

## ANALYSIS OF PRENATAL CARE IN DIFFERENT POPULATION SIZE IN MUNICIPALITIES OF PARANÁ

Viviane Cazetta de Lima Vieira\*

Mayckel da Silva Barreto\*\*

Claudiane Fernandes\*\*\*

Maria José Scochi\*\*\*\*

### ABSTRACT

This study analyzed the prenatal care through clinical and obstetric procedures offered to pregnant women in cities of different population sizes. This quantitative exploratory, descriptive study was carried out in 15 localities of the Parana. Interviews were conducted with 136 mothers who had their birth in February and analyzed their records, for the information of prenatal monitoring in primary care unit. The results reported in descending order the following most frequently performed procedures: blood pressure measurement; auscultation of fetal cardio-beat; measurement of uterine height; edema assessment in the lower limbs; and check the fetal position. For all procedures was undercount in medical records. The municipalities with up to 20,000 inhabitants had a higher frequency of the procedures. The municipalities with more than 50,000 inhabitants had higher rates of records in records. This evidences the need for essential obstetric clinical procedures were not performed nor recorded in all prenatal consultations in different population sizes.

**Keywords:** Prenatal Care. Regional health planning. Public health. Nursing.

### INTRODUCTION

Prenatal care remains a priority, and it has been an increasing emphasis on maternal and child health care, remaining a major concern field in the history of Brazilian and global public health. Even with falls, the maintenance of high rates of important health indicators, including maternal and peri-natal mortality rates, the permanence and the emergence of new actions and public policies that focus on pregnancy and childbirth have been justified<sup>(1)</sup>.

In Brazil, similarly to other countries in economic and social development, as is the case of Ruanda<sup>(2)</sup>, Kenia<sup>(3)</sup>, and India<sup>(4)</sup>, there are efforts to expand the supply of care and quality of care to prenatal care. In this regard, in 2011, it was found that, in our country, prenatal coverage reached near 100%<sup>(5)</sup>. However, beyond the numbers, it is must be considered the quality of care offered. International<sup>(2,3)</sup> and national<sup>(6,7)</sup> studies have shown failures in public prenatal care, such as

difficulties in access to health care, late start monitoring, an inadequate number of consultations or compromising the quality, purpose, and effectiveness of care.

Thus, it is essential to evaluate continuously the way that health professionals have developed the care of pregnant women and the record in the charts to verify the quality of the prenatal care in Basic Health Units. Moreover, due to the gap in the literature regarding the evaluation of prenatal care, comparing the information offered by users with registered in the records, this study aimed to analyze the prenatal care through clinical and obstetric procedures offered to pregnant women in municipalities of different population sizes.

### LITERATURE REVIEW

From the early 1980s, the country launched several Ministry Programs to guide the actions to women's health, especially during pregnancy and childbirth, such as: Comprehensive Women's Health (PAISM) in 1984, Humanization of Prenatal and Birth (PHPN) in 2000, and the Stork Network in 2011, which, together, seek to

\* Enfermeira. Mestre em Enfermagem. Coordenadora do Curso e Docente do Departamento de Enfermagem da Faculdade de Filosofia, Ciências e Letras de Mandaguari. Mandaguari, PR, Brasil. E-mail: vivicazetta@hotmail.com

\*\* Enfermeiro. Doutorando em Enfermagem na Universidade Estadual de Maringá - UEM. Coordenador do Curso de Enfermagem da Faculdade Intermunicipal do Noroeste do Paraná. Docente da Faculdade de Filosofia, Ciências e Letras de Mandaguari. Mandaguari, PR, Brasil. E-mail: mayckelbar@gmail.com

\*\*\* Enfermeira. Mestre em Enfermagem. Enfermeira em Palotina. E-mail: claudianefernandes@yahoo.com.br

\*\*\*\* Enfermeira. Doutora em Saúde Pública. Professora aposentada do Departamento de Enfermagem da Universidade Estadual de Maringá - UEM. Maringá, PR, Brasil. E-mail: mjscochi@uem.br

increase supply and qualification of care provided to women, with emphasis on assistance to prenatal<sup>(1)</sup>.

Prenatal is a set of clinical and educational procedures that need to be developed by clinical protocols and are designed to monitor the development of pregnancy, and guide and enlighten the woman and her family about pregnancy, childbirth, and care for the newborn. Also, it seeks to prevent, detect early and treat the most frequent complications in this period<sup>(8)</sup>.

Clinical protocols indicate that little complex practices - Blood Pressure check (BP); Uterine height (UH); Cardio-fetal Beat (CFB); position of the fetus; and the presence of edema in the lower limbs (LL) - when performed routinely during service, they predict better peri-natal outcomes, both related to the mother's health and the newly born<sup>(2)</sup>. For example, there is a lower prevalence of obstetric complications; delayed intrauterine growth; low weight at birth; and prematurity<sup>(9)</sup>.

It is noteworthy that, for proper health management, including deployment, implementation, and evaluation of the various Ministry of Health programs, the states divide their geographic area into small clusters of municipalities, called Regional Health (RH). The state of Paraná has 22 RH, which has had a prominent role regarding the supervision of assistance offered in the cities, including, in this context, assistance to women during pregnancy and childbirth. Thus, it can be understood the need to consider the way prenatal has been developed in different RH. The municipalities that make up these RHs, although having the same geographical area, they have numerically distinct populations and management divergent political assistance, which may influence the way the prenatal has been done.

## METHODOLOGY

Descriptive and exploratory study with a quantitative approach, carried out under the 15<sup>th</sup> RH of Paraná state, located in the northwest and consists of 30 municipalities, of which 15 were included in the sample studied, and the selection criteria were:

a) Epidemiological indicators discrepancies: the municipalities with the highest and lowest rates of coverage of the Family Health Strategy;

prematurity; infant mortality and cesarean section were part of the study, leading to the selection of fifteen municipalities. This criterion was part of the selection to demonstrate the heterogeneity of municipalities of the same Regional Health.

b) Population size: nine municipalities with less than 20,000 inhabitants were selected (the smallest with 2,541 inhabitants and the largest with 19,269 inhabitants); four with population between 20,000 and 50,000 (the lowest with 21,791 inhabitants and the largest with 33,108 inhabitants); and two with more than 50,000 inhabitants (with 84 650 inhabitants, and the county seat with 335,512 inhabitants). There were more municipalities of smaller population size selected because, on average, 75% of Brazilian municipalities, Paraná, and 15<sup>th</sup> RH have a population less than 20,000 inhabitants, allowing an assistance panorama that to some extent, is shared by most of the parents.

c) Manager's interest to allow the development of research in their municipality: this criterion is materialized through a workshop discussion on health evaluation, which was attended by 21 managers, all being invited for the study. At the time, the managers of two municipalities with less than 20,000 inhabitants, who had been selected by the above criteria indicated, expressed unwillingness to participate in the study and were replaced; four other municipalities that had not been selected also showed no interest. The fact of considering the interests of managers to participate in the study period was from the respect to the assumptions of participatory evaluation, which does not consist of a purely technical procedure and punitive, but rather a negotiation and agreement process between subjects who share co-responsibilities<sup>(10)</sup>.

In the fifteen municipalities that participated in the study, all mothers whose birth had taken place in February 2011 and prenatal monitoring paid off in public were selected. Considering these criteria and the period (February 2011), in Maringá, there were 131 deliveries. However, 16 women were not interviewed due to: reside in another municipality (1); not have performed prenatally in Maringá (2); refusal to answer the questionnaire (4), and have not been located in the woman's address by incorrectness or

incompleteness (9). In the other municipalities, 24 women met the inclusion criteria. Of them, three were found in their homes. So the total of mothers interviewed was 136.

Data collection was carried out between March and April 2011. The identification of mothers occurred through a list of registration information - date of birth, name and address of puerperal - collected from the Statement of Live Birth, obtained from the referral hospital for deliveries funded by the Unified Health System (SUS) in each municipality.

Two instruments at different times were used. The first one was a semi-structured script applied to mothers containing questions about the procedures performed during prenatal consultations: BP check; UH; CFB; fetal position; and edema in the lower limbs. This script consisted of interviews, with an average duration of 25 minutes performed during home visits.

The second instrument, which is validated<sup>(11)</sup> and has been used in the literature<sup>(12)</sup>, was in a script that allowed the collection of data in the records of previously interviewed women. The questions were about the registration procedures performed by health professionals of UBS during the prenatal period. This has allowed verifying the agreement between the data reported in the interview with the medical records. The location of the medical records was facilitated from the aid of the health team of each unit.

The information was recorded in a database in Microsoft Office Excel for Windows 2010® and then analyzed using descriptive statistics by population strata (cities with population less than 20,000 inhabitants, between 20,000 and 50,000, and more than 50,000 inhabitants). Later, absolute and relative frequency tables were built.

The study observed the guidelines of Resolution 466/12 of the National Health Council, and his project was approved by the Standing Committee on Ethics in Human Research of the State University of Maringá (Opinion 648/2009). All participants signed the Informed Consent Form (TCLE) in two ways.

## RESULTS AND DISCUSSION

Most mothers, 130 (95.6%) reported checking the BP as an “always” procedure performed during prenatal consultations, followed by auscultation of the CFB 118 (86.8%), UH measurement (77, 2%), in 71 LL edema evaluation (52.2%) and 49 verification of fetal position (36.0%), as shown in Table 1.

Analyzing prenatal records of 360 pregnant women attended by SUS, study in a southeastern Brazilian capital, found the BP measurement matching the most commonly performed procedure during consultations as in this study<sup>(13)</sup>.

**Table 1.** Distribution of procedures performed during prenatal consultations, reported by mothers, according to population strata. 15<sup>th</sup> Regional Health - PR, 2011.

Procedures		<20.000 inhab.		20-50.000 inhab.		>50.000 inhab.		Total	
		n	%	n	%	N	%	n	%
<b>BP</b>	Never	-	-	-	-	02	1.7	02	1.5
	Sometimes	-	-	-	-	04	3.4	04	2.9
	Always	07	100.0	11	100.0	112	94.9	130	95.6
<b>CFB</b>	Never	-	-	-	-	03	2.5	03	2.2
	Sometimes	-	-	-	-	15	12.7	15	11.0
	Always	07	100.0	11	100	100	84.7	118	86.8
<b>UH</b>	Never	-	-	-	-	10	8.5	10	7.4
	Sometimes	-	-	01	9.1	20	16.9	21	15.4
	Always	07	100.0	10	90.9	88	74.6	105	77.2
<b>Edema</b>	Never	-	-	04	36.4	07	5.9	11	8.1
	Sometimes	01	14.2	03	27.3	50	42.4	54	39.7
	Always	06	85.7	04	36.4	61	51.7	71	52.2
<b>Fetal position</b>	Never	04	57.1	01	9.1	77	65.3	82	60.3
	Sometimes	02	28.6	03	27.3	-	-	05	3.7
	Always	01	14.3	07	63.6	41	34.7	49	36.0

It is known that for proper assessment of the pregnant woman, it is necessary that in all consultations BP and the presence of edema of the lower limbs are checked, and that from the second quarter also check UH, CFB, and fetal position<sup>(8)</sup>. It is worth mentioning that all these procedures are simple to be performed and require few material resources. Therefore, it was expected high levels of achievement. On the other hand, it must consider that procedure that requires certain fetal growth to integrate prenatal care, in part, may be reflected in the findings because the mother to believe, wrongly, that these procedures should have been conducted in all prenatal consultations, possibly classifying the frequency in "sometimes".

However, it is considered that the timing of prenatal care should be used for the practice of health education, including not only biological and psychological issues generate, give birth and care<sup>(3)</sup>, but also the monitoring itself, explaining to pregnant women because certain procedures occur mainly at the beginning or end of pregnancy. This can empower women and allow her to have more knowledge of her body and the procedures/techniques that are developed during pregnancy and the postpartum period.

Therefore, a qualified professional performance during prenatal care is an essential factor for identifying preconditions of modifiable risk and/or those that arise in the course of pregnancy. As is the case, for example, control of BP and edema verification, for the history of hypertension or development of preeclampsia is related to the low weight of the baby at birth<sup>(14)</sup>. Still, it is noteworthy that even with downward trend between 1990 and 2010, the leading cause of maternal death in Brazil was Hypertensive disorders in pregnancy<sup>(15)</sup>, and little complex measurements in prenatal monitoring could cooperate to change this scenario.

They are considered other risk factors during pregnancy: the fetal growth retardation, fetal growth deviations, multiple pregnancy and changes in amniotic fluid volume<sup>(8)</sup>. These conditions can be easily identified by the doctor or nurse through the UH at the time of measurement consultation for timely guide the

appropriate actions to be taken<sup>(16)</sup>. However, it was shown in this study that the procedure was not valued by professionals, especially in municipalities with more than 50,000 inhabitants, where more than a quarter of mothers reported that procedure was performed "sometimes" or "never" during prenatal care.

On the other hand, the measurement of CFB was a most frequently performed procedure (86.8% classified in "always"). Not all of them can be justified by the fact that this procedure is performed after 12 weeks of gestation with sonar, or after 20 weeks with Pinard, or it is not carried out in all consultations. At this time, there is an issue of skilled care with educational guidelines, emphasizing and justifying the professional actions during consultations.

In this sense, it is assumed here, the possibility of the interviewees did not remember the instructions given by the professionals at the interview, indicating the fact that the information was little apprehended. This finding is in line with a study in a northeastern Brazil capital from 140 pregnant women, which found the following: when women assimilated the guidelines, they were reflected in self-care, as in the case for guidance on the use of medications and physical activity during gestation<sup>(17)</sup>. It is noteworthy that the auscultation of the CFB is to verify the presence, the rhythm, the frequency and the normality of the BCF at each visit, evaluating fetal vitality. Signs of tachycardia or bradycardia may be associated with fetal suffering<sup>(15)</sup> and should be valued by the professional.

Another point that draws attention is the procedure for assessment of fetal position in the womb, which provides subsidies for targeting the type of delivery. It was observed that only 49 (36.0%) mothers reported the occurrence of this procedure in all prenatal consultations. The non-recovery of such information during the monitoring of pregnancy leads to the inference that the choice of mode of delivery is not guided, among other factors, in the fetal position. This, perhaps, may constitute one of the many factors related to the high cesarean section rate

that the country has today. A study in a northeastern Brazilian capital from 140 pregnant women attended by SUS presented a very similar scenario to that found in this study: the intrinsic procedures to prenatal consultations were not valued by professionals and, therefore, little performed<sup>(17)</sup>.

More specifically, when analyzing the data by population stratum of the municipality of residence of mothers, it is noted that women who had a higher frequency of procedures lived in municipalities with up to 20,000 people. An inherent factor to this discussion is the increased number of consultations that women do during the prenatal, which certainly relates to a greater number of technical procedures performed<sup>(13)</sup>. Therefore, retaining women to prenatal care is the prerogative to improve monitoring. In this sense, it considers that pregnant women residing in smaller municipalities may have more prenatal visits as possibly the smallest geographic dimension facilitates the search for the health service. Therefore, there is the fact that in smaller municipalities, usually have a small number of people accompanied by a team from the ESF, which tends to closer the people of professionals, creating stronger bond ties, and this has been described as facilitator adherence to prenatal<sup>(18)</sup>.

Another important finding is related to the lack of records of mothers. It was observed

that all procedures were under-reported compared to the reports of the interviewees, as shown in Table 2.

Verification procedures of the fetal position, 41 (30.1%), and edema of the lower limbs, 54 (39.7%) were the least recorded in the charts, followed by UH measurement (66.1%) and auscultation CFB with 103 (75.7%). Checking BP was recorded in 94.1% of the records. The underreporting of most of the information in many cases is a consequence of the reduced number of workers in the health team; the high demand for services, especially the managerial-bureaucratic, which decrease the available time nurse; and also of scarce investment in training processes/continuing education<sup>(8)</sup>.

Thus, the appropriate medical records and, in this case, also in the pregnant woman's records should always be on the agenda on the issues discussed in UBS, as the records of prenatal activities are indispensable in the process of attention to women's health and the newborn. Documentation of assistance and its results through written records is an effective communication tool for (re) planning, continuity and evaluation of services provided to customers. Also, it is a source of information for legal, research, education and other related activities<sup>(19)</sup>.

**Table 2.** Distribution of procedures performed during prenatal consultations, comparing the reports of mothers with the records, according to population strata. 15<sup>th</sup> Regional Health - PR 2011.

Population strata	Procedures (interview)*									
	BP		UH		CFB		Edema		Fetal Position	
	N	%	n	%	n	%	n	%	N	%
< 20.000 inhab.	07	100.0	07	100.0	07	100.0	06	85.7	01	14.2
20.000 - 50.000 inhab.	11	100.0	10	90.9	11	100.0	04	36.3	07	63.6
> 50.000 inhab.	112	94.9	88	74.5	100	84.7	61	51.7	41	34.7
<b>Total</b>	130	95.5	105	77.2	118	86.7	71	52.2	49	36.0
Population strata	Procedimentos (prontuário)**									
	PA		UH		BCF		Edema		Posição fetal	
	N	%	n	%	n	%	n	%	N	%
< 20.000 inhab.	05	71.4	03	42.8	04	57.1	03	42.8	01	18.1
20.000 - 50.000 inhab.	11	100.0	03	27.2	02	18.1	02	18.1	03	27.2
> 50.000 inhab.	112	94.9	84	71.1	97	82.2	52	44.0	37	31.3
<b>Total</b>	128	94.1	90	66.1	103	75.7	54	39.7	41	30.1

\*Considering only the procedures that were "always" performed, according to the mothers; \*\*Considered the records that have at least one record of the procedure during prenatal consultations.

In the analysis by population strata, it was found that the health professionals working in

the UBS of municipalities with more than 50,000 inhabitants had higher recording

frequency of procedures performed during prenatal consultations. This, perhaps, arises from the fact that these professionals, because they are in a larger urban center, have more access to information, and are charged more directly by health managers for the proper completion of medical records of patients because the risk processes court is higher in large urban centers<sup>(20)</sup>.

A study in a southern capital of Brazil, with 158 pregnant women of SUS, showed that there was a lack of data records for the prenatal monitoring in most records<sup>(6)</sup>. Therefore, it is assumed that in a large city there is also sub-registration information. In this perspective, it is observed that cities of different population sizes have presented difficulties in the systematization of a proper record of policy. Moreover, this problem becomes a current and important challenge for managers and health professionals in primary care.

### CONCLUSION

The results of this study have highlighted that most of the mothers reported checking the BP as the most frequently performed during prenatal consultation procedure. In descending order, the CFB auscultation procedures; measurement of the UH; evaluation of edema in the lower limbs and check the fetal position were the least cited.

Comparing the report of the interviewees with information on files, it was found that for

all procedures studied were underreporting on the part of the UBS health professionals. Moreover, concerning the municipalities of different population sizes, it was concluded that those with fewer inhabitants had higher rates of completion of procedures. However, municipalities with more than 50,000 inhabitants were more often the information on files.

Despite some methodological limitations, there is the convenience sample used, providing a reduced quantity of interviewed mothers. Therefore, it is suggested that further studies of this nature and with representative samples are carried out on this subject, considering the heterogeneity of operational aspects found in municipalities with different population sizes, which can influence the quality of care provided to women during pregnancy cycle-puerperal. Also, it is seen a shortage in the use of primary data in studies focusing on more than one institution and/or country.

It is believed that the data from this research can increase knowledge of the functioning of prenatal care service, with respect to clinical and obstetrical procedures, helping managers to direct the planning of health care of women in municipalities of different population size, and that health professionals need to make the basic procedures for the monitoring of pregnant women and the proper recording of information in the medical records.

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## ANÁLISE DA ASSISTÊNCIA PRÉ-NATAL EM MUNICÍPIOS DE DIFERENTES PORTES POPULACIONAIS DO PARANÁ

### RESUMO

O objetivo deste estudo foi analisar a assistência pré-natal mediante procedimentos clínico-obstétricos oferecidos às gestantes, em municípios de diferentes portes populacionais. Trata-se de uma pesquisa descritiva exploratória, de abordagem quantitativa, realizada em 15 municípios do Paraná. Foram entrevistadas 136 puérperas cujos partos ocorreram em fevereiro de 2011. Também foram coletadas, nos prontuários da Unidade Básica de Saúde, informações relativas ao pré-natal. Os resultados revelaram que os procedimentos mais realizados, em ordem decrescente, foram: verificação da pressão arterial; ausculta dos batimentos cardíacos fetais; mensuração da altura uterina; avaliação de edema em membros inferiores e verificação da posição fetal. Para todos os procedimentos houve sub-registro em prontuário. Os municípios com até 20.000 habitantes apresentaram maior frequência na realização dos procedimentos. Já, os municípios com mais de 50.000 habitantes apresentaram melhores índices de registros em prontuários. Concluiu-se que procedimentos clínico-obstétricos essenciais não foram realizados e/ou registrados na maior parte das consultas de pré-natal, nos municípios de diferentes portes populacionais.

**Palavras-chave:** Cuidado pré-natal. Regionalização. Saúde pública. Enfermagem.

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## ANÁLISIS DE LA ATENCIÓN PRENATAL EN MUNICIPIOS DE DIFERENTES PORTES POBLACIONALES DEL ESTADO DE PARANÁ

### RESUMEN

El objetivo de este estudio fue analizar la atención prenatal a través de los procedimientos clínicos y obstétricos que se ofrecen a las mujeres embarazadas, en ciudades de diferentes portes poblacionales. Se trata de una investigación descriptiva exploratoria, de abordaje cuantitativo, realizada en 15 ciudades del estado de Paraná. Fueron entrevistadas 136 puerperas cuyos partos ocurrieron en febrero de 2011; También fueron recolectados, en los registros médicos de la unidad Básica de Salud, informaciones de control prenatal. Los resultados revelaron que los procedimientos más frecuentemente realizados, en orden decreciente, fueron: medición de presión arterial; auscultación del ritmo cardíaco fetal; medición de altura uterina; evaluación de edema en miembros inferiores; y averiguación de la posición fetal. Para todos los procedimientos hubo subregistro en los registros médicos. Los municipios con hasta 20.000 habitantes tenían una mayor frecuencia en la realización de los procedimientos. Los municipios con más de 50.000 habitantes presentaron tasas más altas de apuntes en los registros. Se concluye que los procedimientos clínicos obstétricos esenciales no fueron realizados y/o registrados en la mayor parte de las consultas de prenatal, en las ciudades de diferentes portes poblacionales.

**Palabras clave:** Atención Prenatal. Regionalización. Salud pública. Enfermería.

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**Corresponding author:** Viviane Cazetta de Lima Vieira. Rua Romário Martins, nº 80, CEP: 86.975-000, Centro. Mandaguari, Paraná, Brasil. Telefone: (44)9945-1662. E-mail: vivicazetta\_@hotmail.com

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