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Labor and childbirth care in maternities participating in the "Rede Cegonha/Brazil": an evaluation of the degree of implementation of the activities

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Abstract *Using a judgment framework, this article analyzes the degree of implementation of the best practices in labor and childbirth care contained in the guidelines of the* Rede Cegonha *(RC) across Brazil. The study eligibility criteria were public and mixed hospitals located in a health region with a RC action plan in place in 2015, resulting in a total of 606 facilities distributed across the country. Three different data collection methods were used: face-to-face interviews with managers, health professionals and puerperal women; document analysis; and on-site observation. The framework was built around the five guidelines of the Labor and Childbirth component of the RC. Degree of implantation was rated as follows: adequate; partially adequate and inadequate. The performance of maternity facilities was rated as partially adequate for all guidelines except for hospital environment, which was rated as inadequate. A huge variation in degree of implementation was observed across regions, with the South and Southeast being the best-performing regions in most items. The results reinforce the need for an ongoing evaluation of the actions developed by the RC to inform policy-making and the regulation of labor and childbirth care.*

Keys words *Maternity facilities, Unified Health System, Health evaluation, Best practices, Stork Network*

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Introduction

Antenatal care coverage is high in Brazil (97.6%)[1], and almost all births (91.5%)[1] occur in hospitals and are assisted by qualified staff (99.1%)[2]. However, the large proportion of maternal deaths due to direct obstetric complications, high concentration of neonatal deaths in the first hours of life, frequency of fetal deaths towards the end of a pregnancy or during labor – predominantly preventable causes of death – high frequency of unnecessary interventions such as cesarean sections in low risk women, and occurrence of neonatal deaths in hospitals without neonatal care support reveal deficiencies in maternal and newborn care services, particularly in hospitals, where a significant proportion of these adverse outcomes occur[3,4].

With the aim of transforming this situation and guaranteeing women's and children's rights to health, in 2011, the Ministry of Health launched the *Rede Cegonha* (RC), implementing an integrated network of maternal and infant care services. The Labor and Childbirth component of this program adopts a women-centered model of care that views childbirth as a normal physiologic processes, thus ensuring a safe birth[5,6].

To determine the extent to which the country's maternity facilities are implementing this care model and identify advances and gaps to inform the planning and organization of health services and discussions between clinicians and management, a new cycle of the survey "Evaluation of Good practice in childbirth care in maternity facilities covered by the Rede Cegonha" was conducted.

This article analyzes the degree of implementation of Good practice in childbirth care in accordance with the standards set by the RC by region and across the country as a whole.

Methods

We conducted a normative evaluation using a qualitative and quantitative design and participatory rapid assessment[7]. The study eligibility criteria were public and mixed hospitals located in a health region with a RC action plan in place in 2015, resulting in a total of 606 facilities distributed across the country. The data were collected between 2016 and 2017.

Three different data collection methods were used. The first was face-to-face interviews with managers, health professionals and puerperal women to capture their perceptions of the management model and labor and childbirth care. The managers and health professionals were selected using purposive sampling. One group interview was conducted with the maternity facility managers and coordinators/heads (doctor and nurse) of obstetrics and neonatology in each hospital, resulting in 2,765 interviews. The health professionals (doctors, nurses and nursing technicians) were interviewed individually. The number of interviews per maternity facility varied in proportion to the size of the facility in 2015[1], resulting in a total of 5,033 interviews. The puerperal women were selected using sequential sampling, resulting in 10,665 interviews. The sample design is described in Vilela et al.[8].

The second method was document analysis to verify the standards, protocols, and process indicators and labor and childbirth care outcomes. Data on hospital care were extracted from the women's and newborn's medical records.

The third data collection method was on-site observation to inspect the facilities and floor plan. This assessment encompassed all areas of the maternity facility, including the entrance, rooming-in facility, and neonatal unit.

The instruments were divided into blocks of questions related to each of the RC guidelines. The visits to the maternity facilities in each state were made by a team of trained health professionals with experience of working in maternity facilities. Further information can be found in Vilela et al., 2020[8].

To evaluate the degree of implementation of good practices, we constructed a judgment framework based on the regulatory documents and legislation that guide the actions of the RC[5]. The framework was divided into the five guidelines of the RC's Labor and Childbirth component subdivided into 17 devices with 60 verification items (Chart 1). Compliance with the established criteria was based on a combination of the answers from the puerperal women, health professionals and managers and the information obtained from the document analysis and on-site observations. The degree of implementation in each maternity facility was estimated based on the proportion of affirmative answers to each question. The calculation was based upon the sum of the scores of the verification items weighted by their relevance to the quality of labor and childbirth care according to the standards set by Vilela et al.[8]. Each guideline had the following weighting: Welcoming in Obstetric Care (18.5%), Good

Chart 1. Judgment framework guidelines, devices, verification items, dimensions and criteria for the analysis of the degree of implementation of the actions developed by the Rede Cegonha.

Device	Verification item	Dimensions/Criteria	M	S	P	Mr	Obs	Doc
Guideline 1								
Welcoming in	Health professionals introduce themselves to patients	Do the health professionals in this facility introduce themselves to patients informing their name and function? Most or all professionals	0.1	0.4				
		How many health professionals have introduced themselves, informing their name and function since you arrived in this maternity facility? Most or all professionals			1.0			
	Addressing patients by name	Do health professionals address pregnant and puerperal women by name? Most or all professionals	0.1	0.4				
		How many health professionals are addressing you by your name since you arrived in this maternity facility? Most or all professionals			1.0			
	Active listening to patients'/companions' complaints, fears and expectations	How often do you feel welcomed, well treated and respected during your stay in this maternity facility? Most of the time or always			1.5			
	Effective communication	Do health professionals provide pregnant and puerperal women information about their health status? Most or all professionals		0.3				
		Do the health professionals use in keeping with the patient and moment? Most or all professionals		0.3				
		How often do you understand the information that you receive during your stay in this maternity facility? Most of the time or alway			1.2			
		How often do you feel that the health staff in this maternity facility seek to give answers and answer your doubts/requests? Most of the time or always			1.2			
Risk Rating Assessment	Risk rating by health professional/team from the area 24 hours a day	Does this maternity use obstetric risk rating when receiving patients? Yes	1.0					
		Is risk obstetric risk rating done 24 hours a day? Yes	0.5					
		Is obstetric risk rating done 7 days a weeks? Yes	0.5					
	Provision of Information/ explanation to pregnant women regarding WRA	Are there welcoming and risk rating signs (WRA) showing the colors and waiting times? Yes					1.5	
		After the were you advised of the waiting time to see a doctor or nurse? Yes			1.5			

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practice in childbirth care (41.5%), Monitoring childbirth care and related outcomes (10.0%), Shared management (10.0%), and Hospital environment (20.0%). The scores were also weighted according to the information source, as follows: puerperal women – 24.7%; on-site observation – 23.9%; health professionals – 21.0%; managers – 15.4%; puerperal women's/newborn's medical records – 9.8%; document analysis – 5.2%. The following parameters were used to rate the degree of the implementation of RC's guidelines and devices[9]: adequate (75.01 to 100%); partially adequate (50.1 to 75%), and inadequate (0 to 50%).

The judgment framework was validated by a group of specialists from the following organizations: the Ministry of Health (four from the Office for the General Coordination of Women's Health,

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Network obstetric care	Registration of pregnant women with the referral maternity facility guaranteed	**Were the pregnant women who use this maternity facility as their delivery referral facility able to visit facility during antenatal care? Yes**	0.3	0.7				
	Counter-referral from the maternity facility to primary care guaranteed	Does the maternity facility communicate with primary care services to guarantee counter-referral? Yes	0.6					
		Does the maternity facility communicate with primary care services to guarantee counter-referral? Yes		1.4				
	Hospital bed always available	When admission is indicated, but there are no available beds in this maternity facility, what arrangements are made? Patient is welcomed, risk rating is performed and the transfer regulation center is advised or Patient is welcomed, risk is performed and the patient is transferred directly to another service by the maternity facility or Patient is welcomed, risk is performed and the patient is admitted to the facility	1.0	2.0				
Guideline 2								
Right to a Companion of Choice	Inclusion of a companion of choice	Does the maternity facility guarantee pregnant women the right to a companion of choice during her whole stay for delivery in this maternity facility?	0.5	1.0				
		Did you have a companion during your stay? Yes			2.0			
		Did the maternity facility allow your companion to stay with you the whole time? Yes			0.5			
	Newborn's mother and father have free 24-hr access to and can stay in the neonatal unit	Does this maternity facility allow the mother/father free 24-hour access to and to stay in the neonatal unit? Mother and father at the same time	0.75	1.4				
	Availability of chairs for companions during labor and birth	Does this maternity facility have the space for companions to be present during labor? Yes					1.0	
		Does this maternity facility have the area and layout that allow companions to stay in rooming-in? Yes					1.0	
	Meals provided to companions	Does the maternity facility provide meals to companions? To all companions	0.1	0.1				
		Did the maternity facility provide meals to your companions? Yes			0.6			
Best Practices in Childbirth, Birth and Postpartum Care	Obstetric nurses/midwives participate in low-risk vaginal deliveries	"Which professionals perform normal births without dystocia? Obstetrician and/or obstetric nurse; midwife "	0.75	1.0				
	Partogram filled in	How often is the partogram used to monitor the progression of labor, guiding obstetric conduct? Always		0.1				
		Is the partogram filled in the mother's medical records? Yes				2.0		
	Drinks and food offered to normal low -risk pregnant women during labor	Fluids, water, juice, soup or other food were offered to the mother during labor? Yes			0.5			
		Did you request some type of fluid or food during labor? Yes, and I was given it			0.2			
		What type of diet was prescribed during labor? Liquid or other type of diet				1.3		

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Device	Verification item	Dimensions/Criteria	M	S	P	Mr	Obs	Doc
Best Practices in Childbirth, Birth and Postpartum Care	Non-pharmacological pain relief methods offered during labor	Does the maternity facility have non-pharmacological pain relief equipment/materials? At least one					0.4	
		How often does the maternity facility offer pregnant women non-pharmacological pain relief methods during labor? Often or always	0.1	0.1				
		How often were you offered a massage? Often or always		0.03				
		How often were you offered a birthing ball? Often or always		0.03				
		How often were you offered a birthing stool? Often or always		0.03				
		How often were you offered a stool? Often or always		0.03				
		Does the maternity facility offer other non-pharmacological pain relief methods? Often or always		0.03				
		Did you use any of the following pain relief methods during labor? Massage (Yes or didn't want to)			0.16			
		Did you use any of the following pain relief methods during labor? Ball (Yes or Didn't want to)			0.16			
		Did you use any of the following pain relief methods during labor? Birthing stool (Yes or Didn't want to)			0.16			
		Did you use any of the following pain relief methods during labor? Stool for squatting position (Yes or Didn't want to)			0.16			
		Did you use any of the following pain relief methods during labor? Other? (Yes or Didn't want to)			0.11			
	Encouragement of walking around during Good practice in childbirth care	Pregnant women are encouraged to walk around during labor? Always	0.1	0.2				
		Were you allowed to get out of bed and walk around during labor? Yes			1.0			
	Encouragement of non-supine birth positions	Does the maternity facility provide conditions non-supine birth positions? Yes	0.1	0.15				
		How often are deliveries performed in non-supine positions? Often or always	0.1	0.15				
		What position were you in when you had your baby? In bed lying on my side or laid back or in a vertical position; sitting or vertical position; squatting or vertical position, standing up or on all fours			1.0			

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two from the Office for the General Coordination Children's Health and Breastfeeding, and one from the Department of Science and Technology); Maranhão Federal University (four professors from the Department of Public Health); and the Oswaldo Cruz Foundation (four researchers from the Sergio Arouca National School of Public Health's Department of Epidemiology and Quantitative Methods in Health and one researcher from the National Institute of Women, Children

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Device	Verification item	Dimensions/Criteria	M	S	P	Mr	Obs	Doc
Unnecessary Maternal Care Interventions	Amniotomy	Do the professionals in this maternity facility perform routine amniotomy ? No	0.1	0.2				
		Did they break your waters (waters break) after you arrived in the hospital? No, they broke before admission or no, they broke by themselves during my stay or Yes, they broke during the cesarean			0.5			
		Is amniotomy recorded in the mother's medical records? Yes, there is a record of what was not done				1.2		
	Use of an venous catheter during labor	Is routine use of the venous catheter made in this maternity facility for parturient women? No	0.1	0.2				
		Did you have IV during labor? No			1.0			
		Is the use of IV during labor recorded in the mother's medical records? No				1.2		
	Administration of uterotonic drugs during labor	Do the health professionals in this maternity facility administer oxytocin during labor? No or selectively	0.1	0.2				
		Is the use of oxytocin to induce or accelerate labor recorded in the mother's medical records? No				1.3		
		Is the use of misoprostol to induce labor recorded in the mother's medical records? No				1.3		
	Kristeller maneuver	Is the Kristeller maneuver performed in the maternity facility? No	0.1	0.2				
		Did someone press or put their weight on your tummy to help the baby come out? No			1.0			
	Episiotomy	Do the health professionals in this maternity facility perform episiotomy? No or selectively	0.1	0.2				
		Did they make a cut in your perineum (vagina) during birth? No			1.0			
		Did you feel pain during suturing (stitching) of the perineum? No			0.3			
		Is episiotomy recorded in the mother's medical records? Yes, there is a record of what was not done				1.5		

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and Adolescents Fernandes Figueira). The team of specialists discussed the appropriateness of the verification items, either excluding items and including new items or maintaining/altering existing items. The weightings of the revised verification items were then recalculated to substantiate the final version of the judgment framework. Chart 1 shows the distribution of the framework weighting by guideline, device and verification item according to the source of data.

For each maternity facility, we estimated the adequacy of each item and device of the five RC guidelines. The results are presented by region and for the country as a whole. The analyses were conducted using Stata 14 and SPSS® Statistics 21.

The study was carried out in accordance with the requirements of the National Health Council Resolution Nº. 196/96 and was approved by the Maranhão Federal University's and Sergio Arouca National School of Public Health's human research ethics committees. All necessary precautions were taken to safeguard the confidentiality of the information.

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Device	Verification item	Dimensions/Criteria	M	S	P	Mr	Obs	Doc
Guideline 3								
Availability of Childbirth Care Indicators	Bed occupancy rate in rooming-in and neona+A19+B19: C2+B19:C35	Bed occupancy rate in rooming-in						0.25
		Bed occupancy rate in the neonatal unit						0.25
	Average length of stay in rooming-in and neonatal unit	Average length of stay in rooming-in						0.25
		Average length of stay in the neonatal unit						0.25
	Monitoring of the proportion of cesarean sections	Proportion of cesarean sections						0.5
		What indicators are monitoed? % of cesarean sections; % cesarean sections in high-risk women; % cesarean sections by age group; % cesarean sections by main indications; % normal births in women who have had a cesarean section; % skin-to-skin contact in cesarean sections; % optimal umbilical cord clamping in cesarean sections; % cesarean sections in womene who have had a previous delivery; Robson classification; % adolescent deliveries. At least one	0.2	0.3				
	Presence of companion during hospital stay for delivery	Percentage of cesareans with companion						0.25
		Percentage of companions during labor						0.25
		Percentage of companion during birth						0.25
		Percentage of companions during postpartum						0.25
	Risk rating in the maternity facility	Average waiting time for risk rating						0.275
		Average waiting time to be seen according to risk assessment color bands						0.275
	Maternity facility develops strategies to reduce the number of cesarean sections	What indicators are monitoed?Average waiting time for risk assessment; Average waiting time between risk assessment and consultation by color; % patients classified referred to primary care; % women by classification; Percentage of admissions by diagnosis. At least one	0.15	0.3				
		Action plan in place to reduce rate of cesarean sections? Yes, % of cesarean sections lower than 35% in HIS for high-risk maternity facilities	0.1	0.15				0.25
		Planning and analysis of indications for cesarean sections performed periodically? Yes	0.1	0.15				
		Management or coordinator of obstetrics or staff hold periodic meetings with teams to discuss cesarean percentages and indications? Yes	0.1	0.15				
	Percentage of episiotomies in normal births	Availability of indicators of episiotomies in normal births	0.2	0.4				0.4

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Device	Verification item	Dimensions/Criteria	M	S	P	Mr	Obs	Doc
Availability of Maternal, Neonatal and Fetal Mortality Indicators	Number of maternal, infant and fetal deaths	Availability of number of fetal deaths						0.5
		Availability of number of neonatal deaths						0.5
		Availability of number of maternal deaths						0.5
	Death analysis	How often is an analysis of maternal deaths peformed? Weekly; two-weekly; monthly; two-monthly; quarterly; only with unusual situations	0.2	0.3				
		Is there a maternal and neonatal death committee? Yes, is the facility performs over 1000 chilbirth per year	1.0					
	Publication of morbidity and mortality indicators	Does the management provide/disclose data on morbidity and mortality indicators to health staff? Yes	0.3	0.7				
Guideline 4								
Existence of a Collegial Management Body and/or other Collegial Management Mecanism	Existence of a collegial management body or other collegial management mechanism	What strategies are in place in the maternity facility? Collegial management body or similar (spaces for shared management) or wide-scale participatory management	0.3	0.7				
	Participation of professionals performing different roles in collegial management bodies	Who participates in shared management spaces? Health staff in management positions and/or professionasl with degrees who work in care and/or technicianswho work in care and/or administrative staff	0.4	0.6				
	Staff participation in decision making about work processes	Do staff from different sectors in this maternity facility regularly attend meetings where decisions are made about work processes? Yes	0.3	0.7				
	Promotion of debates on labor and best childbirth and birth care practices with with professional staff	How often were debates promoted with maternity staff over the last year (seminars, study circles, rclincial meetings) about best practice in childbirth care and birth care practices? Weekly; two-weekly; monthly; two-monthly; quarterly	1.0					
	Regular meetings with staff to ensure the functioning of collegial management mechanisms	If there are shared-managements spaces, how often are meetings held? Weekly or two-weekly or two-monthly or quarterly	0.3	0.7				
Patient, Companion and Worker Information and Listening mechanism	SUS patient access to the ombudsman with guaranteed response	Does the maternity facility have na ombudsman service? Yes	0.2	0.3				
		"Does the maternity facility have a routine for answering suggestions, compliments, denouncements or complaints? Yes"	0.4	0.6				
		Were you told about/aware that there is na ombudsman for making suggestions, compliments, denouncements and complaints about the care you recevive in this maternity facility? Yes			1.5			
	Changes in work processes and decision making from listening to patients	Are professionals informed about the reports sent to the ombudsman? Yes	0.5					
		Is the information from the ombudsman used in the maternity facility's decision making processes? Yes	0.5					
		Are professionals informed about the reports sent to the ombudsman? Yes		1.0				

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Device	Verification item	Dimensions/Criteria	M	S	P	Mr	Obs	Doc
Guideline 5								
Environment Suitable for Good Front Door Practices	Suitable and comfortable environment for welcoming women and their companions	Is the space private? Yes					0.4	
		Does the area have the space for companions to be present during classification? Sim					0.3	
		Are there enough seats/chairs for the mother and companion? Yes					0.3	
	Comfort and privacy assured in the clinical examiation room and admission of the parturient woman	Is the room individual?Yes					1.0	
Environment Suitable for Good practice in childbirth care OU Birthing rooms	Adequacy of the supply of rooms	Adequacy of the provision of LDP rooms in relation to total number of labor beds					3.0	
	Adequacy of the structure of the rooms	Are women in labor admitted to a LDP room with private en-suite bathroom with hot and cold water					3.0	
Environment Suitable for Rooming-in	Adequate level of comfort in rooming-in	Does rooming-in have em-suite bathroom? Yes					1.0	
		Does it have a recliner chair for the companion? Yes					1.0	
		Does it have a bathing area for the newborn? Yes					1.0	
Suitable Environment in the Neonatal unit	Accommodation provided for mothers of babies admitted to the neonatal unit	Is there accommodation in the hospital for mothers of babies admitted to the neonatal unit? Yes					3.0	
	Noise, brightness and temperature control in the NICU and CICU	Does the NICU have comfortable lighting levels? Yes					0.4	
		Does the NICU have comfortable temperature levels? Yes, with controlled air-conditioning					0.2	
		Does the NICU have comfortable noise levels? Yes					0.4	
		Does the CICU have comfortable lighting levels? Yes					0.4	
		Does the CICU have comfortable temperature levels? Yes, with controlled air-conditioning					0.2	
		Does the CICU have comfortable noise levels? Yes					0.4	
	Chairs and easy chairs in the NICU and CICU	Is there a place for companions in all beds in the NICU? Yes					0.8	
		Are the chairs for companions the NICU recliners? Yes					0.2	
		Is there a place for companions in all beds in the CICU? Yes					0.8	
		Are the chairs for companions the CICU recliners? Yes					0.2	

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Device	Verification item	Dimensions/Criteria	M	S	P	Mr	Obs	Doc
Accessible environment	Access for disabled pregnant women/ companions	Does the reception have disabled access? Ramps with rails or lift and/or wheelchair accessible bathrooms with grab bars					1.0	
		Does the welcoming and risk rating area have disabled access, ramps with rails or lift and/or wheelchair accessible bathrooms with grab bars					1.0	

Note: M (Manager); S (Staff); P (Puerperal women); MR (Women's and newborn's medical records); Obs (On-site observations); Doc (Document analysis)

Results

The implementation of the RC's Good practice in childbirth care component was rated as partially adequate in all regions except the North, where it was rated as inadequate. One-quarter of the maternity facilities in Brazil were rated as inadequate. The region with the highest percentage of inadequate facilities was the North, followed by the Center-West, Northeast, Southeast and South.

With respect to the performance of the maternity facilities in each of the five guidelines, up to 30% of the maternity facilities were rated as inadequate in Welcoming in Obstetric Care, Good practice in childbirth care, Monitoring childbirth care and related outcomes, and Shared management, rising to 61.6% in Hospital environment. Degree of implementation across the five guidelines was lowest in the North, with 54.7%, 62.8% and 82.6% of facilities showing inadequate implementation for Monitoring childbirth care and related outcomes, Shared management, and Hospital environment, respectively. The degree of implementation of the devices and items in each of the five guidelines is outlined below.

Table 1 shows that the implementation of Welcoming in Obstetric Care was rated as inadequate in 7.9% of the country's maternity facilities, with rates varying between slightly over 2% in the South and Southeast and 23.3% in the North. With regard to the three devices that make up this guideline, 3.0% of the country's maternity facilities were rated as inadequate for "Welcoming" and "Network obstetric care". The result for "Welcoming" was due mainly to the low percentage of facilities rated as inadequate for the items "Addressing patients by name" (4.0%), "Active listening to patients' complaints, fears and expectations" (2.5%), and "Effective health professional/patient communication" (2.5%). In contrast, implementation for "Health professionals introduce themselves to patients" was inadequate in almost one-quarter of hospitals.

The device with the highest number of maternity facilities rated as inadequate was "Risk assessment". The findings show that 34.0% (206) of the maternity facilities had not implemented this device (data not shown). Implementation was inadequate (no informative risk rating signs showing colors and waiting times and/or non-provision of information to pregnant women about their health status) in 37.8% of the maternity facilities whose managers confirmed that this device was in place. The percentage of facilities rated as inadequate in this device was highest in the Southeast and North.

Weaknesses in the device "Network obstetric care" were observed in the items "Registration of pregnant women with the referral maternity facility" (20.5%) and "Counter-referral from the maternity facility to primary care" (24.3%). On the other hand, the implementation of the item "Hospital bed always available" was inadequate in only 2.3% of the maternity facilities.

The implementation of Guideline 2 – Good practice in childbirth care was inadequate in almost 30% of the maternity facilities, with the Center-West and Northeast showing the highest percentage of inadequate facilities. The implementation of the item "Inclusion of a companion of choice" was inadequate in 8.4% of the country's maternity facilities, rising to 19.8% in the North, while "Availability of chairs for companions during labor and birth" was inadequate in 43.1% facilities, reaching 52.6% in Center-West. The implementation of the item "Meals provided to companions" was inadequate in 24.4% of the

maternity facilities. The worst-performing regions in this item were the South and Southeast. The item "Newborn's mother and father have free 24-hr access to and can stay in the neonatal unit" was rated as inadequate in a little over one-third of the maternity facilities in Brazil, with only small variations across regions.

With regard to the device "Good Practices in Labor, Childbirth and Postpartum Care", the implementation of the item "Partogram filled in" was inadequate in 60% of the maternity facilities in Brasil, with the Center-West, North and Northeast showing the highest percentage of inadequate facilities. The implementation of the item "Obstetric nurses/midwives participate in low-risk vaginal deliveries" was inadequate in 38.4% of the maternity facilities, with the South, Center-West and Southeast having the highest percentage of inadequate facilities. The overall percentage of facilities rated as inadequate for the implementation of the item "Encouragement of walking around during labor and childbirth" was 37.6%, rising to 40.0% in the Center-West and Northeast and 61.6% in the North. The implementation of the items "Non-pharmacological pain relief methods offered during labor" and "Encouragement of non-supine birth positions" was inadequate in over 80% of the facilities, with percentages showing little variation across regions, while the item "Drinks and food offered to normal-risk pregnant women during labor" was inadequate in 56.8% of the facilities.

The findings show that the percentage of maternity facilities with an inadequate rating for the items in the device "Unnecessary Maternal Care Interventions" was high: "Amniotomy" (87.1%), "Use of a venous catheter during labor" (63.5%), "Episiotomy" (55.6%), "Kristeller maneuver" (18.5%), and "Administration of uterotonic drugs during labor" (4.3%).

With regard to "Good Newborn Care Practices", the implementation of the item "Optimal umbilical cord clamping" was inadequate in 55.9% of the maternity facilities in Brazil, with the North and Northeast showing lower percentages. The implementation of the items "Immediate and not interrupted skin to skin contact between women and baby to stimulate breastfeeding in the first hour after birth" and "Encouraging breastfeeding in the first hour of life" was inadequate in 24.8% and 22.6% of facilities, respectively, with the Center-West, South and Southeast showing lower percentages. Only 0.5% of the maternity facilities in Brazil were rated as inadequate for the item "Encouraging breastfeeding in the rooming-in facility", with almost all women stating that they breastfed their baby in the first 24 hours of life.

With regard to the device "Good Newborn Care Practices", 49.3% and 50.3% of the maternity facilities were rated as inadequate in the items "Use of kangaroo care protocols" and "Reducing light and sound levels", respectively.

With regard to the device Unnecessary Newborn Care Interventions, one-quarter of the maternity facilities were rated as inadequate for the item "Neonatal airway suctioning", rising to one-third of the facilities in the South. Mother-baby separation was a common practice in maternity facilities, with 54.3% of facilities being rated as inadequate in this item, rising to 71.6% in the South.

Table 2 shows that the implementation of the guideline Monitoring childbirth care and related outcomes was inadequate in almost one-third of the country's facilities. This result was influenced mainly by the level of implementation of the device "Availability of Labor and Childbirth Care Indicators", which was rated as inadequate in 50% of the maternity facilities, with percentages rising to 57.1%, 61.0% and 66.3% in the Northeast, Center-West and North, respectively. The items "Risk assessment", "Presence of companion during hospital stay", "Bed occupancy", "Average length of stay in rooming-in and neonatal unit", and "Percentage of episiotomies in normal births" were rated as inadequate in 84.5%, 67.5%, 46%, 48% and 38% of facilities, respectively.

The device "Availability of Maternal, Neonatal and Fetal Mortality Indicators" was rated as inadequate in 13% of the country's maternity facilities, with the Northeast, Center-West and North obtaining the worst results. One-quarter of the maternity facilities did not have a maternal and neonatal death committee in place, while the implementation of the items "Maternity facility develops strategies to reduce the number of cesarean sections" and "Publication of mortality and morbidity indicators" indicators was inadequate in over 40% of the facilities.

Table 2 also shows large variations across the verification items that make up the guideline "Shared management". The implementation of the item "Existence of a management committee or other management body" was inadequate in 40% of the maternity facilities. The worst-performing item was "Participation of professionals performing different roles in collegial management bodies", with 100% of the maternity facilities rated as inadequate. A little over 60%

Table 1. Degree of implementation of guidelines 1 and 2 and their devices and verification items by region and overall, 2017.

Guideline /Device /Verification Item	North			Nordeast			Southeast			South			Center-West			Brazil		
	I	PA	A	I	PA	A	I	PA	A	I	PA	A	I	PA	A	I	PA	A
General Adequacy	53.5	44.2	2.3	23.4	74.3	2.3	18.4	74.4	7.2	13.6	84.0	2.5	26.8	70.7	2.4	24.8	71.1	4.1
Welcoming in Obstetric Care	23.3	51.2	25.6	10.3	51.4	38.3	2.7	40.4	57.0	2.5	35.8	61.7	4.9	58.5	36.6	7.9	45.7	46.4
Welcoming	10.5	47.7	41.9	1.7	34.9	63.4	0.4	11.2	88.3	0.0	6.2	93.8	0.0	17.1	82.9	2.1	22.9	74.9
Health professionals introduce themselves to patients	50.0	41.9	8.1	31.4	44.0	24.6	11.7	34.1	54.3	13.6	48.1	38.3	24.4	43.9	31.7	23.9	40.6	35.5
Addressing patients by name	15.1	32.6	52.3	4.6	25.1	70.3	1.3	16.1	82.5	0.0	11.1	88.9	0.0	24.4	75.6	4.0	21.0	75.1
Active listening to patients'/companions' complaints, fears and expectations	5.8	17.4	76.7	2.9	17.7	79.4	1.8	7.2	91.0	1.2	1.2	97.5	0.0	9.8	90.2	2.5	11.1	86.5
Effective communication	9.3	27.9	62.8	1.7	29.1	69.1	0.9	6.3	92.8	0.0	2.5	97.5	0.0	7.3	92.7	2.1	15.5	82.3
Risk rating	66.3	14.0	19.8	41.7	26.3	32.0	47.5	32.7	19.7	42.0	28.4	29.6	48.8	29.3	22.0	47.9	27.4	24.8
Risk rating by health professional/team from the area 24 hours a day	53.5	7.0	39.5	36.6	5.1	58.3	38.1	5.4	56.5	32.1	6.2	61.7	46.3	12.2	41.5	39.6	6.1	54.3
Information/explanations provided to mother about welcoming and risk rating	41.9	48.8	9.3	33.1	47.6	19.4	45.0	49.7	5.4	33.3	56.7	10.0	20.8	70.8	8.3	37.8	51.3	11.0
Network obstetric care	4.7	41.9	53.5	4.0	35.4	60.6	0.9	12.6	86.5	2.5	11.1	86.4	4.9	31.7	63.4	2.8	24.4	72.8
Registration of pregnant women with the referral maternity facility guaranteed	43.0	18.6	38.4	30.9	37.1	32.0	9.9	18.8	71.3	6.2	19.8	74.1	14.6	24.4	61.0	20.5	24.6	55.0
Counter-referral from the maternity facility to primary care guaranteed	44.2	30.2	25.6	33.1	27.4	39.4	12.6	23.8	63.7	16.0	23.5	60.5	24.4	46.3	29.3	24.3	27.2	48.5
Hospital bed always available	2.3	1.2	96.5	2.9	5.1	92.0	1.8	4.5	93.7	2.5	1.2	96.3	2.4	12.2	85.4	2.3	4.3	93.4
Good Best labor and childbirth and birth care practices	43.0	52.3	4.7	26.9	68.0	5.1	29.1	68.2	2.7	22.2	76.5	1.2	34.1	63.4	2.4	29.9	66.7	3.5
Right to companion of choice	23.3	32.6	44.2	13.1	44.6	42.3	8.5	38.6	52.9	6.2	25.9	67.9	17.1	31.7	51.2	12.2	37.3	50.5
Inclusion of a companion of choice	19.8	22.1	58.1	9.7	32.6	57.7	4.0	21.5	74.4	6.2	8.6	85.2	7.3	29.3	63.4	8.4	23.6	68.0
Newborn's mother and father have free 24-hr access to and can stay in the neonatal unit	37.2	23.3	39.5	38.9	23.9	37.2	31.2	15.6	53.2	31.3	16.7	52.1	26.7	23.3	50.0	33.6	19.3	47.1
Provision of chairs for companions during labor and birth	42.9	0.0	57.1	43.2	2.5	54.3	43.8	2.7	53.4	36.7	1.3	62.0	52.6	2.6	44.7	43.1	2.1	54.8
Meals provided to companions	22.1	41.9	36.0	12.6	43.4	44.0	36.3	37.2	26.5	28.4	42.0	29.6	7.3	65.9	26.8	24.4	42.2	33.3

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Table 1. Degree of implementation of guidelines 1 and 2 and their devices and verification items by region and overall, 2017.

Guideline /Device /Verification Item	North			Nordeast			Southeast			South			Center-West			Brazil		
	I	PA	A	I	PA	A	I	PA	A	I	PA	A	I	PA	A	I	PA	A
Best childbirth and birth and postpartum care	77.9	20.9	1.2	65.1	32.0	2.9	57.8	39.9	2.2	56.8	43.2	0.0	63.4	34.1	2.4	63.0	35.0	2.0
Obstetric nurses/midwives participate in low-risk vaginal deliveries	33.7	12.8	53.5	22.9	21.7	55.4	45.7	11.7	42.6	53.1	18.5	28.4	46.3	14.6	39.0	38.4	15.8	45.7
Partogram filled in	73.3	16.3	10.5	65.1	22.9	12.0	49.8	37.7	12.6	49.4	35.8	14.8	78.0	14.6	7.3	59.4	28.5	12.0
Drinks and food offered to low-risk pregnant women during labor	59.3	34.9	5.8	61.1	29.7	9.1	56.5	29.6	13.9	54.3	34.6	11.1	39.0	53.7	7.3	56.8	32.7	10.6
Non-pharmacological pain relief methods offered during labor	86.0	14.0	0.0	82.9	15.4	1.7	82.5	14.3	3.1	79.0	19.8	1.2	78.0	19.5	2.4	82.3	15.7	2.0
Encouragement of walking around during labor and childbirth	61.6	19.8	18.6	44.0	30.9	25.1	26.5	28.3	45.3	27.2	30.9	42.0	41.5	14.6	43.9	37.6	27.2	35.1
Encouragement of non-supine birth positions	94.2	5.8	0.0	82.3	13.1	4.6	86.5	10.8	2.7	87.7	11.1	1.2	82.9	12.2	4.9	86.3	10.9	2.8
Unnecessary maternal care interventions	36.0	61.6	2.3	31.4	60.0	8.6	41.7	56.1	2.2	29.6	70.4	0.0	26.8	70.7	2.4	35.3	60.9	3.8
Amniotomy	98.8	1.2	0.0	88.0	9.7	2.3	79.8	17.0	3.1	90.1	9.9	0.0	92.7	4.9	2.4	87.1	10.9	2.0
Use of a venous catheter during labor	51.2	39.5	9.3	51.4	37.1	11.4	72.6	22.4	4.9	76.5	22.2	1.2	65.9	34.1	0.0	63.5	29.9	6.6
Administration of uterotonic drugs during labor	2.3	30.2	67.4	1.7	21.1	77.1	8.5	51.6	39.9	1.2	53.1	45.7	2.4	17.1	80.5	4.3	37.6	58.1
Kristeller maneuver	27.9	44.2	27.9	16.6	43.4	40.0	18.4	36.3	45.3	12.3	40.7	46.9	19.5	58.5	22.0	18.5	41.6	39.9
Episiotomy	66.3	23.3	10.5	58.3	28.6	13.1	56.5	27.8	15.7	37.0	33.3	29.6	53.7	31.7	14.6	55.6	28.4	16.0
Best newborn care practices	24.4	40.7	34.9	12.0	58.9	29.1	11.2	41.3	47.5	7.4	50.6	42.0	14.6	56.1	29.3	13.0	48.5	38.4
Use of kangaroo care protocols	63.6	11.4	25.0	54.7	21.4	23.9	46.0	21.7	32.3	39.6	31.3	29.2	43.3	40.0	16.7	49.3	22.9	27.8
Continuous skin-to-skin contact between mothers and healthy newborns immediately after birth	47.7	22.1	30.2	33.7	33.1	33.1	13.0	26.9	60.1	16.0	35.8	48.1	19.5	48.8	31.7	24.8	30.7	44.6
Immediate and not interrupted skin to skin contact between women and baby to stimulate breastfeeding in the first hour after birth	30.2	20.9	48.8	34.5	24.8	40.7	33.3	23.1	43.5	51.1	17.0	31.9	30.0	36.7	33.3	35.1	23.6	41.3
Encouraging breastfeeding in the first hour of life	38.4	26.7	34.9	30.3	36.0	33.7	14.3	28.3	57.4	13.6	39.5	46.9	19.5	51.2	29.3	22.6	33.3	44.1
Encouraging breastfeeding in rooming-in	0.0	2.3	97.7	0.6	2.9	96.5	0.9	2.8	96.3	0.0	1.2	98.8	0.0	0.0	100.0	0.5	2.4	97.1
Optimal timing of umbilical cord clamping	48.8	17.4	33.7	46.3	24.6	29.1	58.7	19.7	21.5	74.1	14.8	11.1	61.0	19.5	19.5	55.9	20.1	23.9
Reducing light and noise levels in the NICU	45.8	25.0	29.2	58.4	21.6	20.0	42.0	29.0	29.0	57.1	38.8	4.1	66.7	26.7	6.7	50.3	27.4	22.2
Unnecessary newborn care interventions	47.7	27.9	24.4	52.6	24.0	23.4	38.6	27.8	33.6	65.4	28.4	6.2	43.9	39.0	17.1	47.9	27.6	24.6
Airway suctioning of newborns	22.1	26.7	51.2	26.9	25.7	47.4	23.8	24.7	51.6	30.9	19.8	49.4	17.1	24.4	58.5	24.9	24.6	50.5
Mother-baby separation	53.5	24.4	22.1	57.7	22.9	19.4	45.3	21.5	33.2	71.6	24.7	3.7	56.1	26.8	17.1	54.3	23.1	22.6

Note: I (inadequate); PA (partially adequate); A (adequate)

of the maternity facilities did not hold regular meetings with staff to ensure the functioning of collegial management mechanisms facilities. The worst-performing items in this device were "Promotion of debates on Good labor and childbirth care practices with professional staff" and "Staff participation in decision making about work processes", with 35.6% and 33.7% of facilities rated as inadequate, respectively. The implementation of the items "Patient access to the NHS Ombudsman" and "Changes in work processes and decision making from listening to patients" was inadequate in 55% and 30% of facilities, respectively.

Also in Table 2, among the different areas of the maternity facility, welcoming in obstetric are, risk assessment, clinical examination and admission of parturient women showed the lowest percentage of maternity facilities rated as inadequate (around 40%), with more than 50% of maternity facilities in Northeast obtaining an inadequate rating.

The implementation of the item "Adequate level of comfort in rooming-in" (access to private bathroom, chairs for companions and bathing area for the newborn) was inadequate in 43.1% of the maternity facilities.

The degree of implementation of the item "Adequacy of the provision of LDP (Birthing rooms) rooms" varied across regions, with the South having the highest percentage of inadequate facilities (97.5%). The best-performing state in this item was the Center-West, where 74.4% of the facilities were rated as inadequate. The findings also show that the implementation of the item "Adequacy of LDP room facilities" (private bathroom with shower with hot and cold water) was inadequate in 16.1% of the facilities.

With respect to neonatal units, the implementation of the item "Noise, brightness and temperature control in the NICU and Conventional Intermediate Care Unit (CICU)" was inadequate in around one-third of the maternity facilities, except in the Center-West, where only 16.7% of the facilities were inadequate. The implementation of the items "Accommodation provided for the mother of babies admitted to the neonatal unit" and "Chairs and easy chairs in the NICU and CICU" was inadequate in around 50% of facilities.

With regard to the device "Accessible Environment", the implementation of the item "Access for disabled pregnant women/companions" (ramp, wheelchair accessible door width and grab bars) was inadequate in 87.0% of the country's maternity facilities. The worst-performing regions for this item were the North, Northeast and South.

Discussion

This study evaluated the degree of implementation of the Labor and Childbirth component of the RC guidelines, permitting the identification of areas of progress and deficiencies in labor and childbirth care in SUS health facilities.

The evaluation of strategies like the RC is a complex task, especially considering the specificities of different contexts and multifaceted characteristics of labor and childbirth care. To capture the complexity of the implementation of the RC, the evaluation model incorporated a participatory approach[10].

It is important to highlight the possibility of bias in the responses given by managers and staff, in so far as they may have repeated what is in the technical guidelines and not actually what happens in practice. This was partially overcome by assigning greater weight to the answers of the puerperal women and on-site observations. The triangulation of the results across multiple verification items enabled a more accurate interpretation of the issues related to the organization of health service work processes.

The results of the judgment framework show that the degree of implementation of labor and childbirth care processes and procedures varies across regions. The South and Southeast, which have a higher level of social and economic development, are the best performing regions in the majority of the verification items.

Of the five guidelines evaluated by this study, Welcoming in Obstetric Care achieved the highest degree of implementation, signaling the importance of this practice in promoting a shift in the approach to service delivery, as laid out in the National Humanization Policy (NHP)[11].

Humanizing practices such as the simple gesture of health professionals addressing patients by name and listening to their complaints, concerns and anxieties stood out among the verification items[12]. However, several challenges remain in relation to the operation and improvement of Welcoming in Obstetric Care. These include gaps in communication mechanisms and in the integration of primary and maternity care services, factors that contribute to the continuum of care, which is critical for ensuring the adequacy of care[13]. One of the consequences of poor communication between services in registering pregnant

Table 2. Degree of implementation of guidelines 3 and 4 and their devices and verification items by region and overall, 2017.

Guideline /Device /Verification Item	North			Northeast			Southeast			South			Center-West			Brazil		
	I	PA	A	I	PA	A	I	PA	A	I	PA	A	I	PA	A	I	PA	A
Monitoring childbirth care and related outcomes	54.7	30.2	15.1	34.9	46.3	18.9	15.7	48.4	35.9	19.8	50.6	29.6	36.6	48.8	14.6	28.7	45.5	25.7
Availability ofchildbirth and birth care indicators	66.3	19.8	14.0	57.1	30.9	12.0	39.9	34.5	25.6	37.0	45.7	17.3	61.0	29.3	9.8	49.7	32.5	17.8
Bed occupancy rate in postpartum rooms and neonatal unit	74.4	0.0	25.6	49.1	0.0	50.9	32.3	0.0	67.7	44.4	0.0	55.6	51.2	0.0	48.8	46.0	0.0	54.0
Average length of stay in postpartum rooms and neonatal unit	74.4	0.0	25.6	53.1	0.0	46.9	32.7	0.0	67.3	46.9	0.0	53.1	56.1	0.0	43.9	48.0	0.0	52.0
Monitoring of proportion of cesarean sections	44.2	20.9	34.9	36.6	33.1	30.3	12.6	34.1	53.4	19.8	19.8	60.5	39.0	29.3	31.7	26.7	29.7	43.6
Presence of companion during hospital stay for delivery	66.3	0.0	33.7	76.6	0.0	23.4	60.5	0.0	39.5	63.0	0.0	37.0	78.0	0.0	22.0	67.5	0.0	32.5
Risk assessment in the maternity facility	88.4	5.8	5.8	88.0	8.6	3.4	81.2	12.6	6.3	77.8	13.6	8.6	92.7	7.3	0.0	84.5	10.2	5.3
Maternity facility develops strategies to reduce the number of cesarean sections	65.1	19.8	15.1	46.3	31.4	22.3	35.4	30.9	33.6	35.8	28.4	35.8	58.5	24.4	17.1	44.4	28.7	26.9
Percentage of episiotomies in normal births	55.8	23.3	20.9	46.9	21.1	32.0	27.4	20.2	52.5	25.9	22.2	51.9	43.9	19.5	36.6	38.0	21.1	40.9
Availability of maternal, neonatal and fetal mortality indicators	26.7	29.1	44.2	18.9	28.6	52.6	4.5	22.4	73.1	4.9	35.8	59.3	22.0	22.0	56.1	13.0	26.9	60.1
Number of fetal deaths	33.7	0.0	66.3	21.7	0.0	78.3	10.8	0.0	89.2	14.8	0.0	85.2	26.8	0.0	73.2	18.8	0.0	81.2
Number of neonatl deaths	32.6	0.0	67.4	24.0	0.0	76.0	7.6	0.0	92.4	17.3	0.0	82.7	22.0	0.0	78.0	18.2	0.0	81.8
Number of maternal deaths	26.7	17.4	55.8	17.1	14.3	68.6	6.3	13.0	80.7	12.3	9.9	77.8	24.4	9.8	65.9	14.4	13.4	72.3
Death committee in place	30.2	0.0	69.8	34.3	0.0	65.7	16.1	0.0	83.9	22.2	0.0	77.8	17.1	0.0	82.9	24.3	0.0	75.7
Publication of morbidity and morbidity indicators by hospital management	55.8	25.6	18.6	45.7	28.0	26.3	35.0	33.6	31.4	46.9	33.3	19.8	56.1	24.4	19.5	44.1	30.2	25.7
Shared management	62.8	29.1	8.1	39.4	54.3	6.3	30.9	60.1	9.0	35.8	56.8	7.4	36.6	53.7	9.8	38.9	53.1	7.9
Collegial Management Body and/or other Collegial Management Mecanism	60.5	27.9	11.6	33.7	55.4	10.9	46.6	45.7	7.6	46.9	45.7	7.4	46.3	43.9	9.8	44.9	45.9	9.2
Existence of a management committee or other management body	48.8	27.9	23.3	28.0	36.0	36.0	42.2	25.6	32.3	44.4	34.6	21.0	51.2	29.3	19.5	39.9	30.4	29.7
Participation of professionals performing different roles in management bodies	100.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0
Staff participation in decision making about work processes	44.2	20.9	34.9	26.9	38.3	34.9	30.0	35.9	34.1	40.7	35.8	23.5	46.3	31.7	22.0	33.7	34.2	32.2
Promotion of debates on Good practice in childbirth care with with professional staff	47.7	0.0	52.3	30.9	0.0	69.1	35.9	0.0	64.1	37.0	0.0	63.0	26.8	0.0	73.2	35.6	0.0	64.4
Regular meetings with staff to ensure the functioning of collegial management mechanisms	66.3	26.7	7.0	56.6	36.0	7.4	62.8	30.9	6.3	56.8	33.3	9.9	65.9	26.8	7.3	60.9	31.8	7.3

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Table 2. Degree of implementation of guidelines 3 and 4 and their devices and verification items by region and overall, 2017.

Guideline /Device /Verification Item	North			Northeast			Southeast			South			Center-West			Brazil		
	I	PA	A	I	PA	A	I	PA	A	I	PA	A	I	PA	A	I	PA	A
Patient/companion and worker information and listening mechanisms	59.3	32.6	8.1	38.9	49.7	11.4	16.1	61.4	22.4	11.1	65.4	23.5	26.8	46.3	26.8	28.9	53.5	17.7
NHS patient access to the ombudsman with guaranteed response	80.2	18.6	1.2	64.6	32.6	2.9	44.8	47.1	8.1	42.0	55.6	2.5	41.5	56.1	2.4	55.0	40.6	4.5
Changes in work processes and decision making from listening to patients	54.7	9.3	36.0	37.7	6.9	55.4	14.8	8.1	77.1	11.1	6.2	82.7	26.8	2.4	70.7	27.4	7.3	65.3
Hospital environment	**82.6**	**10.5**	**7.0**	**58.9**	**38.3**	**2.9**	**57.0**	**32.7**	**10.3**	**65.4**	**33.3**	**1.2**	**46.3**	**39.0**	**14.6**	**61.6**	**31.7**	**6.8**
Environment Suitable for Good Front Door Practices	64.0	8.1	27.9	50.9	3.4	45.7	44.8	9.4	45.7	54.3	6.2	39.5	51.2	12.2	36.6	51.0	7.3	41.7
Suitable and comfortable environment for welcoming women and their companions	52.3	16.3	31.4	28.6	18.9	52.6	38.1	28.7	33.2	40.7	27.2	32.1	46.3	31.7	22.0	38.3	24.1	37.6
Comfort and privacy assured in the clinical examiation room and admission of the parturient woman	51.2	0.0	48.8	40.0	0.0	60.0	31.1	0.0	68.9	48.1	0.0	51.9	45.0	0.0	55.0	39.7	0.0	60.3
Environment Suitable for Good practice in childbirth care	84.3	4.8	10.8	85.5	5.8	8.7	67.9	16.3	15.8	90.0	8.8	1.3	69.2	7.7	23.1	78.4	10.1	11.6
Adequacy of the supply of PPP rooms	84.3	2.4	13.3	86.7	2.3	11.0	81.9	3.2	14.9	97.5	2.5	0.0	74.4	0.0	25.6	85.2	2.5	12.2
Adequacy of the structure of the PPP rooms	30.0	0.0	70.0	33.3	4.2	62.5	9.9	0.0	90.1	0.0	0.0	100.0	16.7	0.0	83.3	16.1	0.8	83.1
Suitable environment in rooming-in	60.5	32.6	7.0	53.1	36.0	10.9	32.7	43.5	23.8	34.6	49.4	16.0	36.6	46.3	17.1	43.1	40.8	16.2
Adequate level of comfort in postpartum rooms	60.5	32.6	7.0	53.1	36.0	10.9	32.7	43.5	23.8	34.6	49.4	16.0	36.6	46.3	17.1	43.1	40.8	16.2

it continues

Table 2. Degree of implementation of guidelines 3 and 4 and their devices and verification items by region and overall, 2017.

Guideline /Device /Verification Item	North			Northeast			Southeast			South			Center-West			Brazil		
	I	PA	A	I	PA	A	I	PA	A	I	PA	A	I	PA	A	I	PA	A
Suitable Environment in the Neonatal unit	45.5	20.5	34.1	29.4	23.5	47.1	52.4	15.3	32.3	42.9	14.3	42.9	33.3	20.0	46.7	42.9	18.3	38.7
Accommodation provided for the mother of babies admitted to the neonatal unit	50.0	0.0	50.0	27.4	0.0	72.6	55.0	0.0	45.0	43.8	0.0	56.3	36.7	0.0	63.3	44.4	0.0	55.6
Noise, brightness and temperature control in the NICU and CICU	27.9	23.3	48.8	26.8	33.0	40.2	35.9	24.5	39.7	23.4	29.8	46.8	16.7	26.7	56.7	29.8	27.4	42.8
Chairs and easy chairs in the NICU and CICU	42.9	0.0	57.1	54.5	0.0	45.5	51.1	1.6	47.3	41.7	2.1	56.3	46.7	6.7	46.7	49.8	1.4	48.8
Accessible environment	98.8	0.0	1.2	91.4	6.9	1.7	80.7	13.5	5.8	87.7	9.9	2.5	75.6	17.1	7.3	87.0	9.4	3.6
Access for disabled pregnant women/companions	98.8	0.0	1.2	91.4	6.9	1.7	80.7	13.5	5.8	87.7	9.9	2.5	75.6	17.1	7.3	87.0	9.4	3.6

Note: I (inadequate); PA (partially adequate); A (adequate)

women with facilities that are able to respond to the both the mother's and newborn's specific need is the high percentage of women moving between services in search of childbirth care, as observed among the women interviewed in this study (21.9%)[14]. This situation is alarming, particularly in the case of obstetric emergencies, which require timely treatment to prevent maternal health complications[15]. Another obstacle identified by this study is the significant percentage of hospitals that had not implemented the item "Risk assessment". This can lead to delays in identifying pregnant women in a critical or serious state and result in adverse maternal outcomes[16].

The findings show that the right to have a companion of choice during labor and childbirth, guaranteed by federal law 11.108[17], is a reality, although with restrictions observed in 30% of the facilities. Evidence shows that, apart from providing emotional support, the presence of a companion is a marker of safety and quality of care, protecting against violence and inappropriate practices during labor and childbirth[18]. The adoption of welcoming strategies such as the provision of easy chairs and meals and inclusion of companions needs to be expanded to advance the humanization of care and improve the companion-health team relationship[11].

The prevailing model of care in Brazil is based on interventions that should be stopped or reduced and the timid presence of appropriate practices. The majority of Brazilian women still give birth lying down and are subjected to intravenous medications, amniotomy and episiotomy[14]. This situation reflects the maintenance of non-participatory work processes marked by the increased medicalization of hospital services, subjecting low-risk pregnant women to unnecessary interventions, in addition to incurring unnecessary costs and wasting resources[19]. The partogram is rarely used in labor monitoring and non-pharmacological pain relief methods and food are not offered during labor. The best-performing item was "Encouragement of walking around during labor and childbirth".

Although it is acknowledged that protocols are important tools for improving the quality of care, and at the same time training tools, the low level of implementation of kangaroo care protocols in neonatal units points to the need for a better understanding of the obstacles to reversing the situation.

Despite the fact that the promotion of skin-to-skin contact between the mother and new-

born immediately after birth promotes the early initiation of breastfeeding[20], the adoption of this practice with healthy newborns remains a challenge in around one-quarter of the maternity facilities evaluated.

With regard to newborn care, optimal timing of umbilical cord clamping has yet to be widely adopted, with a significant number of newborns not receiving the benefits of the blood flow allowed by this practice[20]. Despite national regulations, the results highlight that access to appropriate labor and childbirth technology[5] remains a challenge. The findings also reveal the low level of participation of obstetric nurses in low-risk normal births, going against evidence of the potential benefits of their involvement in birth care[21] and demonstrating the need for advances in multidisciplinary team working to improve the quality of obstetric and neonatal care.

Despite the large volume of hospital procedures, significant rate of maternal, neonatal and fetal deaths in hospitals, and substantial spending, significant challenges remain in monitoring of process indicators and outcomes to inform initiatives to improve care quality, such as continuing training and protocol development[22-24].

The findings show that the monitoring of the quality of care is incipient in the hospitals evaluated, varying considerably across regions. A significant number of health facilities do not regularly collect the data necessary to calculate quality indicators. While other have incorporated this activity into the hospital routine, there are still few initiatives that are capable of promoting changes in the everyday practice of health professionals, such as the disclosure results to the health professionals working in the facilities[25,26].

The results for Guideline 4 reveal a number of weaknesses in the promotion of quality management mechanisms such as increasing staff participation and promoting shared responsibility and listening to patients. This situation reduces the possibility of developing a critical process committed to health practices and specific patient needs. In this regard there is an urgent need to increase the level of shared responsibility across the range of staff that make up the maternity facility. The means changing management processes to create possibilities to strengthen health workers' capacity to create new actions and be co-managers of their work process and increasing the participation of patients and their families in the shared care process, as laid out in the NHP[11].

The worst-performing guideline was Hospital environment. The results highlight that a number of problems remain in the promotion of better working conditions and services that emphasize *healthy work environments*, privacy, and creating a welcoming and comfortable hospital environment.

The implementation of this guideline is a huge challenge, especially considering that it is now over 10 years since the publication of Resolution RDC36 by Brazil's health protection agency, Anvisa[27], which restructured the organization of obstetric units, and almost 10 years since creation of the RC[5]. An on-site observation of the environment of labor and childbirth services reported that the traditional model still predominates. Studies show that the separation of labor, childbirth and postpartum areas fragments the work process, strengthening the Taylorist[28] view of health work processes and comprising the physiological progression of labor and childbirth.

The findings also show that privacy, a fundamental factor for labor and childbirth, is not assured in the majority of maternity units. In most maternity facilities, labor areas tend to be either shared, in cubicles or separated by curtains.

Although the public spending ceiling and cuts[29] make the refurbishment of the physical spaces of maternity facilities unviable, particularly in the North and Northeast, regions which have a lower level of social and economic development[30], this situation should not be understood as an obstacle to the transformation and creation of new spaces of interaction and work as envisioned by the RC[31].

Although the reduction of light and noise levels in NICUs is recommended in current legislation[32], this item, together with the provision of accommodation for the mothers of babies admitted to the neonatal unit, was not guaranteed in all facilities. The on-site observations revealed barriers to access for disabled pregnant women/companions, indicating a lack of actions to meet the special needs of this group[33].

Articles comparing the evolution of good practices and reduction of unnecessary maternal and newborn care interventions between a study conducted in the same facilities in 2011 and the present evaluation (2016/2017)[34,35] clearly show that Brazil has made significant advances in promoting the care model centered on mothers' and newborns' needs embodied by the RC[5]. Challenges remain however and major efforts are needed to improve labor and childbirth care in the maternity facilities evaluated. Key initiatives should include training in Good practice in childbirth care and knowledge dissemination.

Over the last two decades, the evaluation of health services has received growing attention due to persistently unacceptable levels of maternal and perinatal morbidity and mortality indicators[3,4,36]. The regular evaluation of the actions developed by the RC should form the basis of the information employed to direct policy making and the regulation of hospital labor and childbirth care, incorporating the discussion of care practices and quality into health planning. To this end, in line with the aims of evaluation of the RC, feedback workshops were held in all states and the Federal District, attended by managers and professionals from health departments, specialists form the Ministry of Health and researchers from the Sergio Arouca National School of Public Health and UFMA. The workshops confirmed the pertinence of the judgment framework in promoting improvements to the labor and childbirth care model and guided the confirmation of the commitments outlined in the RC's regional action plans[37], thus forging an instrument that can be used to enhance management and the delivery of care in maternity facilities. The role of this evaluation is accordant with the responsibility to promote equal access of effective comprehensive health services, constituting an important element of the implementation of evidence-based labor and childbirth care practices observing care, management and training models, inseparable dimensions of health care.

Collaborations

SDA Bittencourt, MEA Vilela, MCO Marques, AM Santos, CKRT Silva, RMSM Domingues, AC Reis and GL Santos participated in the conception, planning and analysis of the data; the writing or critical review of the final version and the final approval of the version to be published; being responsible for all aspects of the work in ensuring the accuracy and integrity of its content.

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