

Transition of the environment model in hospitals that deliver in *Rede Cegonha*

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Abstract *This article analyzes the environment of birth places, considering the presence of PCP room (Prepartum, Childbirth, and Postpartum) in 575 hospitals that deliver in Sistema Único de Saúde (Unified Health System) within the scope of Rede Cegonha. The data were extracted from a survey called Avaliação da atenção ao parto e nascimento nas maternidades da Rede Cegonha (Assessment of childbirth and birth care in the Rede Cegonha maternity units), carried out in 2017 by UFMA and ENSP, in partnership with the Ministry of Health. The PCP room model combines care for parturient women in a single space, favoring the role of women and the exercise of good practices in childbirth and birth care. The information was obtained by direct observation in the services, and assessment considered the presence and adequacy of PCP rooms and their distribution according to the pre-childbirth environment, which were compared with specific characteristics of these hospitals. Collective rooms for childbirths prevail and only 16.8% of beds are PCP rooms. This picture suggests difficulties in resource management, resistance to changes and insufficiencies in institutional support, which have hampered the transition from the childbirth environment model in Brazilian hospitals. The Brazilian obstetric and neonatal field has lived a fertile period, but it is necessary to build and sustain political-institutional disposition to advance the changes.*

Key words “Rede Cegonha”, Childbirth rooms, Childbirth, Humanization, Delivery assistance

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Introduction

The Brazilian model of care for childbirth and birth is characterized by the excessive use of obstetric and neonatal interventions that, when used without a scientific evidence base, may be related to unfavorable maternal and perinatal outcomes¹. Among the various initiatives to modify this model, in the 2000s, the Ministry of Health (MoH) created the Humanization Program for Prenatal and Birth (PHPN - *Programa de Humanização no Pré-Natal e Nascimento*). Humanizing childbirth assistance encompasses several dimensions, including environment, established as one of the Brazilian National Humanization Policy² (PNH - *Política Nacional de Humanização*) guidelines. In the field of attention to childbirth and birth, environment includes the transformation of the hospital space into a welcoming and favorable environment for the implementation of good obstetric care practices and with the active participation of users. The concept values environment as a contributor to changes in processes and work relationships based on collective and participative construction.

Based on this conception, new operating standards for the Obstetric and Neonatal Care Services were instituted in ANVISA Resolution 36 of 06/03/2008³ (RDC 36/2008), and later incorporated into the strategy of *Rede Cegonha* (RC)⁴, launched in 2011.

Among the new structures introduced, the transformation of delivery environments was established, traditionally composed of rooms shared by several women in a PCP room (Prepartum, Childbirth, and Postpartum). PCP is a private space for labor, childbirth and immediate puerperium, with attached bathroom, sufficient dimensions for the movement of parturient women and use of non-pharmacological methods of pain relief and for the presence of a companion. This environment, in addition to stimulating the overcoming of the traditional model, which artificially segments childbirth in stages of prepartum, childbirth and postpartum, provides differentiated attention with the purpose of guaranteeing the woman the conditions to choose different positions in labor, leading role, and autonomy⁵.

In order to transform the Brazilian reality of deficient facilities in health services that deliver and often inadequate to provide quality care⁶, numerous MoH initiatives have been developed in the process of implementing RC. In addition to providing financial resources to adapt the en-

vironment, measures were taken to facilitate the management of resources, such as the transfer of investment funds to funds⁷; the adoption of the Differentiated Public Procurement Regime for engineering works and services within SUS⁸; the creation of SISMOB (*Sistema de Monitoramento de Obras* - Construction Monitoring System). At the same time, MoH provided architectural projects that could be adopted by managers and carried out training processes for architects and engineers from the health departments, expanding the diffusion of the concept of environment⁹.

Research on the environment of birthplaces is scant and there are no studies that specifically address the concept of environment in obstetrics¹⁰. It is in this context and scenario that this article is inserted. This article seeks to contribute to the debate on the qualification of obstetric care based on the availability and adequacy of PCP rooms in Brazil and in large regions in hospitals that deliver SUS in the context of RC. The research findings were analyzed in the light of reflections that have been made in the field of public health in order to better understand the current picture of the environment of birth places.

Method

This is a normative evaluation research with qualitative and quantitative design and the use of the Participatory Rapid Appraisal technique. All public and private hospitals that, in 2015, were located in a health region with an RC Action Plan, totaling 606 establishments distributed in all states of Brazil were eligible. Data collection was carried out in 2016/2017.

Three methods of data collection were used: 1 - personal interview with key informants: managers; health professionals and puerperal women to check the perception of the management model and the attention to labor and birth; 2- documental analysis verified the availability of norms, protocols and process indicators and results of assistance during labor and birth. Data on hospital care were extracted from the medical records of women and newborns; 3- on-site observation collected data on care processes, infrastructure conditions, physical plant, materials, equipment and through a specific questionnaire counted the available obstetric and neonatal beds. The instrument developed was based on RDC36³, RDC50¹¹ and Ordinance 930/2012¹². The evaluator, accompanied by an employee designated by the hospital's management and most of the time

with the presence of a representative of the State Health Secretariat and/or the Municipal Health Office, visited all maternity environments, from the entrance and reception doors even rooming-in, including the neonatal unit. At the end of the on-site observation, the obstetric and neonatal bed counting questionnaire was signed by the evaluator and hospital employee and representative of the health department. For the present analysis, only the information collected in the on-site observation is used.

The research team included the national coordination composed of researchers from the Brazilian National School of Health of *Fundação Oswaldo Cruz* (Oswaldo Cruz Foundation), *Universidade Federal do Maranhão* (Federal University of Maranhão) and MoH technicians in women's health. Each Brazilian state had a coordinator who participated in the organization of the fieldwork and in the selection of the team of evaluators for the state's research. Altogether, 107 evaluators were distributed across the country. All were health professionals with experience working in maternity hospitals. The training of the 27 state research teams was carried out locally, in a standardized manner, for five consecutive days, including reading the questionnaire instrument, practical application of the questionnaire in hospitals and sending the collected data to REDCap. More information is available in Vilela et al.¹³.

Hospitals were classified according to the country's major regions, location (capital, outside capital), legal nature of the establishment (public and private) and type of management (municipal, state and dual). As private establishments, those listed in the National Register of Health Establishments were classified into the following categories: business, nonprofit, and individual organizations. Hospitals were classified according to the volume of births registered in *Sistema de Informação sobre Nascidos Vivos* (Sinasc - Live Birth Information System), categorized as low (up to 999 births per year), medium (from 1,000 to 2,999 per year) and high (from 3,000 and more births per year); the existence of a neonatal ICU; and to be a reference for high-risk delivery¹⁴.

Among the structure requirements required by Brazilian legislation, the type of parturition environments offered was verified (collective room without separation between beds, collective room with separation by curtains, PCP room and/or both types of environment). The percentage of provision of a PCP room among

labor beds was also calculated. Furthermore, the existence of an exclusive bathroom with shower and hot water directly connected to a PCP room and at least one equipment (gymnastic ball, birthing stool, folding step stool ladder, etc.) for non-pharmacological pain relief was examined.

The analysis included the distribution of the relative frequency of the variables studied according to large regions. Finally, data on hospitals' characteristics were observed according to the presence of at least a PCP room in the assessed hospital.

The research complies with Resolution 196/96 of the Brazilian National Health Council (*Conselho Nacional de Saúde*) and was approved by the Research Ethics Committee with Human Beings at *Universidade Federal do Maranhão* and the Brazilian National School of *Escola Nacional de Saúde Pública Sérgio Arouca* (Public Health Sérgio Arouca), CAAE (*Certificado de Apresentação para Apreciação Ética* - Certificate of Presentation for Ethical Consideration) 56389713.5.3001.5240, on December 14, 2016 All precautions have been taken to ensure the confidentiality and confidentiality of information.

Results

The present analysis comprises 575 hospitals (95.0% of the total assessed). Table 1 shows that of the total health facilities investigated, 37.4% are located in the Southeast, followed by the Northeast with 28.9%, the North and the South with 13.0% and the Center-West (6.6 %). Regarding the legal nature, 57.7% were public, and the rest were private (42.3%). When analyzing by large regions, it is observed that in the North almost two thirds of the total of hospitals were public, a figure that is reduced to around 60% in the Northeast, the Southeast and the Center-West and comprises a little more than a third in the South. It is noted that for the North, the Northeast and the Southeast, around 30% of establishments are located in the capital; however, the pattern changes for the Center-West and the South, and in the first, most hospitals are located in the capitals (63.2%), while in the South, it comprises 16.5%. Regarding the type of management, the predominance of municipal establishments (65.7%) is striking, and in the South, there is also double management in 26.6% of hospitals. For the country, establishments with an average birth volume (between 1,000 and 2,999 births per year) predominate, with little variation be-

tween large regions. Table 1 also shows that hospitals with availability of Neonatal ICU beds ranged from 28.6% in the Northeast to 69.3% in the Southeast. In Brazil, around one fifth of hospitals are a reference for high risk, with the lowest percentage found in the North (7.8%) and the highest in the Southeast (28%).

Table 2 shows that in more than two thirds of hospitals in the country, labor is performed in a collective room, a figure that rose to the North (80.6%), the Northeast (77.7%), and the South

(76.0%). The collective room without separation between the beds prevails in the North (49.4%) and in the Northeast (45.8%). The exclusive availability of a PCP room does not reach 12% of the assessed hospitals and is practically non-existent in the South (2.5%), being the best scenario found in the Center-West, with 26.3%. In 17.2% of hospitals, both types of environments are adopted; the largest presence is found in the Southeast (27.4%), and the smallest in the North (3.9%) and the Northeast (9.0%).

Table 1. Number of maternity hospitals visited and relative frequency of health facilities according to location in the capital and characteristics of complexity. Brazil and large regions.

	Region					
	North	Northeast	Southeast	South	Center-West	Brazil
Hospitals						
Number	77	166	215	79	38	575
Percentage	13.4	28.9	37.4	13.7	6.6	100.0
Location in the capital	26.0	30.7	27.9	16.5	63.2	29.2
Legal nature ¹						
Public	72.7	60.2	58.1	34.2	63.2	57.7
Private	27.3	39.8	41.9	65.8	36.8	42.3
Management type ¹						
Municipal	61.0	67.5	72.6	49.4	63.2	65.7
State	33.8	24.1	22.8	24.1	34.2	25.6
Double	5.2	8.4	4.2	26.6	2.6	8.5
Childbirth volume ²						
Up to 999 childbirths	28.6	19.9	20.1	24.1	13.2	21.3
1,000 to 2,999	45.5	47.0	51.9	53.2	52.6	49.8
3,000 and more	26.0	33.1	28.0	22.8	34.2	28.9
With Neonatal Intensive Care Unit ³	28.6	34.3	69.3	54.4	52.6	50.6
High risk reference ⁴	7.8	18.7	28.4	17.7	21.6	20.9

Sources: 1. Cnes, 2017; 2. Sinasc 2017; 3. Bed Count; 4. Information provided by the MoH.

Table 2. Distribution of maternity hospitals according to the prepartum environment, Brazil and large regions.

Prepartum environments	North		Northeast		Southeast		South		Center-West		Brazil	
	N	%	N	%	N	%	N	%	N	%	N	%
Collective room without separation between beds	38	49.4	76	45.8	37	17.2	16	20.3	7	18.4	174	30.3
Collective room with curtains/shower division	24	31.2	53	31.9	87	40.5	44	55.7	13	34.2	221	38.4
PCP room (prepartum, childbirth, and postpartum)	8	10.4	17	10.2	30	14.0	2	2.5	10	26.3	67	11.7
Two types of environments	3	3.9	15	9.0	59	27.4	16	20.3	6	15.8	99	17.2
Others*	4	5.2	5	3.0	2	0.9	1	1.3	2	5.3	14	2.4

* Surgical center reserved for delivery; double rooms, in the ward itself; observation room
Source: Data collection tool: Bed Count and Observation Guide.

Table 3 shows that 3,358 beds are used for labor. On average, each maternity hospital has 5.8 beds for labor, ranging from 4.7 beds in the North to 6.7 in the Northeast. The proportion of PCP rooms was 16.8% of the total number of beds for labor, with the lowest frequency seen in the South (8%) and the highest in the Center-West (31%). The South (14.3%) and the North (22.2%) had

the lowest percentages of PCP rooms that have an exclusive bathroom with hot water in the shower. The availability of non-pharmacological pain relief equipment was found in 91.9% of PCP rooms with little variation between regions.

Table 4 shows that hospitals with at least one PCP room are more frequent in the capitals (37.5%) among hospitals with state management

Table 3. Number of maternity units, labor beds, PCP rooms and structural aspect of the PCP room.

	Region					
	North	Northeast	Southeast	South	Center-West	Brazil
Number of maternities	77	166	215	79	38	575
Total labor beds	360	1106	1260	403	229	3358
Average number of labor beds	4.7	6.7	5.9	5.1	6.0	5.8
Total PCP rooms	46	142	275	31	71	565
Number of PCP rooms assessed	45	100	206	28	55	434
Percentage	97.8	70.4	74.9	90.3	77.5	76.8
There is an exclusive bathroom directly connected to the shower room	10	71	196	4	30	311
Percentage	77.8	70.3	95.1	85.7	56.6	73.5
Non-pharmacological pain relief equipment	43	96	184	26	50	399
Percentage	95.6	96.0	89.3	92.9	90.9	91.9

Source: Data collection tool: Bed Count and Observation Guide.

Table 4. Distribution of maternity hospitals with PCP rooms by location, legal nature, type of management, delivery volume and level of complexity. Brazil and large regions.

	Maternities with PCP rooms			
	No		Yes	
	Nº	%	Nº	%
Maternity location				
Capital	105	62.5	63	37.5
Countryside	333	81.8	74	18.2
Legal nature				
Public administration	250	75.3	82	24.7
Business/Non-profit/Individual organization	188	77.4	55	22.6
Childbirth volume				
Up to 999 childbirths	104	85.2	18	14.8
1,000 to 2,999	231	80.8	55	19.2
3,000 and more	103	62.0	63	38.0
With Intensive Care Unit				
Yes	192	66.0	99	34.0
No	246	86.6	38	13.4
Reference for high-risk pregnant women				
Yes	79	65.8	41	34.2
No	359	79.1	95	20.9

Source: Cnes.

(27.5%), which perform more than 3,000 births per year (38.0%) and greater complexity measured by the presence of Neonatal ICU (34.0%) and being a reference for high-risk pregnant women (34.2%).

Discussion

The overview of the PCP room availability and adequacy is one of the important aspects in assessing the potential of the health system to respond to the care needs of women and newborns during childbirth and birth.

Although all processes involved in assisting the childbirth and birth of the selected maternity hospitals were not considered in this article, the evidence of the association between adequate environments in safe care for women and their newborns and the occurrence of favorable results reaffirm the importance of assessing the structure, even in isolation¹⁵. The research findings, using the room PCP as a model of childbirth care, show that the adequacy of the delivery environment is an important liability for the qualification of Brazilian obstetric care, especially in the perspective of expanding the frequency of good practices, many times impossible to be exercised without restraint in collective rooms.

The transition from the childbirth and birth environment model that segments and separates the prepartum and childbirth in specific environments, to the PCP room model, representing an enormous challenge, despite more than a decade of RDC 36/2008³ and almost one of RC⁴. The presence of collective rooms is a reality in most of the assessed hospitals and the exclusive adoption of a PCP room is still timid. A small portion of hospitals also adopt mixed models, initiating some process of changing the environment. RC hospitals accounted for almost half of deliveries in the country and 61.2% of SUS deliveries in 2017¹⁶. It is likely that public hospitals and/or SUS-affiliated hospitals not covered by the RC Action Plan have even less availability of PCP rooms.

The results show that a significant number of the assessed hospitals do not have an exclusive bathroom with hot water in the shower; this is an indication that an important portion of women did not have access to this technology, nor their privacy, a fundamental aspect for the good development of female physiology. The presence of equipment for non-pharmacological pain relief is found in most hospitals, which shows that even though the delivery environment is not adequate,

efforts to incorporate this equipment and care technologies have been carried out¹⁷.

Hospitals located in capitals, in general with greater delivery volume, with Neonatal ICU and reference for high-risk pregnancies had a greater number of maternity hospitals with at least a PCP room installed. A similar observation was pointed out by Magluta et al.¹⁸ and Bittencourt et al.⁶, who found that hospitals of greater complexity have better levels of adequacy in the assessed structural dimensions. Our study has the advantage that the data used were based on the direct observation of trained evaluators, thus reducing the uncertainties regarding the reliability of the collected data.

Although the study on childbirth environment has been restricted to checking the structure of health services and has not verified the reasons that make the transition from childbirth environment practically stagnant in the country, it is important to understand the different aspects involved, pointing out, even if limitedly, alternatives to modify the permanence of the traditional model of childbirth care.

The low availability of PCP room and its different stages of implementation according to large regions may be associated with the context of structural underfunding of SUS and, more recently, the ceiling and cut in public spending¹⁹, which may have made it impossible to carry out reforms of maternity hospitals' physical spaces as well as managers' difficulties in not executing the financial resources released by MoH to adapt the environment.

MoH data²⁰ demonstrate that the funds released, especially until 2015, were not fully implemented by subnational spheres and the funds raised took time to transform into new services and renovated spaces. In the period between 2011 and 2018, 481 proposals for works in a Birth Center (BC), *Casa da Gestante, Bebê e Puérpera* (CGBP, a special facility for high-risk pregnant women, mothers and their newborns) environment of childbirth and birth care services, construction and expansion of new maternity hospitals and structuring of specialized care units were approved and committed by MoH. Of these proposals, 211 (44%) were related to environment, totaling R\$51,878,795.02 (about 4,454 US dollars)²⁰. By the end of April 2019, considering the current proposals (committed and not canceled by MoH), only 46 of them (21%) were completed. Among the 124 proposals approved in 2013, only 59% (46 works) were completed by the end of 2018, after which a period of 5 years had

passed. The small number of projects presented also indicates that the transformation of care practices for women and children has not been taken as a priority, so there would be no reason to invest in the delivery environment²¹.

Resistance to change is recognized²² by health service managers and teams to preserve what has become institutionalized as a culture of care in the organization. In more hardened scenarios, where relations of knowledge-power are more asymmetrical, changes tend to form forces around conservation, perpetuating a series of situations, such as the continuity of carrying out unnecessary interventions, neglected by those known to be beneficial²³. However, it is important to highlight that although the modification of the environment has reached a restricted coverage, advances were observed in the care model recommended by RC as highlighted by articles that compared the evolution of good practices and unnecessary interventions in assistance to women and newborns in the same SUS maternity hospitals in 2011 and the current 2016/2017 RC assessment^{24,25}. Such movements of change in the ways of caring coexist at the same historical time with the presence of inappropriate practices of care for childbirth and birth, placing Brazil before a paradoxical scenario that mixes innovation and conservation, often conforming hybrid processes that amalgamate conservation-transformation elements.

Changes in health care models do not result from the continuous introduction of new rules at work, not even from governmental strategies of a systemic nature, such as RC. However, the chances of sustaining the innovations emerging from these formulations are greater when they result from collective bargaining processes in the workplace²⁶, that would translate into protocols and technical regulations as well as projects to change the environment for childbirth based on a new work ethic.

It was from this understanding that the institutional support recommended by RC took the PNH method²⁷, - inclusion of subjects and the effects of that inclusion - hence the materialization of principles and guidelines in devices, which are work technologies. It would be a question of implementing an institutional action model that would make it possible to produce consensus on ways of managing and caring that would result in new work contracts, new ways of doing, in new work spaces. Thus, the RC implementation process counted on the participation of supporters, RC guiding groups and technical coordination

of the state and municipal health departments, which started to subsidize maternity teams in introducing and sustaining changes in planning, assessment processes, and work agendas, as evidenced in *Caderno HumanizaSUS* (a set of documents focusing on the humanization of childbirth and birth)²⁸. Moreover, it supports the training of architects and engineers⁹ committed to developing Co-managed Projects of Environment²⁹, where care processes and the needs for changes in work environments are delimited by the concept of environment.

The intensive way³⁰ of supporting supporters in training processes and in mobilizing management teams and workers, certainly did not become broadened throughout SUS. Achieving it through an intensive mode of action raises the question of the strategies and the political time for its realization. In many health services, the intensive effects were important, but in others, it is likely that RC, as a new ethics of care, did not even arrive, leaving the environments and modes of care unchanged. Even in those where support was achieved, the reports are difficult to implement changes²⁸.

Modifications in the environment demand to combine efforts so that the changes 'in the state of things' trigger processes of changes in the models of care in line with the assumptions of humanization of childbirth and birth. These processes, however, are of a different nature, and the 'transformation of things' goes hand in hand with 'people reform'³¹, demanding time and conditions for the emergence of new processes of subjectification. Thus, it is necessary to build and sustain political-institutional disposition to change work dynamics, which in turn call for subjective repositioning, given the ontogenetic nature of human work³². It is in this measure that we understand, in part, the difficulties to implement changes in the environment model of hospitals that deliver by SUS.

These issues should be understood as challenges for the Brazilian scientific community, professional organizations, managers of SUS, MoH and the Ministry of Education and for the Brazilian society as a whole. Overcoming this reality, in which the inadequate environment, is an analyzer, because it makes it explicit, presupposes a cultural advance towards the conformation of a new social project, in which life and full living are imperative ethical references.

However, even in the face of this scenario of a slow transition of the childbirth environment, the Brazilian neonatal obstetrics field has been

experiencing a “fertile and promising period in terms of the possibility of revising concepts, values and (...) care practices”³³, which can already be seen by Leal *et al.*¹⁷. They point to a “significant increase in access to appropriate technology for childbirth and birth (...) with an increase in the proportion of use of beneficial practices and reduction of practices considered harmful”.

Experimenting with new ways of managing and caring in the neonatal obstetrical field is an important space to build the foundations of a social project that puts life at its center. Brazilian experiences already show us this and also show that public policies such as RC are fundamental stakes and achievements for improving women’s and child health.

Collaborations

DF Pasche participated in the conception, elaboration and coordination of the article. MP Pessatti worked on the design and writing and final review of the article. LBRAA Silva worked on the article design, data collection and review. MEL Matão, DB Soares and APC Caramachi worked on the design of the article, participated in data collection and bibliographic review.

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