





Physiotherapist on the move: where babies at risk are referred for follow-up after hospital discharge

Fisioterapeuta em movimento: para onde os bebês de risco são encaminhados para acompanhamento após a alta hospitalar

Alexandra Quines Mendelski ¹
Taís Queiroz Campos Lucas ¹
Carla Skilhan de Almeida ²
Laís Rodrigues Gerzson ^{2*}

¹ Hospital Materno Infantil Presidente Vargas (HMIPV), Porto Alegre, RS, Brazil

² Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, RS, Brazil

Date of first submission: January 12, 2022

Last received: June 20, 2022

Accepted: August 3, 2022

Associate editor: Clynton Lourenço Correa

* **Correspondence:** gerzson.lais@yahoo.com.br

Abstract

Introduction: Two facts may influence a newborn's development. One is to be a newborn at risk and the other is to be hospitalized in Intensive Care Unit. **Objective:** To examine where at-risk infants are being referred for longitudinal follow-up after hospital discharge, and to carry out an analysis of the epidemiological and care profile of these babies. **Methods:** Documentary, descriptive and retrospective study, comprising the medical records of 479 newborns (NBs) hospitalized Hospital Materno Infantil Presidente Vargas from January 2019 to May 2020. The variables studied were: gender, baby's race/color, type of delivery, prenatal consultations, classification according to gestational age, weight, Apgar of the 1st, 5th, 10th minute, hospitalization diagnosis, main diagnosis, outcomes, length of stay, multidisciplinary follow-up during hospitalization, post-discharge referrals (specialized and non-specialized). Social and environmental data were: maternal age and race/color, maternal and paternal education. **Results:** Higher prevalence of full-term male babies born by cesarean delivery, declared as white, with high Apgar scores, with varied diagnoses, with prematurity prevailing. Maternal mean was 26.2 years, (SD \pm 7.3), the most reported race/color was also white, the mean of mothers' studies was 8.1 years (SD \pm 2.4). Only 14% (n = 67) performed motor physical therapy at the hospital and 2.1% (n = 10) were referred for evaluation and early intervention for post-discharge physical therapy. The specialized service with the highest referral was the hospital's neuropediatrics graduates' outpatient clinic (17.3%, n = 83) and, for the non-specialized, it was the Basic Health Unit/BHU (39.7%, n = 190). **Conclusion:** Most NBs are referred to the specific medical team or post-discharge BHU. The physiotherapist was the professional little remembered for monitoring this public in the hospital and after discharge.

Keywords: Health indicators. Health profile. Neonatal Intensive Care Units. Newborn.

Resumo

Introdução: Dois fatos podem influenciar o desenvolvimento do recém-nascido. Um é ser um recém-nascido de risco e o outro é ser internado em Unidade de Terapia Intensiva.

Objetivo: Examinar para onde os bebês de risco estão sendo encaminhados para acompanhamento longitudinal após a alta hospitalar e realizar uma análise do perfil epidemiológico e assistencial desses bebês. **Métodos:** Estudo documental, descritivo e retrospectivo, composto pelos prontuários de 479 recém-nascidos (RNs) internados no Hospital Materno Infantil Presidente Vargas no período de janeiro de 2019 a maio de 2020. As variáveis estudadas foram: sexo, raça/cor do bebê, tipo de parto, consultas de pré-natal, classificação de acordo com a idade gestacional idade, peso, Apgar do 1º, 5º, 10º minuto, diagnóstico de internação, diagnóstico principal, desfechos, tempo de internação, acompanhamento multidisciplinar durante a internação, encaminhamentos pós-alta (especializados e não especializados). Os dados socioambientais foram: idade materna e raça/cor, escolaridade materna e paterna. **Resultados:** Maior prevalência de bebês a termo do sexo masculino, nascidos de parto cesáreo, declarados como brancos, com escores de Apgar elevados, com diagnósticos variados, prevalecendo a prematuridade. A média materna foi de 26,2 anos ($DP \pm 7,3$), a raça/cor mais relatada foi branca, a média de estudos das mães foi de 8,1 anos ($DP \pm 2,4$). Apenas 14% ($n = 67$) realizaram fisioterapia motora no hospital e 2,1% ($n = 10$) foram encaminhados para avaliação e intervenção precoce para fisioterapia pós-alta. O serviço especializado de maior referência foi o ambulatório de egressos de neuropediatria do hospital (17,3%, $n = 83$) e, para os não especializados, foi a Unidade Básica de Saúde/UBS (39,7%, $n = 190$). **Conclusão:** A maioria dos RNs são encaminhados para equipe médica específica ou UBS pós-alta. O fisioterapeuta foi o profissional pouco lembrado pelo acompanhamento desse público no hospital e após a alta.

Palavras-chave: Indicadores de saúde. Perfil de saúde. Unidades de Terapia Intensiva Neonatal. Recém-nascido.

Introduction

The first days of extrauterine life (neonatal period) take place at a time of great vulnerability, decisive for the baby's importance. The Neonatal Intensive Care Unit (NICU) is the service designed and organized to receive newborns (NBs) with chances of future complications

or death.¹ Babies at risk due to biological factors (intrinsic and related to pre-and postnatal events) are considered: low birth weight, prematurity, brain damage during childbirth, severe bacterial infection, jaundice and/or congenital conditions, mechanical norms and prenatal exposure to maternal infections, alcohol and drugs; and social and environmental factors (extrinsic): adolescent mother (< 18 years old), a mother with low education (< eight years of schooling), social vulnerability and behavioral state anomalies.² Regarding the hospitalization of this public, the National Register of Health Establishments states that Brazil has 9,037 NICU beds (public and private).³ The Brazilian Society of Pediatrics states that at least 2,657 beds are lacking so that hospital care is within the ideal.⁴

However, these NB need care beyond hospitalization. For this, there are post-discharge follow-up services, known as Follow-up or Follow-up Programs,⁵ where a multidisciplinary team can identify early changes in the baby's growth and development, supporting the family and intervening whenever necessary.⁵ This type of program, to be successful, must start during the hospital stay. The team has a complete multidisciplinary work, with doctors from different specialties, physiotherapists, speech therapists, social workers, psychologists, nutritionists, educators, occupational therapists, among others.⁶

It is important to highlight that the NB's initial care has to do with protecting their brain, among other precautions. The central nervous system (CNS) may change its maturational process, involving different short, medium, and long-term disorders. Premature or late delivery, specific genetic and peripartum conditions can interrupt or modify the natural formation of the CNS, leading to changes in motor and social development, making them more evident over the months.⁵ Later, motor, language, behavioral and cognitive problems may appear. The physiotherapist must be one of the professionals working in this initial phase of life promotion and early intervention (EI) of the NB.

As shown in the title of this manuscript, "Physiotherapist on the move" dictates the theme of the study, based on the concern of physiotherapists in the hospital area, realizing that many NBs at risk were not referred to follow-up service and EI after hospital discharge. The first problem raised was: where is this population being sent after hospital discharge? And the second: Is the physiotherapist included in this referral?

It is known that childcare exists in primary health care (PHC) to monitor newborns. The basic work team is the pediatrician and the nurse. However, the NB at risk needs something more, a deeper look at their development. Thus, the main objective of this study was to examine where at-risk infants were being referred for longitudinal follow-up after hospital discharge. It was also necessary to carry out an analysis of the epidemiological and care profile of these babies

Methods

Design and participants

A documentary, descriptive and retrospective study was developed. Sample size calculation was performed using WinPEPI version 11.43 software. For a confidence level of 95%, a margin of error of 5%, and a population estimate of approximately 600 babies per year in the NICU of the Hospital Materno Infantil Presidente Vargas (HMIPV), a minimum total of 242 records was obtained. Data were collected from January 2019 to May 2020, and the sample consisted of patients hospitalized in the NICU of the HMIPV, in Porto Alegre, RS, Brazil, a reference in public care for high-risk pregnancy. All NBs admitted to the NICU within the stipulated period were included in the study. Those who were not located in the Hospital Information System, which contains the entire hospitalization record, were excluded from the research.

Assessment procedures and instrument

The instrument for data collection were consultations to the Hospital Information System and electronic records of babies from the NICU. The collection procedure took place after authorization from the institution and from secondary data in medical records of NBs who met the inclusion criteria (all the newborns that were hospitalized at the NICU of HMIPV, between may 2018 and may 2020), totaling a sample of 479 records. The variables studied were: gender, baby's race/color, type of delivery, prenatal consultations, classification according to gestational age, weight, Apgar score of the 1st, 5th, 10th minute. Social and environmental data were: maternal age and race/color, maternal and paternal education. The hospitalization diagnosis, main diagnosis, outcomes, length of stay, the multidisciplinary team

that accompanied him during hospitalization and post-discharge referrals (specialized and non-specialized) were also analyzed. All records made in the medical record of where the NB were taken after discharge were compiled. For this, specialized services were considered (outpatient clinic - neuropsychiatry, pediatrics outpatient clinic, other medical specialties, speech therapy, physiotherapy - EI, psychosocial care network, public prosecution service, guardianship council) and non-specialized (joint accommodation, inter-referrals) hospitals, Basic Health Unit (BHU)/Family Health Team (FHT).

Afterward, the team of collectors, composed of physical therapist residents, stored the information in a database and, finally, they were statistically analyzed. The study was submitted and approved by the Research Ethics Committee of the HMIPV, with the opinion number 3.984.410 (CAAE: 29836920.1.0000.5329).

Statistical analysis

Analyzes were performed using Statistical Package for Social Sciences (SPSS) version 21.0 and analyzed using simple descriptive statistics. Quantitative variables were described as mean and standard deviation or median and interquartile range. Categorical variables were described by absolute and relative frequencies. Due to the descriptive character of the study, statistical tests were not performed.

Results

To answer our research problem of where at-risk babies are being referred for follow-up after hospital discharge from the NICU of the service in question and whether the physiotherapist is included in this referral, 479 medical records were analyzed. First, it was necessary to know these babies and then to verify these referrals, recorded in the medical record. The sample calculation was 242 records; however, the study included 479 medical records for analysis.

Regarding the NBs analyzed, it was identified that 249 (52.0%) were male. In the birth registration, the most reported race/color was white, totaling 318 (66.4%), followed by brown with 58 (11.7%), black ($n = 56$; 11.7%), indigenous ($n = 6$; 1.3 %), yellow ($n = 3$; 0.6%), and this data was not informed in 35 (7.9%) of them. The most prevalent mode of delivery was cesarean, which

corresponded to 248 (51.8%). The median number of prenatal consultations was six (3-9). Data regarding the gestational age, weight and Apgar ratings of the 1st, 5th, and 10th minutes are presented in Table 1.

Still in sociodemographic characteristics, regarding social data, the mean maternal age was 26.2 years (SD \pm 7.3), with a minimum value of 13 years and a maximum of 45 years. The most-reported maternal race/color was white with 265 (55.3%) of the cases, black with 42 (8.8%), brown with 30 (6.3%), yellow with 16 (3.3%), and indigenous with 3 (0.6%). The race/color data was not found in 123 (25.7%) cases. Maternal education was possible to be located in only 44 (9.2%) of the records, which showed an average of 8.1 years (SD \pm 2.4). On the other hand, data on paternal education were even scarcer, being reported in only 15 (3.1%), with an average of 9.1 years (SD \pm 2.8).

Table 1 - Characterization of the sample (n = 479)

Variables*	n (%)
Classification by gestational age	
Extreme premature (< 28 weeks)	11 (2.3)
Very premature (20 to 32 weeks)	36 (7.5)
Moderate premature (32 to 34 weeks)	59 (12.3)
Late premature (34 to < 37 weeks)	100 (20.9)
Term (\geq 37 weeks)	270 (56.4)
Not informed	3 (0.6)
Classification by weight	
Extreme low	16 (3.3)
Very low weight	34 (7.1)
Low weight	145 (30.3)
Proper weight	263 (54.9)
Macrosomy	21 (4.4)
Apgar*	
1st minute	8 (6 - 8)
5th minute	9 (8 - 9)
10th minute	7 (6 - 8)

Note: *median (minimum - maximum).

In Table 2, the main diagnoses that lead the NB to hospitalization (hospitalization diagnosis) were presented, different from the main diagnosis, which characterizes their need for greater care and assistance, the outcome of the cases of babies hospitalized in the NICU, and the length of stay of the same in the unit.

Table 2 - Characterization of the sample (n = 479) regarding the most frequent diagnoses and outcomes

Variables	n (%)
Hospitalization diagnostics	
Prematurity	112 (23.4)
Early respiratory dysfunction	96 (20.0)
Jaundice	41 (8.6)
Exposure to psychoactive substances	38 (7.9)
Sepsis	23 (4.8)
Others*	146 (30.4)
Main diagnostics	
Prematurity	147 (30.7)
Early respiratory dysfunction	62 (12.9)
Jaundice	36 (7.5)
Exposure to psychoactive substances	27 (5.6)
Sepsis	23 (4.8)
Others**	207 (43.3)
Outcomes	
Hospital discharge	319 (66.6)
Institutional care	10 (2.1)
External transfer	42 (8.6)
Internal transfer	20 (4.2)
Rooming-in	137 (7.7)
Death	22 (4.6)
Not informed	29 (6.1)
Length of stay***	10.5 (05 - 22)

Note: *Hypoglycemia (n = 19; 4.8%), social low (n = 17; 4.3%). **Malformation (n = 14; 2.8%), craniofacial malformations (n = 13; 2.6%), hypoglycemia (n = 13; 2.6%). ***Median (minimum - maximum).

Based on the above data and compared to the requirements for considering an infant at risk, 206 preterm would be considered as such in total and 195 for being underweight (calculation done in Table 1, considering all preterm and low birth weight), 62 with respiratory dysfunction, 36 with jaundice, 27 with maternal exposure to drug use, and 23 with low social status (data referring to Table 2). It is understood that most subjects would need specialized monitoring.

The different specialties of the multidisciplinary team that makes up the framework of multidisciplinary residency and NICU care are shown in Table 3. Likewise, the profile of post-discharge referrals (specialized and non-specialized), that is, for which specialties the patients are intended for outpatient care. There were 279

babies referred to some specialized service (which could overlap) and 228 babies to non-specialized services (without overlapping).

What was evident to the authors is that only 14% babies (n = 67) performed motor physiotherapy at the hospital and, even more intriguing, is that only 2.1% babies (n = 10) were referred for evaluation, EI and for the physiotherapy after hospital discharge. Was not consider not even for a possible multidisciplinary team where the physiotherapist was included. The referral is carried out by the medical team. Speech therapy, which is a professional core very similar to physiotherapy and

as important as EI, was followed by 76% at the hospital (n = 367) and 9% (n = 43) after discharge; 17.3% were referred to the outpatient clinic for neuropsychiatric graduates at the hospital (n = 83), which is significant; however, this clinic is just for medical members (physiologist), without a physiotherapist's participation in EI. Most babies were referred to the BHU (39.7%; n = 190), that is, a non-specialized service, also without considering a medical report of a physiotherapist in the assessment and EI. There is no single Ministry of Health (MH) protocol for this direction, only a recommendation for referral to a multidisciplinary team.⁷

Table 3 - Characterization of the sample regarding multidisciplinary follow-up and post-discharge referrals

Variables	Yes n (%)	No n (%)
Multiprofessional monitoring at the hospital		
Physiotherapy	67 (14.0)	412 (86.0)
Speech therapy	367 (76.0)	112 (23.4)
Psychology	369 (77.0)	110 (23.0)
Social service	393 (82.0)	86 (18.0)
Nutrition	341 (71.2)	137 (28.6)
Post-discharge referrals		
Specialized		
Neuropediatrics alumni	83 (17.3)	396 (82.7)
Pediatric ambulance	27 (5.6)	458 (94.4)
Other medical specialties	57 (11.9)	422 (88.1)
Speech therapy	43 (9.0)	436 (91.1)
Physiotherapy (early intervention)	10 (2.1)	469 (97.9)
Support network psychosocial	11 (2.3)	468 (97.7)
Public ministry	33 (6.9)	446 (93.1)
Guardianship council	15 (3.1)	464 (96.8)
Not specialized		
Rooming in	26 (5.4)	459 (94.5)
Inter hospital transfers	12 (2.6)	467 (97.4)
Basic Health Unit	190 (39.7)	289 (60.3)

Discussion

In the reality studied, some findings were found. One of the findings was the prevalence of males, which can be explained by two factors: the higher prevalence of births of children of this gender in the country, according to the Brazilian Institute of Geography and Statistics;⁸ and, in the context analyzed, the pulmonary maturation process in NBs from the male sex is slower, which makes

it more vulnerable to respiratory complications and premature births.⁹ As for the declaration of race/color, there was prevalence in white, both for NBs (66.4%) and for mothers, characteristic of the population in the state of Rio Grande do Sul.¹⁰ At the national level, São Paulo has 32%, Rio de Janeiro with 7.2%, Pernambuco with 2.69%, and Bahia with 1.58% of those born white.^{11,12}

Cesarean section was the most prevalent mode of delivery in this study, corroborating the literature, which indicates that this route is the most common in Brazil.¹³ This mode of delivery is often associated with higher rates of maternal and child morbidity and mortality. World Health Organization recommends the Cesarean in only 15% of births.¹³ Another important fact is the minimum number of prenatal consultations, which should not be less than six consultations;¹⁴ the median in this study was six. One factor to consider is that preterm birth prevents a greater number of consultations from being carried out, as the gestational period is interrupted, which can also influence the low rate of consultations presented.

Regarding weight, there was a prevalence of NBs with adequate weight and Apgar score in the 5th minute scoring better.¹⁵ These findings surprised us because the number of term NBs admitted to the NICU was greater than that of preterms, which reduces the risk of death by twenty times.¹⁶ Another similar study that focused on this term population would be interesting. Usually, studies focus more on preterm.¹⁷

The parents' educational level and maternal age predispose the NB to a condition of vulnerability in their development. In this study, there was little record of education. It is significant data that should be recorded. Higher educational levels favor access to better work opportunities and wages, as well as better income management with regard to child care.¹⁸

As for the different causes that lead to the need for hospitalization of the NB at risk in the NICU, prematurity is presented in different studies as the main diagnosis of hospitalization.^{9,19} In this case, despite the higher prevalence of term babies, it was prematurity that occupied the first position (23% of cases), because the hospitalization diagnoses of term babies are diluted in several other diagnoses such as early respiratory dysfunction, jaundice, exposure to psychoactive substances and sepsis. Early respiratory dysfunction can be considered a symptom of different pathologies, arising at the time of need for immediate adaptation to the extrauterine environment.²⁰

The length of stay in days was shorter than that found in the literature.^{9,20} This can be explained by the fact that the majority of the sample is composed of full-term patients, who are hospitalized for a shorter period of time for specific involvement. Neonatal death during the analyzed period represented 4.6%, with higher prematurity related to neonatal death rates.²⁰

Regarding the referral of the baby after hospital discharge, the focus of this study, the outpatient clinic for graduates in neuropsychiatry/pediatrics predominated as a specialized service, where the team is composed only of physicians (pediatrician, ophthalmologist, neurologist). Any successful Follow-up Program must start during the hospital stay and under the integral look of several professionals to the babies and their family.⁶ At the hospital in question, there is no multidisciplinary hospital discharge protocol, which is important for the future and global development of the baby. As for non-specialized referrals, most were referred to the BHU. These referrals answer the first problem of this study.

In Spain, for example, especially in Catalonia, most babies at risk are monitored at the hospital in follow-up teams and, in necessary cases, are directed to the Child Development and Early Stimulation Centers (CDESC).²¹ These are centers with interdisciplinary characteristics that aim to care for children under the age of six with developmental disorders or at risk of developing them. They support families and treat disorders in motor, communication, language, cognitive, behavioral or emotional development. CDESC are present in almost every city in Catalonia. In the United States,²² since 1975, there have been bills to include EIs for babies under three years old. In 2004 a law was enacted whereby all NBs with any change in development, from birth to three years old, must participate in EI programs, with the family having a series of benefits to assist in the treatment.²² The common way of all of them is that the infant is already evaluated and diagnosed in the NICU stage, which is what the MH advocates in Brazil.⁷ The physiotherapist professional is included in this referral.

The study by Novak et al.²³ carried out six systematic reviews and two evidence-based clinical guidelines on the assessment and EI for infants at risk. Their research shows that a combination of standardized tools should be used to predict and prevent future problems for an NB in conjunction with their clinical histories, such as the use of magnetic resonance images (86% to 89% sensitivity for early detection of cerebral palsy), Prechtl's Qualitative Assessment of General Movements (sensitivity of 98%) and the Child Neurological Examination of Hammersmith (sensitivity of 90%). Professionals working in the NICU must understand the importance of immediate referral to a specific EI to optimize child motor and cognitive plasticity, prevent secondary complications, and improve the caregiver's well-being.

In Brazil, few services meet these requirements. Magnetic resonance is not widely used in neonates, as it is a high-cost and specific service that requires infant sedation. But ultrasound can play this role, which is widely used in our country.²⁴ In Europe, this practice is already routine. Brazil cannot recreate international models. Its base of care after hospital discharge is the direction for PHC, evident in the current study. However, the PHC teams only have the doctor, the nurse, and the nursing technician limited to the care of feeding and growing the baby. Undoubtedly, this observation is essential, but it becomes abbreviated. There should be an organization with a multidisciplinary follow-up team in the PHC, with a global vision of the baby.

A study showed the perception of professionals from PHC teams in the care of this population, especially preterm and with low birth weight.²⁵ The main concern of these professionals was concerning the long interval between appointments, mainly related to the baby's feeding, as it did not meet the needs of guidance to families. Many of them felt unprepared to monitor the baby at risk, needing training through continuing education.¹⁶ MH and SBP⁶ advocate this education. Unfortunately, when there is this multiprofessional monitoring, there is fragile communication between the hospital and the BHU/FHT. Furthermore, they consider a great literary weakness about the participation of PHC in the care of babies at risk in Brazil.²⁵

The physical therapist is attentive to the question of why the small percentage of NBs at risk followed by them in the hospital phase, an answer to the second research problem in this manuscript. Physical therapist was the professional with the lowest rate of visits and referrals in the analyzed period. The physiotherapist has a fundamental role in the care of these NBs, from motor handling with a view to EI, positions, and pulmonary maneuvers.²⁶ The role of this professional should remain even after discharge, for care in PHC, in outpatient clinics, or specialized clinics with the multidisciplinary team, with a focus on encouraging adequate neuropsychomotor development.²⁶ The authors of this manuscript believe that, in their service, physiotherapeutic care is still focused on respiratory physiotherapy and that there is no medical culture for referral to EI unless the baby's neuromotor dysfunction is evident. The family goes where the team refers.²⁷ Therefore, the referral is directed to the physician and there is a lack of communication between the NICU teams.

Maintaining a multiprofessional hospital outpatient clinic undoubtedly generates costs for managers. However, the systematic monitoring of NBs discharged from the NICUs allows these babies to be better assisted in terms of clinical evolution, reducing re-admissions and, therefore, hospital costs. Méio et al.²⁷ suggest organizing a multidisciplinary team in a follow-up clinic for babies at risk by degrees of complexity (Chart 1). Grade 5 would be ideal, with a team composed of several trained professionals. This organization can be done in the medium/long term in order to optimize the resources of each unit, financial and personnel, with the idea of planning for future growth.

Chart 1 - Organization of a multidisciplinary team (trained pediatricians) in an outpatient follow-up clinic for babies at risk by degrees of complexity²⁵

Basic	Grade 1	Nurse/Nursing technician
	Grade 2	Nurse/nursing technician Social worker
Specialized	Grade 3	Nurse/nursing technician Social worker Therapists: speech therapy, physiotherapist, and occupational therapist
	Grade 4	Nurse/Nursing Technician Social worker Therapists: speech therapy, physiotherapist, and occupational therapist Psychologist
Ideal	Grade 5	Nurse/Nursing technician Social worker Therapists: speech therapy, physiotherapist and occupational therapist Psychologist Nutritionist

Every baby at risk, even if accompanied by a follow-up service, must be linked to their reference health unit, making clear the need to strengthen and insert different professional categories in PHC, to provide continued and qualified care.²⁸ If the formation of an ideal outpatient clinic along the lines of developed countries is perhaps not the reality in Brazil at the moment, NICU professionals can communicate better at the time of post-discharge referral and create multidisciplinary discharge protocols for follow-up referral and counter-referral with the attention network.

Some limitations of this study should be considered, such as the lack of information about mothers of extreme age, difficulty in locating the variables studied in the analyzed records, not containing relevant characteristics of the sociodemographic, social, maternal and paternal profile. Older data could not be analyzed either due to the recent computerization of the system and the lack of specific personnel to update the records in the system, which would facilitate the mapping of information. But, based on this study, a multidisciplinary discharge protocol and a follow-up team were organized to receive the NICU graduates, which will be important for future research. Other services can be mobilized for this same movement.

Conclusion

The sociodemographic profile of babies at risk born in this hospital is composed mostly of NBs: male, white, born by cesarean delivery, at term, with a high Apgar score, with the main causes of hospitalization and stay in the NICU being prematurity and early respiratory dysfunction. The few information contained in the medical records of the vulnerability risks of the family and, in the post-discharge period, shows that most of these NBs were guided to primary care or to the specific medical team.

The physiotherapist was a professional little remembered for monitoring this public in the hospital and after discharge, which made physiotherapists in general uncomfortable, and motivate them to understand the reason of it and also act in order to these findings could change. With this study, a multiprofessional discharge protocol and an outpatient follow-up clinic for patients discharged from the NICU were created, being an invitation for future research. Other services can be mobilized for this same movement.

Authors' contribution

AQM and TQCL were responsible for the study organization, application of instruments, and analysis of the collected data. CSA e LRG were responsible for data analysis, writing correction and article submission, analysis of collected data and managing the study.

References

1. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Ações Programáticas Estratégicas. Atenção à saúde do recém-nascido: guia para os profissionais de saúde. Brasília: Ministério da Saúde; 2014. 164 p. [Full text link](#)
2. Formiga CKMR, Silva LP, Linhares MBM. Identification of risk factors in infants participating in a Follow-up program. Rev CEFAC. 2018;20(3):333-41. [DOI](#)
3. CNES - Cadastro Nacional de Estabelecimentos de Saúde [cited 2020 Oct 20]. Available from: <http://cnes.datasus.gov.br/>
4. Sociedade Brasileira de Pediatria. 15,9 mil leitos de internação pediátrica foram fechados no Brasil, nos últimos nove anos [cited 2020 Oct 20]. Available from: <https://tinyurl.com/2dycyyps>
5. Valdivieso MJT, Gómez MCE, Pallás CRM. Programas de seguimiento para neonatos de alto riesgo. In: Protocolos Diagnóstico Terapeúticos de la AEP: Neonatología. Madrid: Asociación Española de Pediatría; 2008. p. 278-84. [Full text link](#)
6. Sociedade Brasileira de Pediatria - SBP. Seguimento ambulatorial do prematuro de risco. São Paulo: SBP; 2012. 76 p. [Full text link](#)
7. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Diretrizes de estimulação precoce: crianças de zero a 3 anos com atraso no desenvolvimento neuropsicomotor. Brasília: Ministério da Saúde; 2016. 184 p. [Full text link](#)
8. Instituto Brasileiro de Geografia e Estatística. Estatísticas do Registro Civil: Tabela 2679 - Nascidos vivos, por ano de nascimento, idade da mãe na ocasião do parto, sexo e lugar do registro [cited 2020 Oct 29]. Available from: <https://sidra.ibge.gov.br/tabela/2679>
9. Damian A, Waterkemper R, Paludo CA. Perfil de neonatos internados em unidade de tratamento intensivo neonatal: estudo transversal. Arq Cienc Saude. 2016;23(2):100-5. [Full text link](#)
10. Instituto Brasileiro de Geografia e Estatística. Censo demográfico: Tabela 3175 - População residente, por cor ou raça, segundo a situação do domicílio, o sexo e a idade [cited 2020 Oct 29]. Available from: <https://tinyurl.com/29vrua9c>

11. Pacheco VC, Silva JC, Mariussi AP, Lima MR, Ribeiro e Silva T. The influences of race/color on unfavorable obstetric and neonatal outcomes. *Saude Debate*. 2018;42(116):125-37. DOI
12. Brasil, Ministério da Saúde. Banco de dados do Sistema Único de Saúde-DATASUS: Nascim p/resid.mãe por Unidade da Federação segundo Região/Unidade da Federação, Cor/raça: Branca, Período: 2019 [cited 2021 Sep 13]. Available from: <https://tinyurl.com/bdf9yaw4>
13. Organização Mundial da Saúde. Declaração da OMS sobre taxas de cesáreas [cited 2020 Oct 29]. Available from: <https://tinyurl.com/3mcrs8m4>
14. Peixoto S. Manual de assistência pré-natal. 2nd ed. São Paulo: FEBRASGO; 2014. 176 p. Full text link
15. Almeida CS, Müller AB, Gerzson LR, Valentini NC. Perfil dos recém-nascidos vivos em hospital universitário de alta complexidade do município de Porto Alegre/RS. *Cad Edu Saude Fis*. 2018;5(10):31-41. DOI
16. Sociedade Brasileira de Pediatria. Carta aos pediatras [cited 2020 Oct 30]. Available from: <https://tinyurl.com/4ubzu34n>
17. Alkiaat A, Hutchinson M, Jacques A, Sharp MJ, Dickinson JE. Evaluation of the frequency and obstetric risk factors associated with term neonatal admissions to special care units. *Aust N Z J Obstet Gynaecol*. 2013;53(3):277-82. DOI
18. Panceri C, Valentini NC, Silveira RC, Smith BA, Procianoy RS. Neonatal adverse outcomes, neonatal birth risks, and socioeconomic status: combined influence on preterm infants' cognitive, language, and motor development in Brazil. *J Child Neurol*. 2020;35(14):989-98. DOI
19. Salvagni K, Gerzson LR, Almeida CS. Avaliação do desenvolvimento motor de recém-nascidos prematuros extremos e moderados em uma unidade de terapia intensiva neonatal. *Rev Ter Ocup Univ*. 2019;30(2):77-85. DOI
20. Rêgo MGS, Vilela MBR, Oliveira CM, Bonfim CV. Perinatal deaths preventable by intervention of the Unified Health System of Brazil. *Rev Gaucha Enferm*. 2018;39:e20170084. DOI
21. Bugié C. Centros de desarrollo infantil y atención temprana. *Rev Neurol*. 2002;34(Suppl 1):S143-8. Full text link
22. McIntyre LL, Kunze M, Barton H, Luehring M. Early intervention for children with intellectual and developmental disabilities. In: Glidden LM, Abbeduto L, McIntyre LLL, Tassé MJ, editors. *APA handbook of intellectual and developmental disabilities: Clinical and educational implications: Prevention, intervention, and treatment*. Washington, DC: American Psychological Association; 2021. p. 3-22.
23. Novak I, Morgan C, Adde L, Blackman J, Boyd RN, Brunstrom-Hernandez J, et al. Early, accurate diagnosis and early intervention in cerebral palsy: advances in diagnosis and treatment. *JAMA Pediatr*. 2017;171(9):897-907. DOI
24. Skiöld B, Hallberg B, Vollmer B, Ådén U, Blennow M, Horsch S. A novel scoring system for term-equivalent-age cranial ultrasound in extremely preterm infants. *Ultrasound Med Biol*. 2019;45(3):786-94. DOI
25. Aires LC, Santos EK, Costa R, Borck M, Custódio ZA. Baby follow-up in primary care: interface with the third stage of the kangaroo method. *Rev Gaucha Enferm*. 2015;36(Spe):224-32. DOI
26. Oliveira AM, Soares GAM, Cardoso TF, Monteiro BS, Peres RT, Santos RS, et al. Benefits of inserting the physical therapist on the profile of low-risk premature infants admitted to an intensive care unit. *FisioterPesqui*. 2019;26(1):51-7. DOI
27. Méio MDBB, Magluta C, Mello RR, Moreira MEL. Análise situacional do atendimento ambulatorial prestado a recém-nascidos egressos das unidades de terapia intensiva neonatais no Estado do Rio de Janeiro. *Cienc Saude Coletiva*. 2005;10(2):299-307. DOI
28. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Ações Programáticas e Estratégicas. Manual do Método Canguru: seguimento compartilhado entre a Atenção Hospitalar e a Atenção Básica. Brasília: Ministério da Saúde; 2015. 274 p. Full text link