasia, hypothyroidism, omphalitis, fall, tuberculosis, tocotrauma, intestinal obstruction, bradycardia, gastroschisis, skull fracture investigation, and genetic syndrome (one newborn each). Generally, newborns with mild severity are hospitalized in intermediate units, but all aforementioned cases were hospitalized in the NICU.

The median length of stay of the newborns in the NICU was eight days. Figure 1 shows the length of stay according to the main diagnostic clusters. We found a statistically significant difference between the length of stay for different diagnoses (p=0.013); patients with cardiorespiratory diseases, or other diseases, had significantly shorter length of stay than those with malformation or who were hospitalized for problems related to the mother's diseases.

The number of newborns with low socioeconomic status, in which the family cannot keep the newborn healthy or is unable to receive they at home after discharge is surprising[9]. Thus, social services were the most used nucleus (81.2%), whereas physical therapy was the least (18%).

We found a statistically significant, although weak, inverse association (r=–0.136 and p=0.028) between birth weight and length of hospital stay; newborns with greater weight were hospitalized for less time (Table 2).

The length of stay was not significantly associated with the type of childbirth (p=0.454). Table 3 shows that newborns that underwent early stimulation and physical therapy had significantly higher length of stay in the NICU than other follow-ups (p<0.001). There was no statistically significant association between physical therapy and diagnoses (p=0.788).

The main outcome resulting from hospitalization was hospital discharge, and the main type of post-hospital discharge referral was non-specialized to a Basic Health Unit (BHU) (Table 4).

Table 1. Main diagnosis, permanence of full-term newborns, and multidisciplinary follow-up in the neonatal intensive care unit

Characteristic	n=262
Main diagnosis - n (%)	
Respiratory dysfunction	76 (28.8)
Jaundice	32 (12.1)
EPS/ECS	29 (11.0)
Sepsis	23 (8.7)
Low SES	22 (8.3)
Hypoglycemia	10 (3.8)
Asphyxia	9 (3.4)
Non-brain malformation	9 (3.4)
Brain malformation	8 (3.0)
Cyanosis	7 (2.7)
Tachypnea	5 (1.9)
Length of stay in the NICU (days) - median (P25-P75)	8 (3-12)
Follow-up by MT during hospitalization (n=250; 95.4%) - n (%)	
Social services	203 (81.2)
Speech therapy	193 (77.2)
Psychology	188 (75.2)
Nutrition	168 (67.2)
Early stimulation	25 (10.0)
Physical therapy	18 (7.2)

NICU: neonatal intensive care unit; EPS/ECS: exposure to psychoactive substance/exposure to chemical substance; low SES: low socioeconomic status, conditions in which the family cannot keep the baby; MT: multidisciplinary team.

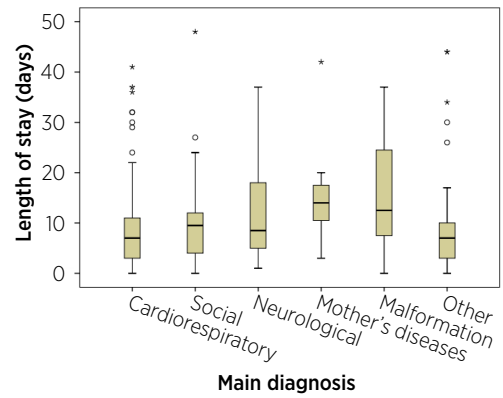

Figure 1. Length of stay according to main diagnostic clusters

The line within the box represents the median; the lower and upper bounds of the box represent the 25% and 75%, respectively. The lower and upper error bars represent the minimum and maximum values expected, the circles and asterisks represent the extreme values of the sample.

Table 2. Association between length of stay, weight, gestational age, and Apgar

Characteristic	Length of stay	
	Spearman's correlation coefficient	p
Weight	−0.136	0.028
GA	−0.013	0.837
Apgar		
1st minute	−0.097	0.119
5th minute	−0.026	0.674

GA: Gestational age

Table 3. Length of stay according to type of follow-up by multidisciplinary team throughout hospitalization

Follow-up	Length of stay median (P25-P75)
Social services	9 (5-12)
Speech therapy	9 (4-12)
Psychology	9 (5-12)
Nutrition	9 (5-14)
Early stimulation	15 (8-33)
Physical therapy	30 (20-39)

Table 4. Outcomes and post-discharge referrals

Outcomes and post-discharge referrals	n=262
Outcomes - n (%)	
Hospital discharge	180 (68.7)
Transfer to other hospitals	26 (9.9)
Joint accommodation	24 (9.2)
Death	8 (3.1)
Institutional admission	6 (2.3)
Transfer Ped	4 (1.5)
Transfer PED ICU	2 (0.8)
Not informed	12 (4.6)
Post-discharge referrals (n=214; 81.7%) - n (%)	
Specialized - n (%)	
OPC admissions*	30 (14.0)
OPC Speech therapy	28 (13.1)
Public Prosecution system	22 (10.3)
OPC ped	14 (6.5)
OPC surgery	9 (4.2)
Child protective services	8 (3.7)
OPC Physical therapy	6 (2.8)
Neurologist	5 (2.3)
Cardiologist	5 (2.3)
Early stimulation	5 (2.3)
Non-specialized - n (%)	
BHU	122 (57.0)
Joint accommodation	15 (7.0)

ICU: intensive care unit; ped: pediatric; OPC: outpatient clinic; BHU: Basic Health Unit; *medical service only.

DISCUSSION

This study investigates why we should be concerned about hospitalized full-term newborns in a NICU. The incidence of hospitalization of full-term newborns is higher than of preterm, and yet most studies focus on the latter. Our findings may contribute to future decision-making in several fields, such as hospital management.

The sample revealed a prevalence of male newborns, justified by the higher probability of these babies having a slower maturation during fetal growth compared to females[10]. Regarding the declaration of race/skin-color of the newborn and mother, the most predominant was white, in accordance with the characteristic of the population of the state of Rio Grande do Sul, since it is a region of the country with a history of European colonization[11]. At national level, 32% of the newborns hospitalized in São Paulo were white; 7.2% in Rio de Janeiro; 2.7% in Pernambuco; and 1.6% in Bahia[12,13].

The perinatal data showed that vaginal childbirth was the predominant type, although the cesarean section was quite expressive. The World Health Organization (WHO) recommends that cesarean section be practiced in only 15% of births[14]. Thus, actions should be implemented to stimulate the more frequent practice of natural childbirths[4]. The Apgar median presented normal rates (7 to 10 points), which indicates the presence of newborns with milder conditions, outside the high-risk category, since the Apgar index is a predictor of the level of care that will be offered to the newborn in their first minutes of life[5].

The mean age of the mothers was 26.4 (SD±7.1) years. This data corroborates the literature, which indicates that most mothers of preterm or full-term newborns are aged from 20 to 35 years[5]. Regarding prenatal care, which is a key component of women's health care during pregnancy, the results showed an average of seven consultations, corroborating the findings of Santos et al.[15], which obtained similar results. The Brazilian Ministry of Health (MH) and the Program for Humanization of Prenatal and Childbirth (*Programa de Humanização no Pré-natal e* Nascimento – PHPN) recommend at least six prenatal follow-up consultations, preferably one in the first trimester of pregnancy, two in the second, and three in the third[16,17]. In line with the MH, most puerperal women in our study started prenatal care in the appropriate period and performed more than seven consultations.

As for the reasons why full-term babies were hospitalized, our findings indicate that respiratory

dysfunction is the most prevalent, followed by jaundice and hospitalization by EPS/ECS. Respiratory dysfunction can be caused by different pathologies or even by the need for rapid adaptation of the newborn to the extrauterine environment[12].

Corroborating the aforementioned outcomes, some studies[7,18,19] reported that half the newborns hospitalized in the NICU are full-term newborns who require mechanical ventilation (MV) care due to respiratory reasons, population that are usually avoided in studies[19]. Chowdhury and Greenough[19] sought, in their study, weaning and MV protocols for full-term newborns, and they emphasized that most reports focus on the population of premature infants.

Despite being full-term newborns, the low weight of the sample was associated with longer hospitalization time, and weight gain was a prerequisite for discharge[20]. Rohininath et al.[21], in a study on admissions of infants weighing more than 2,500g in the NICU, found that the percentage of full-term newborns was 54% of all admissions to the NICU, and out of these, 12.8% did not require high-level care, and were considered potentially avoidable hospitalizations.

However, when associating the length of stay of full-term newborns with the causes of hospitalization, respiratory and other diagnoses lead to a shorter hospital stay; maternal diseases and malformation lead to longer hospital stay. Malformation requires surgical correction procedures, requiring more time. This raises the question of whether newborns with respiratory problems need intensive, intermediate, or semi-intensive care, corroborating Alkiaat et al.[7], who raised the same question.

Other diagnoses that refer to non-intensive care would be neonatal jaundice, EPS/ESC, low SES, and hypoglycemia-highly prevalent in our sample-which could be assisted in intermediate units. We cannot confirm if these newborns were high or intermediate risk; we can assure, however, that they require less technologies and more evaluations/observations of their long-term development. An intermediate unit could generate less cost to the hospital[7].

For example, newborns that required hospitalization due to EPS/ECS or who were of low SES (who do not leave with the biological mother) ratify the degree of vulnerability of the attended population, explaining the frequent follow-ups performed by the social service with the mother and newborn. This may be related to social reception and the tracking of emerging demands among all puerperal women who have hospitalized newborns in the NICU; the social services team do not require medical prescription to act. Moreover, the social services are responsible for evaluating the social conditions of the families and/or support network, as established in the Statute of the Child and Adolescent in Article 12[22].

This study brought an alarming outcome: only 7% of the NICU's full-term newborns were assisted by the physical therapy team, revealing the need for screening all specialties to ensure an adequate flow of care for these neonates. This data, however, may be a specific characteristic of the hospital where the research was conducted. The insertion of physical therapists in the Brazilian NICU is based on the current legislation[23] and a more detailed study should be carried out to verify why these professionals are rarely requested. We found that infants who are hospitalized for longer periods are those who need physical therapy the most. In the studied hospital, physical therapy requires medical prescription and the length of stay is usually short, therefore it probably influences the few demands for this physical therapists.

Post-discharge referrals to the BHU predominated. In this modality of care, the presence of the team-family-community trifecta is very important in favor of a follow-up that involves actions of prevention, cure, rehabilitation, and promotion of children's health in Primary Health Care[24].

Referrals to specialized services were few and to different specialties. For newborns who received care in the NICU, a multidisciplinary follow-up service is suggested as an excellent tool in monitoring and evaluating the development of newborns. The program is a systematized longitudinal follow-up that should be formed by multidisciplinary teams responsible for monitoring the baby at-risk, assisting in the identification and prevention of diseases[4]. Many of these follow-ups are directed only to premature newborns.

Thus, we corroborated Alkiaat et al.[7], who found that 90% of newborns admitted to the NICU did not require intensive treatment. They suggest that possible changes in protocols and care in hospitalization may result in a decrease in the admission rates of full-term newborns in the NICU, as well as in the organization of a semi-intensive site for the infant to be hospitalized with their mother, reducing the costs of intensive treatment and strengthening the mother-infant bond. The hospitalization of full-term newborns in the NICU causes surprise for the whole family, who usually are unprepared. However, as Rohininath et al. report.[21], hospitalization such as these can be avoided, especially in cases of secondary diseases related to maternal diseases and social reasons.

So why should we worry about full-term babies in the NICU? Based on the literature, we thought of five plausible answers for this question: (1) Because there are many full-term infants hospitalized in the NICU that could be directed to an intermediate unit, for example those with ventilatory dysfunction without the use of MV, with jaundice, exposed to the psychoactive/chemical substance, hospitalized due to low SES, with hypoglycemia, among others. (2) Show managers what can be modified, that is, what hospitalization diagnoses might be appropriate for a semi-intensive care, as previously discussed. (3) Infants who are not required to stay in the NICU may cost public/private coffers less, while also prevent them from being removed from the presence of the family. (4) In cases of newborns with low SES, social projects could be conducted within the hospital for a probable home after discharge (biological family, foster home, or shelters). (5) Increase the number of investigations related to full-term newborns, since premature population has four times more research dedicated to them than full-term newborns.

This study has raised great questions for future research. Some limitations, however, should be considered, such as the difficulty in obtaining information from the analyzed medical records– they did not contain relevant data on sociodemographic, social, and maternal characteristics (especially gestational characteristics, such as previous hospitalization, main complications, and infections, which could justify the diagnoses of hospitalization of newborns) and paternal ones. Moreover, materials from previous years could not be analyzed due to the recent computerization of the system and the lack of specialized people to update the registrations in order to facilitate a more reliable mapping. The data collected here refer to the *HMIPV*, implying a limitation of external validity, although representing an important contribution to the improvement of similar services.

CONCLUSION

Our study proposed a further investigation on the population of full-term newborns hospitalized in the NICU. The results indicate that they need less of this unit than what is used in practice. The most surprising characteristics is that the sample presented a good 5-minute Apgar score, which predicts an initially lower level of assistance. Mothers are being able to perform prenatal care as recommended by the MH. A vulnerable population was also observed, with social service being the nucleus that most performed follow-ups. Ventilatory dysfunction was the most common diagnosis found in full-term newborns and length of stay in the NICU was short. Future studies should adopt a better evaluation for several main diagnoses that could lead to hospitalization in an intermediate ICU, for example, for cases of jaundice and low SES. The physical therapist is the least called professional to monitor the full-term newborns in the NICU; while, on the other hand, they are the one who stays longer with the newborns that require long-term hospitalization. Referral to non-specialized services, specifically the BHU, was the most significant type of referral. Further research with this population is necessary, considering that the hospitalizations are mostly avoidable, to see their hospitalization from a new perspective, prioritizing the greater interaction of the baby with their family in a semi-intensive care.

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