

Adequacy of prenatal assistance in birth houses and causes associated with hospital transfers



Adequação da assistência pré-natal em casa de parto e causas associadas com as transferências hospitalares
Adecuación de la asistencia pre-natal em casa de parto y causas asociadas com las transferências hospitalares

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ABSTRACT

Objective: To analyze the adequacy of prenatal care in a Birth Center and the causes associated with maternal and newborn transfers to the hospital.

Methods: Cross-sectional study of the care provided at the only Birth Center in Rio de Janeiro, from 2009 to 2014. Statistical analyzes were based on the χ^2 test and Prevalence Ratio (PR).

Results: Suitable prenatal care was predominant (42.8%) and there was no association ($p = 0.55$) with the transfers. Maternal transfer is caused by the ruptured amniotic sac (PR = 2.09, 95% CI 1.62-2.70) and altered fetal heart rates (PR = 3.06, 95% CI, 2.13-4.39). Newborn transfers are associated with the presence of meconium in the amniotic fluid (PR = 2.40, 95% CI 1.30-4.43); Apgar below 7 (PR = 5.33, 95% CI 2.65-10.73); and ventilatory assistance at birth (PR = 9.41, 95% CI 5.52-16.04).

Conclusion: Complications during intrapartum care are the causes associated with transfers.

Keywords: Birthing centers. Prenatal care. Labor, obstetric. Nursing care. Obstetric nursing.

RESUMO

Objetivo: Analisar a adequação da assistência pré-natal em Casa de Parto e as causas associadas com as transferências maternas e dos recém-nascidos para o hospital.

Métodos: Estudo transversal dos atendimentos da única Casa de Parto, de 2009 a 2014, no Rio de Janeiro. As análises estatísticas foram pelo Teste χ^2 e Razão de Prevalência (RP).

Resultado: A assistência pré-natal adequada predominou (42,8%) e não houve associação ($p=0,55$) com as transferências. A transferência materna é causada pela bolsa amniótica rota (RP= 2,09; IC 95% 1,62-2,70) e batimentos cardíacos fetais alterados (RP= 3,06; IC 95% 2,13-4,39). As transferências do recém-nascido estão associadas com a presença de mecônio no líquido amniótico (RP= 2,40; IC 95% 1,30 - 4,43); Apgar abaixo de 7 (RP= 5,33; IC 95% 2,65-10,73) e assistência ventilatória ao nascer (RP= 9,41; IC 95% 5,52-16,04).

Conclusão: As intercorrências na assistência intraparto são as causas associadas com as transferências.

Palavras-chave: Centros de assistência à gravidez e ao parto. Cuidado pré-natal. Trabalho de parto. Cuidados de enfermagem. Enfermagem obstétrica.

RESUMEN

Objetivo: Analizar la adecuación de la asistencia prenatal en Casa de Parto y las causas asociadas con las transferencias maternas y de los recién nacidos para al hospital.

Métodos: Investigación transversal de los atendimientos de la única Casa de Parto, de 2009 a 2014, en Río de Janeiro. Los análisis estadísticos fueron por el Test χ^2 y Razón de Prevalencia (RP).

Resultado: La asistencia prenatal adecuada predominó (42,8%) y no hubo asociación ($p = 0,55$) con las transferencias. La transferencia materna es causada por la bolsa amniótica rota (RP = 2,09, IC 95% 1,62-2,70) y batimientos cardíacos fetales alterados (RP = 3,06, IC 95% 2,13-4,39). Las transferencias del recién nacido se asocian con la presencia de mecônio en el líquido amniótico (RP = 2,40; IC 95% 1,30 - 4,43); Apgar abajo de 7 (RP= 5,33; IC 95% 2,65-10,73) y asistencia ventilatoria al nacer (RP=9,41; IC 95% 5,52-16,04).

Conclusiones: Las intercurrencias en la asistencia intraparto son las causas asociadas con las transferencias.

Palabras clave: Centros de asistencia al embarazo y al parto. Atención prenatal. Trabajo de parto. Atención de enfermeira. Enfermería obstétrica.

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■ INTRODUCTION

The quality of prenatal care impacts directly on maternal and neonate outcomes. In Brazil, there are still problems regarding access to prenatal consultations, their late start, and the inadequacies regarding the number of consultations and the procedures prescribed by health programs focused on prenatal care⁽¹⁻²⁾.

In addition, there are problems in the communication and integration between primary care services, which offer prenatal care, and those from the hospital network, which are responsible for almost all labor care in Brazil⁽²⁾. To do so, ministerial programs for childbirth humanization have been aiming to integrate the actions of these services and create devices that favor their expansion, such as the Natural Birth Centers (NBC) in the country⁽³⁾.

Despite this initiative, Brazil has been facing difficulties to materialise the increase in the number of these institutions, since there are too few Birth Houses (BH), an NBC modality that is physically independent on hospitals. Birth Houses offer continuous assistance to women, including prenatal, labor, and puerperal care; they have a hospital for referral in the eventuality of complications regarding the health of the mother or the newborn, and have obstetric nurses as the technical responsible parties for the healthcare and all the actions related to it⁽⁴⁾.

Despite the guarantee of continued assistance and the support offered by the reference hospital, the BH faces resistance and distrust by some population groups and health professionals, regarding the quality and safety of the care it offers, when compared to the medical and technological resources of hospitals, which are seen as safer environments for women and their children⁽⁴⁻⁶⁾.

As opposed to this perspective, which is dominant in Brazil, international studies associate free-standing birth centers to significantly low rates of interventions during birth and labor, maternal complications, and admissions in neonate units, when compared to traditional hospital units⁽⁵⁾. Additionally, the need for transferring the woman and the child to the care of the reference hospital does not imply an increase in morbidity and mortality, merely guaranteeing that attention will continue in a more complex level of care. As a result, these centers are seen as a safe alternative for healthy women and those under regular obstetric risk, regardless of parity⁽⁵⁻⁶⁾.

Considering that, in Birth Houses, the assistance is continuous, from the prenatal to labor and birth, and that these units have reference hospital units to deal with any complications, the following research question was proposed: How adequate was the prenatal care and what were the

causes associated to maternal and newborn transfers from the Birth House to the hospital?

To answer this question, the research aimed to analyze how adequate the prenatal care in the Birth House was and what the causes associated to the maternal and newborn transfers to the hospital were.

The research is justified by the need to broaden the knowledge on the integral care offered at CPs, which is headed by obstetric nurses, while contributing to verify how adequate is the prenatal care in this unique health unit, also verifying the causes involved in hospital transfers, in order to subsidize health policies that aim to improve obstetric care and stimulate the NBCs and BHs in the Unified Health System (SUS).

■ METHOD

This is a cross-sectional study, based on the records of the *Casa de Parto David Capistrano Filho* (CPDCF — Birth House David Capistrano Filho) and those of transferees to referral hospitals. The CPDCF is the only BH in Rio de Janeiro, and attends women who are pregnant with a single fetus, with regular-risk pregnancies, who want to receive healthcare in this institution. Said care starts in the prenatal period.

Women can start their prenatal care there in early pregnancy, or continue consultations carried out by a primary healthcare unit, as long as they are not yet in their 32nd gestation week. To undergo natural childbirth in the CPDCF, women must undergo prenatal consultations, participate in educational workshops scheduled during the gestational period, not present obstetric risk, and their children must be head down at the time of birth.

Regarding referral hospitals, it stands out that, when the CPDCF was opened in 2004, it referred patients to a maternity nearly 8 km away from the institution, until 2013. Later, in the second semester of 2013, another maternity was opened in the same area of health planning of this CPDCF, which was 6 km away from the institution. Since then, this maternity is the referral hospital to the maternal transfers, whether they take place in the prenatal period, during labor, or post-labor, as well as for transferring the newborns.

It stands out that the system of healthcare records of the CPDCF and its referral hospitals is not computerized, meaning that the access to said records requires manual access to each recorded document under the purview of these institutions. Due to this restriction, a population sample from 2009 to 2014 was chosen for study. Resolution 36, created by the Collegiate Board of Directors of the Sanitary Surveillance Agency in June 03, 2008, regulates the workings of the Obstetric and Neonate Healthcare Services

in Brazil, and defines the operational and assistance processes, as well as the reference norms and pertinent procedures, all of which defined the actions in the year 2009⁽⁷⁾.

The sample was calculated according to the population cared for in the CPDCF from 2009 to 2014. In this period, 1525 women were hospitalized in labor and 1290 gave birth in the institution, corresponding to 235 (15.4%) women transferred to the referral hospital. The minimum sample was estimated in 296 women whose labor and childbirth took place in the CPDCF and in 152 women transferred, with a confidence interval of 95% and a maximum acceptable error of 5%. In order to stipulate the minimal number of sample units and records analyzed in each year from 2009 to 2014, an annual proportion was respected.

The sample was randomly selected through the random drawing of the last number (from zero to nine) of the records of women received at CPDCF in each year of the period investigated. When the last number drawn was repeated, a new random drawing was carried out. After the sampling process was complete, these records were asked for in the CPDCF file sectors and in reference maternities. They were also selected based on the inclusion and exclusion criteria that follow.

This investigation included the healthcare offered to women who underwent prenatal consultations and were hospitalized during labor at CPDCF, finishing their childbirth either in the same institution or in the reference hospital. Records of women hospitalized in the CPDCF during the expulsive phase of labor were excluded.

During data collection, which took place from June to September 2016, the researchers used a structured form that included maternal and obstetric data; prenatal care

data; gestation, labor, birth, as well as maternal and neonate transfer data. The depending variable were the transfers to the reference hospital. It had two possible answers: yes or no. Independent variables were prenatal care adequacy and complications in the attention for gestation, labor, and birth.

In order to assess prenatal care adequacy, the assistance parameters of the Prenatal and Childbirth Humanization Program (PHPN) were used, as described in the Adendum to Decree n. 569, from June 1, 2000⁽⁸⁾, complemented by the guidelines of the Adendum to Decree n. 650, from October 5, 2011, from Rede Cegonha (the "Stork Network"), which prescribe that prenatal care should start early, up to the 12th week of pregnancy. It also states that each pregnant woman should go to four educational meetings, and undergo laboratory and complementary exams, in the first prenatal consultation and up to the 30th week of pregnancy⁽⁹⁾.

These recommended exams are blood typing (ABO); Rh factor, indirect Coombs test for negative RH; hematocrits; hemoglobin; glycemia; type I urine test (TUTI), venereal disease research laboratory test (VDRL); serological tests for HIV infection (anti-HIV1 and anti-HIV2) and hepatitis B (HBsAg); serology for toxoplasmosis (IgM); urine culture test; parasitological; cervical-vaginal cytopathology, and obstetric ultrasound.

Recommended parameters for the prenatal care were evaluated through the analysis of registers in each maternal record included in the research. That made it possible to attribute a score to the assistance offered to each woman in the sample studied here, to a maximum score of 6 points, as chart 1 shows.

Parameters	1st trimester.	2nd trimester.	3rd trimester.	Score
At least six consultations	1	2	3	1
Early arrival (up to 12th week *)				1
Complete exams (in the 1st consultation)				1
Complete exams (up to 30th week*)				1
Four educational groups conducted				1
Tetanus immunization				1
Total				6

Chart 1 - Parameters recommended and used in the assessment of the prenatal care

Source: Research data, 2014.

(*) Weeks of pregnancy.

The level of prenatal assistance adequacy was assessed using the score that results from the evaluation of the parameters above according to the following scoring: 6

points, highly adequate; 5 points, adequate; 4 points, intermediary; 3 points or less, inadequate.

After building the database using the software Microsoft Excel 2010[®], statistical analyses were carried out using the software Statistical Package for the Social Sciences (SPSS[®]) for windows, version 19.0. Later, the respective prevalences were calculated, and in the case of univariate and bivariate analysis, the Chi-square test (χ^2) was used to verify the association between the dependent variables with a *p-value* < 0.05. After finding a statistically significant association, the Prevalence Ratio (PR) was established with a confidence interval of 95%.

It should be clarified that the instances of gestation, labor and birth were studied as exposure factors and tested in relation to the outcome hospital transference. The time, intensity, or severity of said instances were not hierarchically classified.

To identify the factors associated to neonate transfereces, the group of newborns transferred to the neonate unit in the reference maternity was analyzed, whether their birth took place in the birth house or in the hospital unit. This choice was motivated by the fact that this group of babies is under risk of life.

The study respected research regulating norms and ethical procedures. It was approved by the Research Ethics Committee of the Rio de Janeiro State University (Universidade do Estado do Rio de Janeiro), under protocol n. 1.028.107.

■ RESULTS

The sample investigated had 482 (100%) medical records of women hospitalized during labor at CPDFC, from 2009 to 2014. From these, 330 (68.5%) were women who had natural birth in the BH and 152 (31.5%) were transferred to the referral maternity. There were no maternal deaths in the period. Most analyzed records described more than one cause to maternal transfers, with the predominance of broken amniotic sacs (50%), presence of meconium in the amniotic fluid (32.2%), and alterations in fetal heart rates (17.8%). Among the women transferred, 37.5% had cesarean sections as the outcome of their labor.

Regarding newborns, almost all (91.7%) had a normal weight when born, from 2500g to 3999g. There were nine infants (2.7%) with low birth weight (below 2500g) cared for in the CPDFC, while one (0.7%) was attended in the hospital. Among the births at CPDFC, 34 (10.3%) newborns were referred to the reference maternity. The most common reason to do so was respiratory discomfort (6.1%).

The Apgar score of 2.7% of infants born in the CPDFC was below seven in the fifth minute of life, while the same

was true for 12.5% of infants born in the referral hospital. From the 482 parturients in the sample analyzed here, 39 newborns (8.1%) were transferred to the neonate unit of the hospital.

There was one neonate death case due to a genetic malformation in multiple organs in the form of a VACTERL association, which was not diagnosed during prenatal care. This infant was transferred immediately after birth and died in the referral maternity.

Almost all women who received maternal healthcare were in reproductive age and were in the low-risk or regular-risk obstetric group, from 15 to 35 years of age. Regarding women in borderline reproductive ages, nine (1.9%) were above 35 years of age and two (0.4%) were below 15 years of age. These adolescents were referred to the hospital unit during prenatal care, when the gestational risk identified. Most women were primiparous (60%) or nulliparous (68.5%).

With regards to prenatal assistance variables, 403 (83.6%) women went through all prenatal consultations in the CPDFC, while the others (16.4%) were referred from other health services and continued to receive assistance in the BH.

Most pregnant women started their prenatal late (87.1%), after 12 weeks of pregnancy; underwent seven or more consultations (81.1%); participated in four or more educational group activities (65.1%); and underwent all laboratory and complementary exams in the first consultation (69.5%) and up to the 30th week of pregnancy. Only 36.1% of records analyzed had information on the labor plans for each woman.

Clinical changes in gestation were found in 48.1% of women. The most frequent were anemia (33.8%) and urinary tract infection (23.4%). The other complications, registered in 29 (6.1%) records, included genital condylomatosis, vaginosis, likelihood of preterm labor, altered blood glucose, among others.

Considering the prenatal care assessment based on the registers in maternal records, the "adequate" (34.9%) level was the most common. The "highly adequate" level was achieved in 7.9% of the sample, which means that 42.8% prenatal care was evaluated as adequate. The other maternal records evaluated reached the intermediary (34.2%) or inadequate (23%) levels of prenatal assistance.

During the verification of the association between the inadequate levels of prenatal assistance and the transfers of women in labor to the referral hospital, the χ^2 test showed no statistically significant result. The same result was found when data was grouped in the two categoric variables "adequate" and "inadequate", as Table 1 shows.

Table 1 - Prevalence of prenatal assistance adequacy according to maternal transferences to the referral hospital. Birth House, Rio de Janeiro-RJ, 2009-2014

Adequacy level	Transfer	
	Yes (n=152)	No (n = 330)
	%	%
Highly adequate [§]	5,9	8,8
Adequate [§]	32,9	35,8
Intermediary [§]	35,5	33,6
Inadequate ^{*§}	25,7	21,8

Source: Medical records filed in the CPDCF and in referral maternities.

Notes: * Test χ^2 with p -value=0.55 and α <0.05. [§]Variables grouped in two levels, adequate and inadequate, test χ^2 with p -value=0.23 and α <0.05.

When the association of complications during pregnancy and labor and the maternal transferences of CPDCF to the referral hospital were tested, the result of the χ^2 test was statistically significant for clinical changes in pregnancy (p -value=0.01), broken amniotic sacs (p -value<<0.01), meconium in the amniotic fluid (p -value<<0.01), and altered fetal heart rates (p -value<<0.01).

Regarding the probability of maternal transfers to the

hospital due to these complications in pregnancy and labor, it was found that the clinical change in pregnancy reduces this probability (PR = 0.70; CI 95% = 0.54 - 0.92) while a broken amniotic sac (PR= 2.09; CI 95% 1.62 - 2.70), meconium in the amniotic liquid (PR= 1.96; CI 95% 1.47 - 2.60), and altered fetal heart rates (PR= 3.06; CI 95% 2.13 - 4.39) increase the likelihood of transfers of the parturient to the hospital, as can be noted in Table 2.

Table 2 - Prevalence of complications associated to maternal transfers from the Birth House to the referral hospital. Rio de Janeiro – RJ, 2009-2014

Variables	Transfer		p -value*	PR	CI-95%
	Yes (n=152)	No (n=330)			
Clinical changes in pregnancy	39,5	52,1	0,01	0,70	0,54 - 0,92
Broken amniotic sac	50	24,2	<0,01	2,09	1,62 - 2,70
Meconium in amniotic fluid	32,2	13,9	<0,01	1,96	1,47 - 2,60
Altered fetal heart rate	13,8	0,9	<0,01	3,06	2,13 - 4,39

Source: medical records filed in the CPDCF and in referral maternities.

Notes: * Test χ^2 , with a value <0.05a. Caption: PR = Prevalence Ratio

Regarding factors associated to the transfer of the newborn to the neonate unit of the referral hospital, it was found that instances of broken amniotic sacs during labor (p -value=0.40) and altered fetal heart rates (p -value=0.47) had not significant statistical association according to the χ^2 test. However, when testing maternal clinical alterations in pregnancy (p -value<<0.01), presence of meconium in the amniotic fluid (p =0.01), Apgar level < 7 (<math>p-value<<0.01), and mechanical ventilation at birth (p -value<<0.01), there were statistically significant associations with the outcome hospitalization in neonate units.

During the verification of the prevalence of these

factors that were statistically associated with the hospitalization of newborns in the neonate unit, it was found that a maternal history of clinical alterations in pregnancy (PR = 0.32, CI 95% 0.16-0.64) does not increase the odds of hospitalization. On the other hand, the presence of meconium in the amniotic fluid (PR = 2.40; CI 95% 1.30 - 4.43); maternal transfers (PR = 2.53; CI 95% 1,33 - 4.85); Apgar scores below 7 (PR=5.33; CI 95% 2.65 - 10.73); and the need for ventilatory assistance at birth (PR= 9.41; CI 95% 5.52 - 16.04) increased the probability of neonates being admitted to the neonatal unit, especially when the newborn requires ventilatory maneuvers, as can be seen in Table 3.

Table 3 - Prevalence of complications associated with the transfer of newborns from mothers attended in the Birth House to the Neonate Unit of the referral hospital. Rio de Janeiro – RJ, 2009-2014

Variables	Neonate Unit		p-value*	PR	CI 95%
	Yes (n=39)	No (n=443)			
Clinical changes in pregnancy	23,1	50,3	<0,01	0,32	0,16 - 0,64
Maternal transfer	53,8	29,6	<0,01	2,53	1,33 - 4,85
Meconium in amniotic fluid	36,8	18	0,01	2,40	1,30 - 4,43
Apgar level < 7	18	2,7	<0,01	5,33	2,65 - 10,73
Mechanical ventilation at birth	69,2	15	<0,01	9,41	5,52 - 16,04

Source: medical records filed in the CPDCF and in referral maternities.
Notes: * Test χ^2 , with a value <0.05a. Caption: PR = Prevalence Ratio

■ DISCUSSION

This study found that prenatal consultations had the same late beginning, after the 12th week of pregnancy, as in the national-scope population-based studies^(2,10). Although the results found here cannot be compared to the findings of this type of study, the fact that pregnant women in the CDCDF are starting their prenatal late may suggest that they have difficulties having adequate access to the service, a similar situation to that of other pregnant women received in the prenatal care services in the country.

The late start to the prenatal delays early pregnancy diagnostic and the recommended exams of the first trimester of pregnancy^(2,10-11). These difficulties demand strategies for pregnant women in the CDCDF to have an easier access to prenatal care within the time frame recommended, that is, until the 12th week of pregnancy⁽⁹⁾.

On the other hand, personal issues of women with late access to prenatal care, such as unplanned pregnancies, cannot be dismissed. A Brazilian research⁽³⁾ found that more than half women interviewed did not wish to get pregnant, and one third of them had negative or ambivalent feelings regarding their current pregnancy. Therefore, the motives for a late start to the prenatal by women who chose to receive care in the BH should be researched, so that obstetric nurses can act taking its causes into account, thus improving the adequacy of the prenatal care being offered.

With regards to the educational meetings prescribed, it was found that two thirds of the sample of pregnant women studied underwent four or more meetings during the prenatal. Participation in the educational groups scheduled is one of the criteria for a woman to give birth in the CPDCF, so it can be assumed that the late start in prenatal consultations was one of the reasons why one third of

the clients did not comply with these recommendations. This could also explain the lower frequency of clients who underwent all recommended exams in the third trimester (69.5%) when compared to those who did so in the beginning of the third trimester (82.2%). A low score in these parameters may have contributed for the fact that 34.2% of the sample studied was in an intermediary level of prenatal care adequacy.

The criteria for the assessment of prenatal adequacy prescribed that clients should be attracted to the prenatal early, and that pregnant women would participate in at least four educational groups, but the prevalence of an adequate level of CPDF (42.8%) was higher than the one found in primary care services (15%)⁽¹¹⁾ and the one among the puerperae interviewed during hospitalization (21.6%; 23.7%)⁽¹⁰⁻¹¹⁾.

It stands out that, in the CPDCF, the women treated are healthy, with no obstetric risks, and therefore, have a more homogeneous profile than that of the whole population of pregnant Brazilian women, who are mainly assisted by physicians, even in primary healthcare services⁽³⁾.

This characteristic of the population that uses the CPDCF may also have influenced the fact that there was no association between the prenatal assistance adequacy level and the maternal transfers into the hospitals, since the inadequacy of this assistance is related to the increase in the maternal and neonate risk in the population of Brazilian pregnant women^(2-3,10-11). In a retrospective cohort study in an American birth center, the chances of transferring the parturients was also higher when prenatal care was not adequate⁽¹²⁾.

Prenatal healthcare aims to prevent negative maternal and neonate outcomes. Corroborating this finding, clinical alterations during pregnancy in the sample of women

studied here did not increase the likelihood of maternal transfers to the hospital, or of newborn transfers to the neonate unit. The timely diagnostic of these clinical changes by nurses, and the permanence of women in the CPDCF prenatal care until the moment of birth may also indicate that the obstetric risk was not confirmed by the physician who monitored the patient in the referral service, since this evaluation is recommended when these alterations are found⁽¹³⁾.

Regarding the transfers of women during birth in the CPDCF, the percentage of 15.4% is similar to that found in international studies on birth centers, which varied from 11.6% to 25.4%^(6,14-16), though it is higher than that found in another Brazilian BH 4%⁽¹⁷⁾.

In this research, obstetric complications of intrapartum healthcare are those associated to maternal transfers to the hospital, such as broken amniotic sacs, the presence of meconium in the amniotic fluid, and altered fetal heart rates, which are also the reasons described in literature for such transfers. However, the prevalence of broken amniotic sacs (50%) was higher than the one found in international birth centers (20.4%)⁽¹⁶⁾.

The causes for this high prevalence must be studied together with the social and obstetric characteristics of woman participants of the researches that were not considered here, such as age, educational, ethnic, and parity profiles, and their relations to the most prevalent maternal clinical alterations in CPDCF, which were anemia (33.8%) and urinary tract infection (23.4%), since negative social conditions and these morbidities are associated with the early rupture of amniotic membranes⁽¹⁸⁾.

Considering the outcome of birth among pregnant women in the CPDCF who were transferred to the hospital, it was found that the cesarean section prevalence was higher (37.5%) when compared to international studies on the results of assistance in birth centers, that went from 12.1% to 23.1%^(6,15,19). This finding may indicate an influence of the high proportion of surgical childbirths in Brazilian obstetrics⁽²⁰⁾. This could also be due to medical indications resulting from emergency situations that took place in this group of parturients, meaning that an investigation of the causes associated with the childbirth outcome should also be conducted.

The possibility of greater exposure or need for medical interventions may lead to an increase in the likelihood for the newborn of a CPDCF woman to be transferred to the Neonate Unit. However, the proportion (8.1%) of newborns transferred to this unit in the study described here was 13.7% lower than the one found in two independent Australian birth centers, and 6.7% higher than the result found in another birth center in the Brazil^(13,17).

The most prevalent cause for these transfers in Australian birth centers were respiratory problems (10.2%), followed by Apgar levels below 7 in the fifth minute of life (11.7%), similarly to the results found by the CPDCF^(13,17). These findings are associated to a higher probability for the newborn to require more complex neonate care. This need for permanence in a neonate unit did not lead to mortality, since the only death identified in the analyzed period was that of a newborn with congenital cardiac malformation.

However, the results presented here must be interpreted under the light of the limitations of this research. The first, and perhaps the most important one, is related to the source of the data. Since these results come from secondary data found through the analysis of records, the incomplete information and gaps in the records may not show with precision the reality of the health service. Another aspect, due to the lack of other health units in the state of Rio de Janeiro, was the fact that only one Birth House was analyzed. Therefore, data should be generalized with caution, taking into consideration the setting in which this study was conducted.

In addition, other methodological designs might be able to show the causes and risks of maternal and neonate transfers to the hospital as well as control the possible variables that modify the effects, such as maternal and obstetric characteristics of the parturients, age and parity for example. However, the findings of this study are believed to contribute to build hypotheses that can explain these phenomena, indicating possible points of interest regarding the transfers.

■ CONCLUSION

Maternal transfers from the Birth Houses to the referral hospitals were not associated to the level of adequacy of prenatal healthcare assistance, but with the obstetric complications in the healthcare during birth, such as broken amniotic sacs, the presence of meconium in the amniotic fluid, and altered fetal heart rates. The probabilities of newborn hospitalization in a Neonate Unity increase when the newborn requires mechanical ventilation after birth, has an Apgar level below 7 in the fifth minute of life, and when the newborn was born in the hospital due to a transfer of the mother into the referral maternity from the Birth House.

These results may give support for obstetric nurses to care for parturients, since the diagnostic of these complications and timely and adequate interventions are decisive for a successful healthcare outcome. In addition, maternal and neonate transfer prevalence was similar to those found in international birth centers, and did not lead to maternal

nor neonate death, indicating that Birth House assistance may be safe for regular-risk pregnant women.

Other studies are suggested to take place in this health-care setting to clarify the gaps in knowledge mentioned above, and to address issues that this research did not, such as the possible effects of age, ethnicity, and maternal parity over these transfers. They would also make it possible to increase the knowledge about obstetric nursing healthcare in Brazil.

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