



COMPLETION OF THE CHILD HEALTH RECORD BOOK IN EARLY CHILDHOOD

Preenchimento da caderneta de saúde da criança na primeira infância

Relleno de la libreta de salud del niño de primera infancia

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ABSTRACT

Objective: To evaluate the completion of the Child Health Record Book in a capital city in Northern Brazil. **Methods:** A descriptive cross-sectional study was carried out in a pediatric hospital in a capital city in the Northern Region with 420 children under the age of five. Data collection took place from April to October 2017 through interviews with the primary caregiver of the child. Information on the caregiver, the child and access to guidelines on the record book and its completion were collected using a score system. The analysis was performed using descriptive statistics and calculating Prevalence Ratio using Poisson Regression in Stata® version 13. **Results:** Only 25.5% of the Child Health Record Books were satisfactorily completed. Unsatisfactory completion was associated ($p=0.01$) with children whose primary caregiver was not a parent or grandparent, caregivers with less than nine years of study, mothers who had not undergone prenatal care or been followed up by the Unified Health System and caregivers who did not have access to guidelines on the importance of the record book. The highest rate of completion of the record book was related to vaccines received (99.3%, $n=417$) and one of the lowest rates was related to neuro-psychomotor development (18.1%, $n=202$). **Conclusion:** The unsatisfactory completion of the Child Health Record Book shows weaknesses in monitoring the growth and integral development, especially in early childhood.

Descriptors: Child Health; Public Health Surveillance; Growth and Development.

RESUMO

Objetivo: Avaliar o preenchimento da Caderneta de Saúde da Criança em uma capital da Região Norte do Brasil. **Métodos:** Estudo transversal e descritivo, realizado num hospital pediátrico de uma capital na Região Norte, com 420 crianças com idade inferior a cinco anos. A coleta de dados ocorreu no período de abril a outubro de 2017, em entrevista com o cuidador principal da criança, na qual se questionou informações referentes ao cuidador, à criança e orientações recebidas sobre a caderneta,



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Received on: 09/16/2018

Accepted on: 01/28/2019

bem como o seu preenchimento, utilizando-se um sistema de escore. A análise foi realizada por meio de estatística descritiva e cálculo da Razão de Prevalência, por meio de Regressão de Poisson, no software Stata®, versão 13. **Resultados:** Apenas 25,5% (n=111) das Cadernetas de Saúde da Criança tiveram preenchimento satisfatório. O preenchimento não satisfatório esteve associado ($p=0,01$) a casos em que o cuidador principal não era os pais ou avós, o cuidador possuía escolaridade menor que nove anos, a mãe não havia realizado o pré-natal ou o acompanhamento pelo Sistema Único de Saúde, e entre os cuidadores que não receberam orientações sobre a importância da caderneta. O maior índice de preenchimento da caderneta foi referente às vacinas aplicadas (99,3%, n=417), e um dos menores índices foi sobre o desenvolvimento neuropsicomotor (18,1%, n=202). **Conclusão:** O preenchimento insatisfatório da Caderneta de Saúde da Criança mostra as fragilidades no acompanhamento do crescimento e desenvolvimento integral, principalmente na primeira infância.

Descritores: Saúde da Criança; Vigilância em Saúde Pública; Crescimento e Desenvolvimento.

RESUMEN

Objetivo: Evaluar el relleno de la Libreta de Salud del Niño de una capital de la Región Norte de Brasil. **Métodos:** Estudio transversal y descriptivo realizado en hospital pediátrico de una capital de la Región Norte con 420 niños con menos de cinco años de edad. La recogida de datos se dio en el periodo entre abril y octubre de 2017 a través de entrevista con el cuidador principal del niño en la cual se ha preguntado informaciones sobre el cuidador, el niño y las orientaciones que han recibido sobre la libreta así como su relleno, utilizándose un sistema de puntuación. El análisis ha sido realizado por estadística descriptiva y el cálculo de la razón de prevalencia a través de la regresión de Poisson con el software Stata®, la versión 13. **Resultados:** Solamente el 25,5% (n=111) de las Libretas de Salud del Niño presentaron relleno satisfactorio. El relleno no satisfactorio se asoció ($p=0,01$) con los casos en los cuales el cuidador principal no era uno de los padres o abuelos, el cuidador tenía menos de nueve años de escolaridad, la madre no había hecho el prenatal o el seguimiento por el Sistema Único de Salud y entre los cuidadores que no han recibido orientaciones sobre la importancia de la libreta. El mayor índice de relleno de la libreta ha sido sobre las vacunas aplicadas (99,3%, n=417) y uno de los más bajos índices ha sido sobre el desarrollo neuropsicomotor (18,1%, n=202). **Conclusión:** El relleno insatisfactorio de la Libreta de Salud del Niño señala las fragilidades del seguimiento del crecimiento y desarrollo integral, en especial de la primera infancia.

Descriptor: Salud del Niño; Vigilancia en Salud Pública; Crecimiento y Desarrollo.

INTRODUCTION

The assessment of child growth and development is one of the pillars of child health surveillance and it is aimed at reducing child mortality worldwide^(1,2). A strategy implemented in the middle of the last century has become a fundamental axis of child health care for allowing an appropriate and timely assessment to monitor the indicators associated with actions to prevent morbidity and mortality in the first years of life⁽³⁾.

Worldwide, about 5.9 million children under the age of five died from preventable diseases in 2015, and there will be an additional 6.9 million child deaths by 2030⁽⁴⁾. In Brazil, 35,619 children up to five years of age died in 2016; 58% of these died from diseases that could be prevented through the systematic monitoring of maternal and child health⁽⁵⁾. In the last five years, the world's priority has been the so-called "1,000 critical days" of the child's life, i.e., the period consisting of the nine months of fetal life until two years after birth – a period of extreme vulnerability to child survival and development⁽⁶⁾.

In this scenario, the monitoring of growth and development through the Child Health Record Book (*Caderneta de Saúde da Criança* – CSC) is crucial in the prevention of morbidity and mortality⁽⁷⁾ as it allows the early identification of diseases^(8,9). Developed countries exhibit lower rates of child mortality due to the use of mother/child health record books and the connection of both to the country's health services^(1,2). Even in countries with poor health services coverage, the systematic registration of information on the mother/child binomial in record books promoted the acquisition of continuous care from pregnancy until the child's admission to school, with a follow-up rate of 70.2% in the monitored areas⁽¹⁰⁾.

In Brazil, the current CSC is considered a child citizenship passport for allowing recording all information on the child's health care from zero to ten years of age. Its first version, published in 2005, replaced the child's card, which monitored growth and immunization. In the five subsequent editions, the CSC incorporated significant data, such as the monitoring of children with Down syndrome and autism and body mass index and blood pressure graphs^(11,12).

Child development surveillance has been in place for 32 years, but there is a shortage of studies and a widespread lack of information on the CSC, as its filling percentage does not exceed 30.4%⁽³⁾. The causes range from incorrect/

incomplete filling to the absence of assessment of neuropsychomotor development and growth^(13,14). The weakness of CSC records may be related to the lack of professional training⁽¹⁵⁾ or insufficient number of health teams⁽¹⁶⁾. Moreover, parents' unawareness of the importance of the CSC^(17,18) reinforces the little attention paid to its filling by society itself, which is not yet interested in the subject⁽³⁾.

A search carried out on the main electronic databases indexing studies in this area yielded no studies on the CSC completion in the state of Rondônia, thus demonstrating the need to know the reality and use of this tool in child health care. In view of these aspects, the experience in the fields of child care practice, the absence of information in almost all the sections of the CSC and the unawareness of its importance by professionals and caregivers of children, verbalized as a "vaccination record book", this study aimed to evaluate the completion of the Child Health Record Book in a capital city in Northern Brazil.

METHODS

This descriptive cross-sectional study was carried out between April and October 2017 in a pediatric hospital in the city of Porto Velho, Rondônia, Brazil. The hospital is a reference in the Madeira-Mamoré health region, which comprises five municipalities and has an HDI of 0.736 and a population of 519,436 inhabitants, 51,292 of whom are children under five years old, i.e., 9.8% of the population living in this municipality⁽¹⁹⁾.

It is the only health care facility of the Unified Health System (*Sistema Único de Saúde – SUS*) in the capital that provides outpatient, urgency and emergency pediatric care. In 2015, the hospital served 56,370 children up to 12 years of age, mostly affected by respiratory diseases (31.7%), trauma (14.8%), digestive system diseases (8.4%), genitourinary diseases (6.7%) and parasitic diseases (3.9%)⁽²⁰⁾.

The study population consisted of caregivers of children under the age of five who carried the CSC at the time of data collection. The sample size was based on a total of 2,483 children aged up to five years served in the hospital in 2015⁽²⁰⁾. The sample calculation was performed using EPI INFO 3.5.2 and considering a 5% error, a 95% confidence interval and a 50% prevalence of satisfactory CSC completion – as there were no studies on the subject in the North region so that the prevalence could be used in the calculation. The expected sample consisted of 333 participants; however, considering the 20% additional due to potential losses and refusals, the final sample was determined to comprise 399 children.

Inclusion criteria were: the presence of the family member or primary caregiver over 18 years of age accompanying children up to five years of age who were hospitalized or awaiting care and who had the CSC at the time of the interview. Severely ill children admitted to the Intensive Care Unit or the Intermediate Care Unit were excluded.

Data were collected in the waiting room of the hospital while caregivers and children waited to be seen by the multiprofessional team. Data were collected through structured interviews with the primary caregivers of the child and through the analysis of the CSC records. The interview was carried out using an author-developed questionnaire consisting of 47 questions distributed in three sections: characterization of the caregiver, characteristics of the child and CSC completion. A pilot test was carried out and the researchers were previously trained.

The analysis of the CSC completion in terms of growth and development information was performed using a scoring system based on two Brazilian studies on CSC completion^(21,22). The system assigns one point to each correctly filled item and zero to each incorrectly or unfilled item. After summing the values, the scores were defined as unsatisfactory completion when less than 60% of the items were filled (< 14 points) and as satisfactory completion when more than 60% of the items were filled (≥ 14 points). The maximum score for each CSC was 21 points – each point was equivalent to 4.8% of CSC completion^(21,22).

In this study, the outcome of interest was the satisfactory completion of CSC. The variables studied were related to the primary caregiver, to the child and to the guidelines received by the caregiver regarding the importance of the CSC. The characteristics of the primary caregiver of the child were: primary caregiver (father or mother, grandfather or grandmother, another person); sex (women or men); age (≥ 20 to 29, > 30 years, < 20 years); marital status (with or without partner), education (≥ 9 years or <9 years), paid work (no or yes), household income (> 2 minimum wages or ≤ 2 minimum wages), prenatal care (yes or no/does not know) and place where prenatal care was provided (SUS or private health insurance). The characteristics of the child were: the child's age child (≥ 1 year, ≥ 6 months to 1 year, <6 months), the child's sex (men or women), birth weight (≥ 2500 grams or < 2500 grams, as used by the Ministry of Health⁽¹¹⁾ for the classification of low birth weight) and birth length (≥ 47 centimeters or < 47 centimeters). With

regard to the guidelines on the importance of the CSC: received guidelines on the CSC (yes or no), professionals who provided the guidelines (nurse; another higher education degree professional; high school degree professional).

A descriptive analysis of the data was performed and Pearson's chi-squared test and Fishers' exact test were used to check for associations between the variables. Prevalence Ratio (PR) and 95% Confidence Intervals (95%CI) were estimated using Poisson regression to measure the effect of the association of satisfactory CSC completion with the variables analyzed. Data were processed in Stata® (College Station, Texas, USA) version 13.

The present study is part of a matrix project titled "Evaluation of Child Health Care in Porto Velho - RO" conducted by the Center for Public Health Studies and Research of the Federal University of Rondônia Foundation (*Fundação Universidade Federal de Rondônia*). The study complied with the ethical aspects of Resolution 466/12 of the National Health Council⁽²³⁾. The interviewees voluntarily participated in the study by signing a Free Informed Consent form. In addition, the principles of autonomy, anonymity and non-maleficence were ensured to those involved. This study was approved by the Research Ethics Committee under Approval No. 1.849.757.

RESULTS

Of the 564 caregivers, 89.0% (n=502) were interviewed as they had the CSC at the time of data collection. Of these, 19.5% (n=98) refused to be interviewed or did not complete the interview, thus resulting in 420 participants. The main reasons for refusal or withdrawal were: the child needed to be seen by the doctor at the time of the interview, the caregiver no longer wanted to continue the interview to speak with a family member on the phone, or they did not know how to answer some questions.

Most of the caregivers were women (97.4%, n=409), had a mean age of 29.2 years (± 8.2), had a partner (74.0%, n=311), had more than nine years of study (93.8%, n=394), did not have a paid job (65.7%, n=276), and had a household income of less than two minimum wages (74.0%, n=311). The majority of the mothers received prenatal care (98.3%, n=413) and the follow-up was mainly provided by the SUS (86.7%, n=358) (Table I).

As for the children, more than half were one year old (71.7%, n=302; mean of 1.9 and ± 1.9), men (52.4%, n=220), had a birth weight above 2,500 grams (92.9%, n=288) and a birth length of 47 cm (93.5%, n=274). With regard to guidelines on the CSC, a little more than half of the caregivers (51.9%, n=218) said they had already received guidelines on the CSC at least once and they were mainly provided by nurses (69.3%, n=151; Table I).

The variables related to the main caregiver – sex, age, marital status, type of work and household income – were not associated with the outcome. Similarly, the characteristics of the children – age, sex, birth weight and birth length – and the professional who provided the guidelines on the CSC were not significantly associated with satisfactory CSC completion (Table I).

Considering the characteristics analyzed, unsatisfactory CSC completion was associated with children whose primary caregiver was not a parent or grandparent (PR 1.36; 95%CI 1.29; 1.45), caregiver with less than nine years of study (PR 1.28; 95%CI 1.12; 1.45), mother who did not receive prenatal care (PR 1.37; 95%CI 1.29; 1.45), prenatal care not delivered by the SUS (PR 1.23; 95%CI 1.09; 1.39) or caregivers who did not receive guidelines on the CSC (PR 1.32; 95%CI 1.17; 1.48).

Table II shows the percentage of satisfactory CSC completion according to the items analyzed. Of the 420 record books analyzed, only 25.5% (n=111) were satisfactory completed, that is, they had at least 60% of the records ranging 14 to 21 points.

Of the total information on pregnancy, childbirth and postpartum recorded on the CSC, there was a higher frequency of completion of the type of delivery (55.5%, n=233) and childbirth data (45.2%, n=190) and lower frequency of information on pregnancy (31.7%, n=133) and postpartum (21.2%, n=89; Table II). As for the newborn, there was a higher frequency of information on birth date (75%, n=315) and birth weight (74.3%, n=312) and lower frequency of information on APGAR (64.8%, n=272) and heel-stick test (19.5%, n=82). In the records of child growth and development, there was a higher percentage of information on weight (36.9%, n=154) and length/height (35.0%, n=147) and lower percentages of information on the growth curve of the head circumference (21.9%, n=92) and on assessment of neuropsychomotor development (18.1%, n=202). As for additional information, the item vaccination record was the most completed one (99.3%, n=417).

Table I - Characteristics of the primary caregiver, the child and the guidelines received by the caregiver regarding the Child Health Record Book, Cosme and Damiano Children's Hospital, Porto Velho, Rondônia, Brazil, 2017 (n=420).

Variable	Total		Satisfactory CSC completion % (n=111)	PR (95%CI)	p
	n	%			
Characteristics of the primary caregiver					
Primary caregiver					
Father or mother	392	93.3	94.6	1	
Grandfather or grandmother	25	6.0	5.4	1.04 (0.82; 1.30)	0.75
Another person	3	0.7	0	1.36 (1.29; 1.45)	0.01
Primary caregiver's sex					
Women	409	97.4	98.2	1	
Men	11	2.6	1.80	1.11 (0.84; 1.48)	0.45
Primary caregiver's age					
≥ 20-29 years	235	56.0	59.5	1	
> 30 years	155	36.9	33.3	1.06 (0.94; 1.19)	0.35
< 20 years	30	7.1	7.2	1.02 (0.81;1.28)	0.87
Marital status					
With partner	311	74.0	71.2	1	
Without partner	109	26.0	28.8	0.95 (0.82; 1.07)	0.44
Education					
≥ 9 years	394	93.8	98.2	1	
< 9 years	26	6.2	1.8	1.28 (1.12; 1.45)	0.01
Paid work					
No	276	65.7	66.7	1	
Yes	144	34.3	33.3	1.01 (0.90; 1.14)	0.80
Household income					
> 2 minimum wages	109	26.0	31.5	1	
≤ 2 minimum wages	311	74.0	68.5	1.11 (0.86; 1.28)	0.14
Prenatal care					
Yes	413	98.3	100.0	1	
No/Does not know	7	1.7	0	1.37 (1.29; 1.45)	0.01
Place where prenatal care was delivered*					
SUS	358	86.7	93.7	1	
Private health insurance	55	13.3	6.3	1.23 (1.09; 1.39)	0.01
Characteristics of the child					
Child's age (years)					
≥ 1 ano	302	71.7	75.7	1	
≥ 6 meses a 1 ano	73	17.4	16.2	1.04 (0.90; 1.21)	0.57
< 6 meses	45	10.9	8.1	1.11 (0.94; 1.30)	0.21
Child's sex					
Men	220	52.4	54.1	1	
Women	200	47.6	45.9	1.02 (0.91; 1.15)	0.68
Birth weight					
≥ 2500 grams	288	92.9	93.6	1	
< 2500 grams	22	7.1	6.4	1.05 (0.78; 1.42)	0.72
Birth length					
≥ 47 cm	274	93.5	95.5	1	
< 47 cm	19	6.5	4.5	1.19 (0.90; 1.59)	0.22
Guidelines on the importance of the child health record book					
Received guidelines on the CSC					
Yes	218	51.9	71.2	1	
No	202	48.1	28.8	1.32 (1.17; 1.48)	0.01
Professionals who provided the guidelines**					
Nurse	151	69.3	75.9	1	
Another higher education degree professional	53	24.3	19.0	1.19 (0.96; 1.47)	0.11
Another high school degree professional	14	6.4	5.1	1.18 (0.83; 1.69)	0.35

Note *Variable analyzed only in the participants who received prenatal care (n=413)

**Variable analyzed only in the participants who received information on the CSC (n=218)

CSC: *Caderneta de Saúde da criança* (Child Health Record Book); PR: Prevalence Ratio; CI: Confidence interval; SUS: *Sistema único de Saúde* (Unified Health System).

Table II - Distribution of the percentage of satisfactory completion of the Child Health Record Book according to the items analyzed, Cosme and Damião Children's Hospital. Porto Velho, Rondônia, Brazil, 2017 (n=420).0

Items analyzed	n	%
Data on pregnancy, childbirth and postpartum		
Type of delivery	233	55.5
Birth data	190	45.2
Pregnancy data	133	31.7
Postpartum data	89	21.2
Data on the newborn		
Birth date	315	75.0
Birth weight	312	74.3
Birth place	306	72.9
Birth length	293	69.8
Head circumference at birth	273	65.0
APGAR	272	64.8
Heel-stick test	82	19.5
Data on the monitoring of child's growth and development		
Weight notes	154	36.9
Length/height notes	147	35.0
Weight-for-age growth curves	120	28.6
Length-for-age growth curves	101	24.0
Head circumference-for-age growth curves	92	21.9
Neuropsychomotor development	202	18.1
Additional information		
Vaccination records	417	99.3
Vitamin A supplementation	195	46.4
Food and related problems records	35	8.3
Intercurrences records	14	3.3

DISCUSSION

The results of the present study made it possible to identify that the majority of the CSC were unsatisfactorily completed when the primary caregiver was not a parent or grandparent or had less than nine years of study or when the mother had not received prenatal care or when she was not served by the SUS or when caregivers did not receive guidelines on the importance of the record book. The highest rate of completion of the record book was related to the vaccines received and one of the lowest rates was related to neuropsychomotor development.

Most of the caregivers were the parents themselves, especially mothers. In general, and regardless of socioeconomic status, the mother is responsible for the care of the children, especially in the first years of life^(14,18,24). Therefore, this is a social role that is still "naturalized" as a solely feminine task⁽²⁴⁾ despite substantial and gradual changes in the place of the father as the caregiver of the child⁽²⁵⁾.

In the present study, a little more than half of the caregivers received guidelines on the CSC. This percentage was slightly above the 49.9% rate found in a study in the Brazilian semi-arid region, in the city of Feira de Santana (Bahia)⁽²²⁾. Although its distribution is free and it is a universal right of children born in Brazil, unawareness of the importance of the CSC by parents and health professionals can weaken the provision of care to the child by the family and make it impossible to detect early childhood illnesses, particularly due to the lack of training of professionals working in the Primary Health Care (PHC) services⁽⁹⁾.

The CSC is a crucial child medical record for the follow-up of child health, as advocated by the National Policy for Comprehensive Child Health Care (*Política Nacional de Atenção Integral à Saúde da Criança – PNAISC*)⁽⁶⁾. In the record book, health professionals should fill in significant data and events regarding the child, thus allowing dialog between users/family and several professionals^(12,17,18) and health students⁽¹³⁾ who serve the child.

The provision of guidelines on the CSC to the caregivers was mainly performed by nurses (69.3%) in the present study. Nurses play an important role in the daily organization of services and in the contact with children and their caregivers, thus favoring an alliance between professional, user and family^(11,15). A study on child growth and development carried out with 45 nurses in João Pessoa, Paraíba, concluded that the interviewees' knowledge on the

subject was incipient, which is worrisome as it is an important indicator for child health surveillance that is addressed, at least in theory, during professional training and one of the daily assignments of nurses in their work in PHC⁽¹¹⁾.

The percentage of satisfactory CSC completion evaluated in this study was very low (25.5%) and lower than the 31.9% found in cities in the state of Piauí⁽²²⁾, thus indicating underutilization of CSC by health professionals. On the other hand, the unsatisfactory completion of CSC in this study was related, among other aspects, to the low level of education of the main caregiver. Caregivers' higher levels of education may influence the pattern of growth and development in the first years of life. More educated caregivers are able to better understand and assimilate their children's health care needs^(3,21).

In the present study, the low level of completion of CSC in terms of information on pregnancy (31.7%) and postpartum (21.2%) should be highlighted. A study carried out in Cuiabá, Mato Grosso, to analyze data on pregnancy and childbirth/postpartum also found low rates of completion. These records are essential to retrospectively assess the child's health conditions from pregnancy to birth. If neglected, they can negatively influence the quality of care provided to the mother-child binomial^(21,26).

Another worrisome finding of the present study is that only 65% of the record books contained information about the head circumference at birth. The early years of life are critical for the development of motor, cognitive and sensory abilities. Diseases, such as microcephaly, can affect the maturation of the central nervous system and, if not identified/treated early, may compromise the child permanently⁽²⁷⁾.

In Rondônia, the recording rate for information on the heel-stick test (19.5%) was well below the rates found in the other items analyzed in the record book, thus suggesting possible weaknesses in the early diagnosis of serious but treatable diseases. In the city of Cuiabá, state of Mato Grosso, a study of 950 medical records of children under one year of age found a percentage of completion of information on the heel-stick test of 14.1%⁽²¹⁾. This percentage was lower than that found in Porto Velho, Rondônia. The heel-stick test is aimed at the early detection of serious diseases, such as phenylketonuria, congenital hypothyroidism and cystic fibrosis. The success of the treatment of the diseases is in their identification in the first months of life⁽²⁸⁾.

The level of completion of information on the growth and development of the children analyzed was also worrisome in the present study as the information on these two aspects were limited to age/weight and length/height, with little information on age/head circumference curves (21.9%) and neuropsychomotor development (18.1%).

One of the studies carried out in Northeastern Brazil⁽²²⁾ found a frequency of 24.2% of completion of information on neuropsychomotor development, a rate that is higher than that found in the state of Rondônia. Recording these data is crucial to the early identification/management of serious child health problems. The child development milestones recorded in the CSC are references for the monitoring of the neuropsychomotor development (NPMD) of children exposed to infections, such as zika, syphilis, toxoplasmosis, cytomegalovirus, herpes simplex and other non-infectious etiologies⁽²⁷⁾.

Despite its importance, the levels of completion of the CSC in Porto Velho, Rondônia, and in different regions of the country are worrisome. In addition to absence of information, there are failures/absences in the recording of growth and development curves in the CSC^(14,16,17). There appears to be a drop in the level of child health surveillance as the child grows. An analysis of the CSC of 321 children under the age of five assisted by Family Health Strategy (*Estratégia Saúde da Família – ESF*) teams in two municipalities in Paraíba found recording failures in all the parameters, especially in children older than 25 months and in those who lived in areas with fewer professionals in the health teams⁽²¹⁾.

Although vaccination records were the most complete (99.3%), they were lower than the 100% completion rate found in a study conducted in Pouso Alegre, Minas Gerais⁽¹⁶⁾. The high rates of vaccination recording in relation to the other parameters may be explained by the fact that the CSC is seen as a "vaccination record book" in the daily health practices targeted at the woman/child in health care services⁽¹⁶⁾.

In the present study, the completion of almost all the vaccination records may be partially explained by the investment in continuing education of PHC professionals exclusively focused on the technical management of immunization rather than the other items of the CSC. Also, these records are under the responsibility of the Nursing team, which works exclusively in the vaccine room. The other items are recorded by physicians, nurses and other professionals at different times and places.

Professionals' poor adherence to the completion of the other items of the CSC needs to be reviewed urgently by the managers of the child health care in the municipality analyzed due to the high rates of child death from problems that can be avoided and reduced through the provision of adequate care to women during pregnancy and childbirth

and to the newborn⁽²⁹⁾. Public health managers should overcome this challenge by implementing tools to monitor child growth and development, such as the CSC.

When properly used, the CSC becomes an accessible and easy-to-use medical record that contains important information about the child and that is always available to caregivers, thus allowing all the professionals who serve the child to fill in information and favoring the link with the family, community and services and the monitoring of growth and integral development, especially in early childhood.

In Brazil, since 2015 the recommendation for the quality completion of the CSC has been one of the main targets of the promotion of child health established by the PNAISC within the Unified Health System. This strategy, combined with the promotion of breastfeeding, especially in early childhood, aims at reducing morbidity and mortality and, consequently, promoting the full development and growth of the child⁽⁸⁾. Faced with this challenge, it is crucial that Primary Care managers invest in training and support maternal and child health care services focusing on the promotion of Early Childhood Development through the proper use of the CSC by professionals focusing on its content and on the provision of guidelines on the child to the family and the community^(12,17,22).

The results of this study should be interpreted in the context of secondary health care because the caregivers were interviewed in an outpatient and pediatric hospital service. Under these conditions, the evaluation of the CSC was limited to the caregivers who carried it and the information self-reported by the caregivers. Therefore, they are subject to memory bias at the time of the interview. At the local level, the results of the study are unprecedented and may help in understanding this problem in Primary Care. Further research should explore health professionals' and caregivers' perception of the CSC and the reasons for its poor completion in Porto Velho.

CONCLUSION

The unsatisfactory completion of the Child Health Record Book shows the weaknesses in the monitoring of growth and integral development, especially in early childhood, and is associated with children whose primary caregiver was not a parent or grandparent and had low levels of education. Some conditions, such as the absence of prenatal care or the expectant mother's failure to obtain guidelines on the CSC, made it more difficult for professionals to record information, especially information on the child's neuropsychomotor development, which was almost fully absent in this study.

CONTRIBUTIONS

Jeanne Lúcia Gadelha Freitas, Priscilla Perez da Silva Pereira, Rayanne Cavalcante Nascimento, Tatiane Maciel Mendes and Águida Thomaz Santos contributed to the study conception and design, analysis and interpretation of data, and writing and/or revision of the manuscript; **Kátia Fernanda Alves Moreira** contributed to the study conception and design, analysis and interpretation of data, and revision of the manuscript; **Nathália Halax Orfão and Daniela Ferreira Borba Cavalcante** contributed to the analysis and interpretation of data and writing and/or revision of the manuscript.

CONFLICTS OF INTEREST

The authors declare there are no potential conflicts of interest in this study.

REFERENCES

1. Danzhen Y, Hug L, Ejdemyr S, Idele P, Hogan D, Mathers C, et al. Global, regional, and national levels and trends in under-5 mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the un Inter-Agency Group for Child Mortality Estimation. United Nations Inter-Agency Group for Child Mortality Estimation (UN IGME). *Lancet* [Internet]. 2015 [accessed on 2018 Mar 28];386:2275-86. Available from: [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(15\)00120-8/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)00120-8/abstract).
2. Hidechika A, Miwa I, Akiko H, Rumiko A, Yasuyo O. Core factors promoting a continuum of care for maternal, newborn, and child health in Japan. *Biosci Trends* [Internet]. 2018 [accessed on 2018 Mar 30];12(1):1-6. Available from: https://www.jstage.jst.go.jp/article/bst/12/1/12_2017.01304/_pdf/-char/en
3. Caminha MFC, Silva SL, Lima MC, Azevedo PTACC, Figueira MCS, Batista M Filho. Vigilância do

- desenvolvimento infantil: análise da situação brasileira. *Rev Paul Pediatr* [Internet]. 2017 [accessed on 2018 Jan 13];35(1):102-9. Available from: <http://www.scielo.br/pdf/rpp/v35n1/1984-0462-rpp-2017-35-1-00009.pdf>
4. United Nations Children's Fund. Report 2017: estimates developed by the UN Inter-agency Group for Child Mortality Estimation, 2017 [Internet]. 2017 [accessed on 2018 Mar 25]. Available from: https://www.unicef.org/publications/index_101071.html
 5. Ministério da Saúde (BR). DATASUS. Informações de Saúde - Estatísticas Vitais - Óbitos por causas evitáveis em menores de cinco anos [Internet]. 2016 [accessed on 2018 Feb 10]. Available from: <http://tabnet.datasus.gov.br/cgi/deftohtm.exe?sim/cnv/evita10uf.def>
 6. The Lancet. Maternal and child nutrition: executive summary of The Lancet maternal and child nutrition series [Internet]. 2013 [accessed on 2018 Apr 6]. Available from: <https://www.thelancet.com/series/maternal-and-child-nutrition>
 7. World Health Organization. Essential nutrition actions: improving maternal, newborn, infant and young child health and nutrition [Internet]. 2013 [accessed on 2018 Apr 7]. Available from: http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en/
 8. Brasil. Ministério da Saúde. Portaria Nº 1.130, de 5 de agosto de 2015. Institui a Política Nacional de Atenção Integral à Saúde da Criança (PNAISC) no Âmbito do Sistema Único de Saúde (SUS) [Internet]. Diário Oficial da União; Brasília, 05 Ago. 2015 [accessed on 2018 Apr 10]. Available from: http://bvsms.saude.gov.br/bvs/saudelegis/gm/2015/prt1130_05_08_2015.html
 9. Lima LG, Nobre CS, Lopes ACMU, Rolim KMC, Albuquerque CM, Araújo MAL. A Utilização da caderneta de saúde da criança no acompanhamento infantil. *Rev Bras Ciênc Saúde* [Internet]. 2016 [accessed on 2018 Jan 12];20(2):167-74. Available from: <http://www.periodicos.ufpb.br/ojs/index.php/rbcs/article/view/21266/15747>
 10. Osaki K, Hattori T, Toda A, Mulati E, Hermawan L, Pritasari K, et al. Maternal and Child Health Handbook use for maternal and child care: a cluster randomized controlled study in rural Java, Indonesia. *J Public Health* [Internet]. 2018 [accessed on 2018 Mar 26];40:1-13. Available from: <https://academic.oup.com/jpubhealth/advance-article/doi/10.1093/pubmed/fox175/4793391> doi:10.1093/pubmed/fox175
 11. Reichert APS, Almeida AB, Souza LC, Silva MEA, Collet N. Vigilância do crescimento infantil: conhecimento e práticas de enfermeiros da atenção primária à saúde. *Rev Rene* [Internet]. 2012 [accessed on 2018 Apr 12];13(1):114-26. Available from: <http://www.periodicos.ufc.br/rene/article/view/3780>
 12. Silva FB, Gaíva MAM. Preenchimento da caderneta de saúde da criança: percepção dos profissionais. *Ciênc Cuid Saúde* [Internet]. 2015 [accessed on 2018 Jan 3];14(2):1027-34. Available from: <http://www.periodicos.uem.br/ojs/index.php/CiencCuidSaude/article/view/24268>
 13. Debs DHSL, Dias SR, Debs YD, Ferrão ACL, Carrijo JBC, Cualheta LP, et al. Avaliação do preenchimento da caderneta de saúde da criança após 4 anos da inserção do estudante de medicina no cenário prático. *Rev Master* [Internet]. 2016 [accessed on 2018 Apr 16];1(1):39-47. Available from: <https://imepac.edu.br/revistamaster/index.php/RM/issue/view/Revista%20Master%20v.1%20n.1>
 14. Palombo CNT, Duarte LS, Fujimori E, Toriyama ATM. Use and records of child health handbook focused on growth and development. *Rev Esc Enferm USP* [Internet]. 2014 [accessed on 2018 Feb 16];48(Esp):59-66. Available from: <http://www.revistas.usp.br/reeusp/article/view/103036/101315>
 15. Silva FB, Gaíva MAM, Mello DF. Utilização da caderneta de saúde da criança pela família: percepção dos profissionais. *Texto & Contexto Enferm* [Internet]. 2015 [accessed on 2018 Apr 16];24(2):407-14. Available from: http://www.scielo.br/scielo.php?pid=S0104-07072015000200407&script=sci_arttext&lng=pt
 16. Faria M, Nogueira TA. Avaliação do uso da Caderneta de Saúde da Criança nas Unidades Básicas de Saúde em um município de Minas Gerais. *Rev Bras Ciênc Saúde* [Internet]. 2013 [accessed on 2017 Dec 16];11(38):8-15. Available from: http://seer.uscs.edu.br/index.php/revista_ciencias_saude/article/view/1944/1469
 17. Almeida AC, Mendes LC, Sad IR, Ramos EGA, Fonseca VM, Peixoto MVM. Uso de instrumento de acompanhamento do crescimento e desenvolvimento da criança no Brasil-Revisão sistemática de literatura. *Rev Paul Pediatr* [Internet]. 2016 [accessed on 2018 Oct 09];34(1):122-31. Available from: http://www.scielo.br/pdf/rpp/v34n1/pt_0103-0582-rpp-34-01-0122.pdf

18. Amorim LP, Senna MIB, Gomes VE, Amaral JHL, Vasconcelos M, Silva AG, et al. Preenchimento da Caderneta de Saúde da Criança nos serviços de saúde em Belo Horizonte, Minas Gerais, Brasil. *Epidemiol Serv Saude Brasília* [Internet]. 2018 [accessed on 2018 Feb 15];27(1):e201701116. Available from: <http://www.scielo.br/pdf/ress/v27n1/2237-9622-ress-27-01-e201701116.pdf>
19. Ministério da Saúde (BR). DATASUS. População residente por Faixa Etária 1 segundo Região de Saúde (CIR) Período: 2015 [Internet]. 2015 [accessed on 2017 Nov 23]. Available from: <http://tabnet.datasus.gov.br/cgi/tabcgi.exe?novapop/cnv/popbr.def>
20. Secretaria de Estado da Saúde (RO). SESAU: relatório de gestão 2015: resultados e perspectivas. Porto Velho: Governo do Estado de Rondônia; 2016.
21. Abud SM, Gaíva MAM. Registro dos dados de crescimento e desenvolvimento na caderneta de saúde da criança. *Rev Gaúcha Enferm* [Internet]. 2015 [accessed on 2017 Oct 27];36(2):97-105. Available from: http://www.scielo.br/scielo.php?pid=S1983-14472015000200097&script=sci_arttext&tlng=pt
22. Costa JSD, Cesar JA, Pattussi MP, Fontoura LP, Barazzetti L, Nunes MF, et al. Assistência à criança: preenchimento da caderneta de saúde em municípios do semi-árido brasileiro. *Rev Bras Saúde Matern Infant* [Internet]. 2014 [accessed on 2017 Nov 23];14(3):219-27. Available from: <http://www.scielo.br/pdf/rbsmi/v14n3/1519-3829-rbsmi-14-03-0219.pdf>
23. Brasil. Ministério da Saúde, Conselho Nacional de Saúde. Resolução nº. 466, de 12 de dezembro de 2012 [Internet]. 2002 [accessed on 2018 Apr 10]. Available from: http://bvsms.saude.gov.br/bvs/saudelegis/cns/2013/res0466_12_12_2012.html
24. Barreta C, Oliveira MAM, Dias AM, Chesant FH. Caracterização dos cuidadores das crianças e dos adolescentes atendidos pelo projeto de extensão de um hospital universitário infantil. *Rev Bras Tec Sociais* [Internet]. 2016 [accessed on 2017 Nov 21];14(3):219-27. Available from: <https://siaiap32.univali.br/seer/index.php/rbts/article/view/9746/5478>
25. Arruda SLS, Lima MCF. O novo lugar do pai como cuidador da criança. *Estud Interdiscip Psicol* [Internet]. 2013 [accessed on 2017 Oct 13];4(2):201-16. Available from: <http://pepsic.bvsalud.org/pdf/eip/v4n2/a06.pdf>
26. Gaíva MAM, Silva FB. Caderneta de saúde da criança: revisão integrativa. *Rev Enferm UFPE on line* [Internet]. 2014 [accessed on 2017 Sep 24];742-9. Available from: <https://periodicos.ufpe.br/revistas/revistaenfermagem/article/viewFile/9733/9830>
27. Ministério da Saúde (BR), Secretaria de Vigilância em Saúde, Secretaria de Atenção à Saúde. Orientações integradas de vigilância e atenção à saúde no âmbito da Emergência de Saúde Pública de Importância Nacional: procedimentos para o monitoramento das alterações no crescimento e desenvolvimento a partir da gestação até a primeira infância, relacionadas à infecção pelo vírus Zika e outras etiologias infecciosas dentro da capacidade operacional do SUS [Internet]. 2017 [accessed on 2018 Sep 10]. Available from: <http://portalquivos.saude.gov.br/images/pdf/2016/dezembro/12/orientacoes-integradas-vigilancia-atencao.pdf>
28. Oliveira EF, Souza AP. Importância da realização precoce do teste do pezinho: o papel do enfermeiro na orientação da triagem neonatal. *Id on Line Rev Psic* [Internet]. 2017 [accessed on 2017 Sep 28];11(35):361-78. Available from: <https://idonline.emnuvens.com.br/id/article/view/742/1037>
29. Moreira KFA, Oliveira TS, Gonçalves TA, Moura CO, Maluf SN, Tavares RSA, et al. Mortalidade infantil nos últimos quinquênios em Porto Velho, Rondônia – Brasil. *Rev Bras Crescimento Desenvol Hum* [Internet]. 2014 [accessed on 2017 Aug 30];24(1):86-92. Available from: <http://www.revistas.usp.br/jhgd/article/view/76123/79880>

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How to cite: Freitas JLG, Pereira PPS, Moreira KFA, Orfão NH, Cavalcante DFB, Nascimento RC, et al. Completion of the child health record book in early childhood. *Rev Bras Promoç Saúde*. 2019;32:8407.
