● **Original article**

REDE MÃE PARANAENSE PROGRAM: ANALYSIS OF PRENATAL CARE IN A REGIONAL HEALTH DISTRICT

Maria Aparecida Baggio[1], Fernanda de Castro Pereira[2], Ana Tereza Bittencourt Guimarães[3], Sebastião Caldeira[4], Claudia Silveira Viera[1]

ABSTRACT: Quantitative, descriptive and retrospective study to analyze prenatal care in a Regional Health District in the State of Paraná, Brazil, between 2012 and 2013. The data were collected from monthly and annual reports, using a tool with assessment indicators according to the matrices of the Rede Mãe Paranaense (Network of Mothers in the State of Paraná) Program. According to the program recommendations, the cities in the Regional Health District studied obtained unsatisfactory results concerning the start of prenatal care in the first term and the accomplishment of rapid HIV and syphilis tests, in view of total rates inferior to 70%. Concerning the records and information on prenatal care practice, absence of information was found on the number of pregnant women who were immunized and went through dentral appointments, as well as a possible delay to register the data in the information systems. Concerning the implementation of the Rede Mãe Paranaense Program in 2012, other studies are suggested to assess the prenatal health care actions and their records.
DESCRIPTORS: Prenatal care; Maternal mortality; Primary health care; Health teams.

PROGRAMA REDE MÃE PARANAENSE: ANÁLISE DA ATENÇÃO PRÉ-NATAL EM UMA REGIONAL DE SAÚDE

RESUMO: Estudo quantitativo, descritivo, retrospectivo, que objetivou analisar a atenção pré-natal em uma Regional de Saúde do Estado do Paraná, entre 2012 e 2013. Os dados foram coletados de relatórios mensais e anuais, com instrumento contendo indicadores de avaliação conforme matrizes do Programa Rede Mãe Paranaense. De acordo com o preconizado pelo Programa, os municípios da Regional de Saúde estudada obtiveram resultados insatisfatórios no que diz respeito ao início do pré-natal no primeiro trimestre e realização de testes rápidos de HIV e sífilis, visto que em sua totalidade foram inferiores a 70%. Quanto aos registros e informações referentes à realização do pré-natal, identificou-se ausência de informações sobre a quantidade de gestantes imunizadas e que realizaram consultas odontológicas, e possível atraso de registro nos sistemas de informação. Considerando-se a implantação do Programa Rede Mãe Paranaense em 2012, sugere-se a realização de outros estudos para avaliar as ações de saúde no pré-natal e seus registros.
DESCRITORES: Cuidado pré-natal; Mortalidade materna; Atenção primária à saúde; Programas de saúde; Equipes de saúde.

PROGRAMA REDE MÃE PARANAENSE: ANÁLISIS DE LA ATENCIÓN PRENATAL EN UNA REGIONAL DE SALUD

RESUMEN: Estudio cuantitativo, descriptivo, retrospectivo con objeto de analizar la atención prenatal en una Regional de Salud del Estado de Paraná entre 2012 y 2013. Los datos fueron recolectados de relatos mensuales y anuales, mediante instrumento con indicadores de evaluación según matrices del Programa Rede Mãe Paranaense (Red de Madres del Estado de Paraná). Según la recomendación del Programa, los municipios de la Regional de Salud estudiada alcanzaron resultados insatisfactorios respecto al inicio del prenatal en el primer trimestre y aplicación de pruebas rápidas de VIH y sífilis, ya que en su totalidad fueron inferiores al 70%. Respecto a los registros e informaciones referentes a la práctica del prenatal, fue identificada ausencia de informaciones sobre la cuantidad de gestantes inmunizadas y que hicieron consultas odontológicas, y posible retraso de registro en los sistemas de información. Ante la implantación del Programa Rede Mãe Paranaense en 2012, se sugiere el desarrollo de otros estudios para evaluar las acciones de salude en el prenatal y sus registros.
DESCRIPTORES: Cuidado prenatal; Mortalidad materna; Atención primaria de salud; Programas de salud; Equipos de salud.

[1]RN. Ph.D. in Nursing. Professor, Universidade Estadual do Oeste do Paraná. Cascavel, PR, Brazil.
[2]Undergraduate Nursing Student. Universidade Estadual do Oeste do Paraná. Cascavel, PR, Brazil.
[3]Biologist. Ph.D. in Ecology and Natural Resources.Professor at Universidade Estadual do Oeste do Paraná. Cascavel, PR, Brazil.
[4]RN. Ph.D. in Nursing.Professor at Universidade Estadual do Oeste do Paraná. Cascavel, PR, Brazil.

Corresponding author:
Fernanda de Castro Pereira
Universidade Estadual do Oeste do Paraná
R. Edson Beller de Oliveira, 829 - 85819776 - Cascavel, PR, Brasil
E-mail: fernanda.unioeste@gmail.com

● **INTRODUCTION**

The Maternal Mortality Ratio (MMR) reflects the quality of woman's health care. High rates represent unsatisfactory family planning, prenatal, birth and postpartum care. In Brazil, in 1990, the MMR corresponded to 140 deaths/100 thousand Live Births (LB). In 2011, the ratio had dropped to 64 deaths/100 thousand LB, corresponding to a 55% drop in the maternal mortality ratio[1]. In Paraná, in 1990, the MMR amounted to 90.5/100 thousand LB, dropping to 66.4/100 thousand LB in 2000. Between 2001 and 2010, however, the drop in these ratios stagnated, as the MMR corresponded to 65.3/100 thousand LB in 2001 and to 65.1/100 thousand LB in 2010[2]. These rates are inferior to the recommendation by the Pan American Health Organization/World Health Organization (PAHO/WHO) for a low MMR, which refers to less than 20 deaths/100 thousand LB[2]. According to the fifth Millennium Development Goal (MDG), Brazil should present an MMR of 35 deaths/100 thousand LB or less by 2015. At the end of 2015, mortality in Brazil had dropped[1], although the ratio still exceeds the recommended levels.

The direct causes of maternal death result from complications during pregnancy, birth and postpartum, deriving from omissions, incorrect treatment or a chain of associated events. Indirect causes derive from conditions that preexisted or were developed during pregnancy[1]. In Paraná, the most frequent direct causes are Hypertensive Disease of Pregnancy (HDP) and hemorrhages[2].

Primary Health Care (PHC) works to prevent maternal mortality through the early inclusion of the pregnant woman and the organization of pregnancy-puerperal care at the other care levels[3]. In Paraná, prenatal care is driven by the guidelines of the Rede Mãe Paranaense Program (PRMP), based on the Rede Cegonha (Stork Network). Its goals are to guarantee the right to reproductive planning and humanized care during pregnancy, delivery and postpartum to the woman and the right to safe birth and healthy growth and development to the child[2,4].

The PRMP is intended to implement maternal-infant actions and care, including the early inclusion of the pregnant woman, her monitoring during prenatal care, recommending at least seven appointments, tests, risk stratification of the pregnant women with forwarding to a specialized outpatient clinic for those at risk and the guarantee that they will give birth according to their gestational risk, the women being linked to the hospital according to the gestational risk classification. This program was implemented in 2012 and covers 339 cities in the State of Paraná, belonging to 22 Regional Health Districts (RHD), and establishes the supply of appointments and test requests by Physicians and Nurses[2].

In that context, the following question is raised: what is the status of prenatal care in the 10th Regional Health District (RHD) in the State of Paraná after the implementation of the PRMP? The study was intended to analyze prenatal care for pregnant women in the 10th RHD of Paraná between 2012 and 2013, with a view to appointing relevant suggestions to improve the PRMP actions in prenatal care.

● **METHOD**

Quantitative, descriptive and retrospective study[5], developed in the 10th RHD located in the city of Cascavel, Paraná. The data refer to 2012 and 2013 and were collected between August and December 2014, based on monthly and annual reports of each city in the 10th RHD. A data collection tool was elaborated, based on the matrices of the PRMP, including the following assessment indicators: Number of pregnant women registered in the Prenatal Health Information System (SIS-Pré-natal) of the city; number of pregnant women who started prenatal care in the first term; number of pregnant women with seven or more obstetric appointments; total number of obstetric appointments per pregnant woman; number of pregnant women attending dental appointments; number of pregnant women who were immunized; number of pregnant women who took rapid tests for pregnancy, syphilis, HIV, tests per gestational term; and risk stratification of pregnant women with care referral.

Based on the data, the quantitative variables (assessed per city) were described in descriptive statistical terms (mean, minimum, maximum, standard deviation).

The variables for which records were available for the year 2013 (Number of pregnant women/1000 inhab., Number of pregnant women with seven or more appointments, Total number of appointments,

Number of pregnant women who started prenatal care in the first term, Number of pregnant women who took tests for the first term, second term, third term, syphilis, pregnancy, HIV, % Normal births, % C-section, Mortality ratio) were analyzed using Agglomerative Hierarchical Clustering (AHC), using Ward's agglomeration method. Bray-Curtis' distance method was used to establish the clusters, a statistical measure used to classify different locations based on the variations in the variables analyzed. In AHC, groups are constituted based on the variation pattern of each.

After defining the clusters, first, the data distribution pattern of the variables was assessed using Shapiro-Wilk's normality test, and the homogeneity of the variances by means of the Levene test, followed by intergroup comparison of the variables. The premises of normality and homogeneity of the variances are required for the sake of parametric analyses. As these premises were not attended to, the variables were compared using Kruskal-Wallis' non-parametric test, followed by Dunn's multiple comparison test to compare three clusters. In all statistical analyses, significance was set at 0.05.

This study is part of the project entitled Analysis of the Implementation and Development of the PRMP, approved under CNP Universal Call for Projects, number 474768/2013-9. The Research Ethics Committee at Universidade Estadual do Oeste do Paraná gave a favorable opinion (544.107) on March 27th 2014.

● **RESULTS**

Concerning the variables Number of pregnant women registered in the SIS-Pré-natal, Number of pregnant women who started prenatal care in the first term and Number of obstetric consultations, this information was only registered as from 2013, without information for the previous period (2012). No records were found for the variable Number of dental appointments.

As for the variable number of pregnant women registered in the SIS-Pré-natal, in2013, it was identified that 58%(n=14) of the cities presented 7 to 14 pregnant women/1,000 inhab.; three (13%) cities presented between 14.1 and 17.5 pregnant women/1,000 inhab.; while seven (29%) had between 0 and 7 pregnant women/1,000 inhab registered in the SIS-Pré-natal. One of the cities in the 10th RHD had no information on the number of pregnant women (Figure 1).

As regards the start of prenatal care, on average, 66% of the pregnant women started while still in the first pregnancy term. In 13 cities (52%), more than 70% of the women started prenatal care in the first term. In 12 (48%) cities, however, that was the case for less than 70% of the pregnant women (Figure 2).

Concerning the prenatal care coverage, in 2013, 18 (72%) cities presented less than 70% of the pregnant women with seven or more obstetric appointments. No records were found on the number of obstetric appointments for the city of Nova Aurora. The data for Cascavel refer to only five pregnant women, without records for the other cities (Figure 3). On average, 3.6 obstetric appointments per
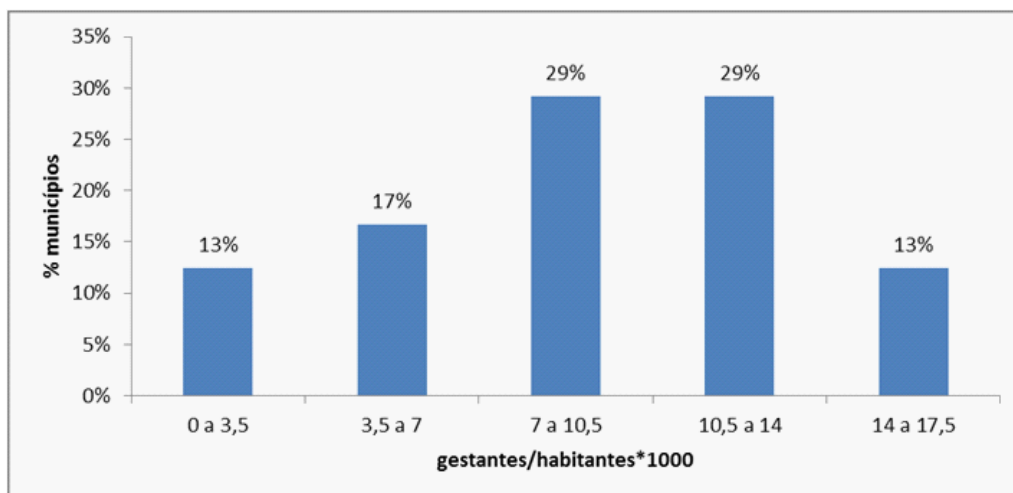

Figure 1 – Percentage of cities in relation to the coefficient of pregnant women per 1,000 inhabitants. Cascavel, Paraná, Brazil, 2014

pregnant woman were identified. It is highlighted that the PRMP recommends six consultations during the pregnancy and one in the postpartum period, totaling at least seven appointments.

Concerning the number of pregnant women who were immunized, no records were evidenced after the implementation of the PRMP.

After presenting the pregnant women's general background, cluster analysis was performed to demonstrate which cities are similar concerning the variables analyzed in 2013. The cities were grouped in three classes: Group 1 – Anahy, Cafelândia, Campo Bonito, Céu Azul, Diamante do Sul, Espigão Alto do Iguaçu, Iguatu, Iracema do Oeste, Jesuítas, Lindoeste, Nova Aurora, Santa Lúcia, Santa Tereza do Oeste; Group 2 – Boa Vista da Aparecida, Capitão Leônidas Marques, Catanduvas, Corbélia, Guaraniaçu, Ibema, Quedas do Iguaçu, Três Barras do Paraná, Vera Cruz do Oeste; Group 3 – Braganey, Cascavel, Formosa do Oeste (Figure 4).

Intergroup comparisons were performed to assess particularities, as demonstrated in Table 1.

As observed, Group 2 presented the highest coefficients for the variables studied, while Group 1 presented the lowest, with statistically significant differences ($p<0.05$). Group 3 presented a discrepancy in the combination of the cities in the cluster. That group includes the city of Cascavel, where five
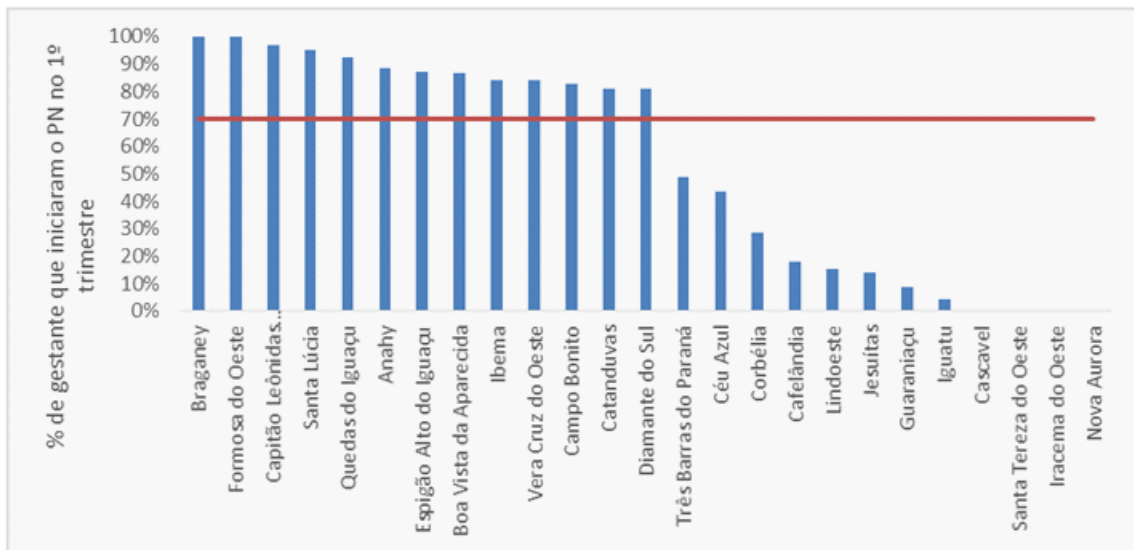

Figure 2 – Percentage of pregnant women per city who started prenatal care in the first term. Cascavel, Paraná, Brazil, 2014
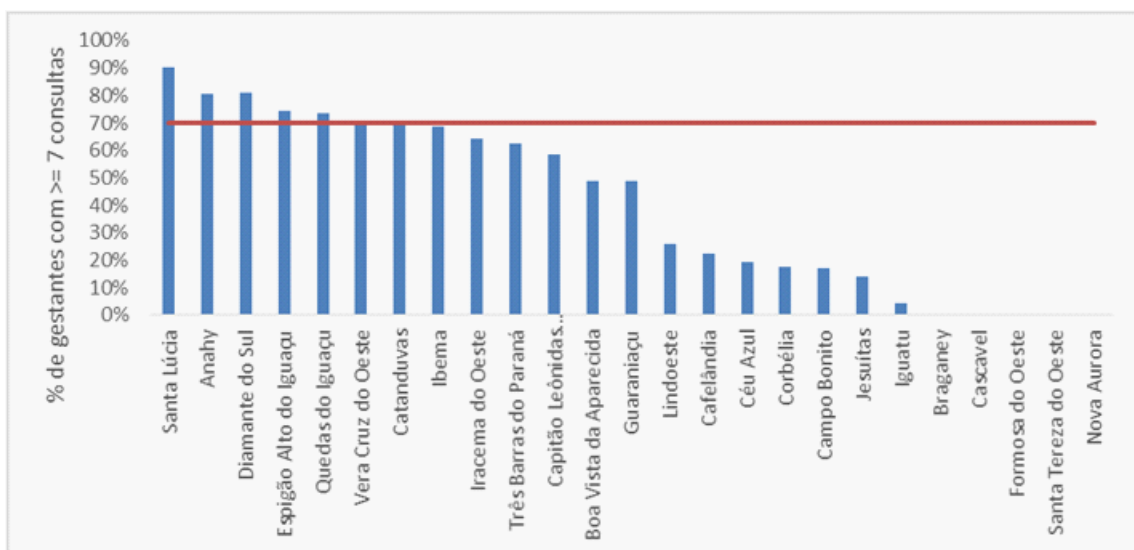

Figure 3 – Percentage of pregnant women per city who had 7 or more prenatal appointments. Cascavel, Paraná, Brazil, 2014

pregnant women were registered in 2013. The cities of Braganey and Formosa do Oeste are located in the same group and also presented few pregnant women. Nevertheless, like Cascavel, these cities present a large number of births. This points towards errors in the information systems in those cities. Therefore, the analysis described will mainly refer to Groups 1 and 2.

Group 1 consists of 13 small to medium-sized cities with less than 20,000 inhabitants (Anahy: 2,922 inhabitants; Cafelândia: 16,321 inhabitants; Campo Bonito: 4,309 inhabitants; Céu Azul: 11,589 inhabitants; Diamante do Sul: 3,575 inhabitants; Espigão Alto do Iguaçu: 4,591 inhabitants; Iguatu: 2,300 inhabitants; Iracema do Oeste: 2,537 inhabitants; Jesuítas: 9,017 inhabitants; Lindoeste: 5,247 inhabitants; Nova Aurora: 11,659 inhabitants; Santa Lúcia: 3,986 inhabitants; Santa Tereza do Oeste: 10,528 inhabitants). On average, there were 56 pregnant women in these cities in 2013, with a mean coefficient of 9.2 pregnant women per 1000 inhabitants. As for the type of birth, on average, 27.5$\pm$20.5 normal births and 53.5$\pm$48.5 c-sections were registered. These data suggest that pregnant women from
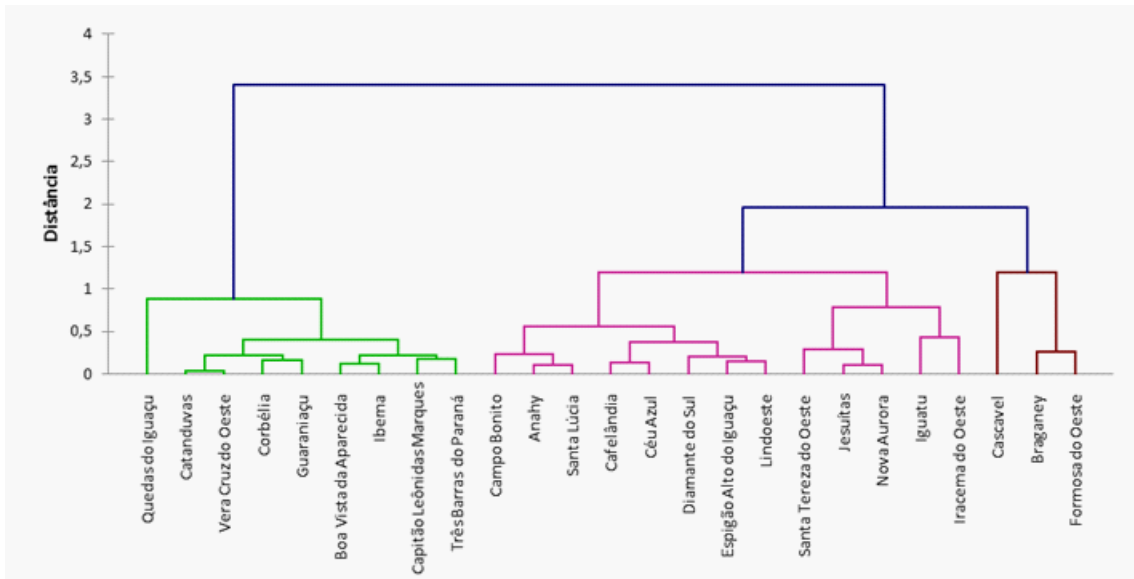

Figure 4 – Tree diagram of city clusters using Ward clustering method and Bray-Curtis distance. Cascavel, Paraná, Brazil, 2014

Table 1 – Descriptive statistics (Mean+Standard Deviation - SD) of variables analyzed in the three groups of cities in the 10th Regional Health District of Paraná, based on cluster analysis. Cascavel, Paraná, Brazil,2014

Variables (unit)	Group 1	Group 2	Group 3
Inhabitants (n)	6815$\pm$4483[b]	13954$\pm$7878[a]	107470$\pm$174756[ab]
Pregnant women (n)	56+35[a]	170a+88[a]	2+2[b]
Pregnant women/1000 inhab. (n)	9+4[ab]	13+3[a]	0.1+0.1[b]
Pregnant women with> 7 consultations (n)	17+12[b]	97+70[a]	0+0[b]
Total PN consultationsamong pregnant women(n)	157$\pm$68[b]	746+497[a]	3$\pm$4[b]
Pregnant women who started PN in first term (n)	31+14[b]	114+45[a]	1+0[b]
Pregnant women immunized in first term (n)	20+15[b]	114+94[a]	1+1[b]
Pregnant women immunized in second term(n)	5$\pm$6[a]	27$\pm$51[a]	0.3$\pm$0.6[a]
Pregnant women immunized in third term(n)	7+8[b]	55+75[a]	0.7+1.2[b]
Pregnant women who took syphilis test (n)	7+10[ab]	83+96[a]	0.3+0.6[b]
Pregnant women who took pregnancy test (n)	0.2+0.6[a]	2.1+5.6[a]	0.0+0.0[a]
Pregnant women who took HIV test (n)	7$\pm$10[ab]	84+96[a]	0.3$\pm$0.6[b]
Normal births (n)	28+21[b]	70+27[a]	602+1008[ab]
C-sections (n)	54+49[a]	104+76[a]	987+1614[a]
Maternal mortality ratio (n/100,000 live births)	0.0+0.0[a]	0.4+0.7[a]	0.3+0.6[a]
Cities (n)	13	9	3

other cities belonging to the RHD studied or from other RHD migrated to these cities.

In these cities, about 55% (n=367) of the pregnant women started prenatal care in the first term, but only 30% (n=198) had seven or more obstetric appointments during their pregnancy (16.5±11.7 pregnant women). As regards taking tests, 36% (n=239) of the pregnant women took the tests requested in the first term (19.9±15.0), 10% (n=64) took the tests in the second term (5.3±6.3) and 13% (n=85) in the third term (7.1±7.6). About the rapid tests, 12% (n=79) of the pregnant women had the syphilis test, 0.36% (n=2) the pregnancy test and 13% (n=85) the HIV test. The maternal mortality ratio corresponded to zero.

Group 2 consists of nine medium-sized cities with between 6,000 and 33,000 inhabitants (Boa Vista da Aparecida: 7,968 inhabitants; Capitão Leônidas Marques: 15,724 inhabitants; Catanduvas: 10,459 inhabitants; Corbélia: 17,076 inhabitants; Guaraniaçu: 13,998 inhabitants; Ibema: 6,352 inhabitants; Quedas do Iguaçu: 32,982 inhabitants; Três Barras do Paraná: 12,227 inhabitants; Vera Cruz do Oeste: 8,998 inhabitants). On average, there were 170 pregnant women in these cities in 2013, with a mean coefficient of 12.7 pregnant women per 1000 inhabitants.

About the type of birth, 69.7±26.5 normal births and 104.4±75.9 c-sections were registered, suggesting that the pregnant women from the 10th RHD did not migrate to other cities in this or to another RHD in the State of Paraná. In the cities from Group 2, about 67% (n=874) of the pregnant women started prenatal care in the first term, with 57% (n=1029) having seven or more obstetric appointments (96.9±69.8 pregnant women). With regard to the tests, 67%(n=1027) took the tests requested in the first term (114.19±94.3), 16%(n=245) in the second term (27.2±51.1) and 32% (n=494) in the third term (54.9±74.9). As for the rapid tests, 49% (n=747) of the pregnant women took the syphilis test, 1.23% (n=19) the pregnancy test and 50% (n=758) the HIV test. The maternal mortality ratio during the study period (2012-2013) amounted to 0.4±0.7.

● **DISCUSSION**

In this study, prenatal care in the 10th RHD of Paraná was briefly assessed after the implementation of the PRMP. Concerning the start of prenatal care, it was identified that, on average, less than 70% of the pregnant women started in the first term, similar to the rate in other Brazilian regions[6-7], like in Porto Alegre, RS, where 52% of the women started prenatal care in the first term[7].

As opposed to these data, studies revealed favorable rates for the start of prenatal care, with percentages of more than 70% of the pregnant women who started in the first term[8-12]. A study highlights that more than 75% of the pregnant women started prenatal care in the first term, with18.2% of the women starting in the first or second month of their pregnancy[13].

Since the first term, prenatal care is a necessary condition for the promotion of maternal and child health. In that sense, monitoring the risk factors responsible for health problems contributes favorably when detected and treated early[10].

The start of prenatal monitoring is related to the quality of PHC service organization, access and bond between the community and the health service. A late start signals the weakness of this care. Thus, according to the PRMP, the team, and particularly the Community Health Agents, should identify the pregnant women early, prioritizing high-risk cases[2].

The deficient sensitization of the pregnant women, lack of information, difficulty for the active search and early capturing of the pregnant women[13] can justify the last start of prenatal care identified in this study.

Regarding the prenatal care coverage, 18 out of 25 cities presented less than 70% of the cities with seven or more obstetric consultations, with an average 3.6 consultations per pregnant woman. These data do not correspond to the recommendation of the World Health Organization (WHO)[14], of the Humanization Program of Prenatal and Birth Care (PHPN) of the Ministry of Health[15], and recommended by the PRMP, being lower when compared to other Brazilian realities[6-8].

WHO recommends at least four appointments during the pregnancy[14]. In Paraná, the PRMP follows

the Ministry of Health recommendations with one appointment during the first term of pregnancy, two in the second, three in the third and one in the postpartum period[2]. That is similar to what is recommended in countries like the United States, where prenatal consultations should happen monthly between the start of the pregnancy and the 28th week, every two weeks between the 28th and the 36th week and weekly between the 26th week and birth[16].

The percentage of women having four prenatal appointments in developing countries increased from 37% in 1990 to about 52% in 2012. In low-income countries, between 2006 and 2013, only 38% of the pregnant women had four prenatal consultations. Although WHO recommends at least four prenatal consultations, between 2006 and 2013, only 56% of the pregnant women around the world complied with the recommendations[14], demonstrating a slight improvement in this indicator.

The number of consultations seems to go against what is expected from high-quality prenatal care. Even with a small number of consultations, the prenatal care of low-risk women can be appropriate if women with a higher gestational risk factor are assessed and receive further care.

The inappropriate number of prenatal consultations is related to women with low education levels and the birth of low-weight infants[17]. That is in line with other experiences that relate maternal and child mortality with the mother's education, living conditions and timely access to health services[2].

Dental appointments are considered part of prenatal care in Brazil and in the State of Paraná. In this study, however, no records of dental appointments by pregnant women were found during the study period. In a Brazilian study, it is demonstrated that only 17% of the pregnant women received some type of dental care[18], evidencing that this is not just a local reality.

During pregnancy, the vascularization of the oral cavity increases due to the rise in progesterone and estrogen levels, causing greater vascular permeability and alterations in the production of collagen, making the gums more susceptible to infection and bacterial biofilm[19]. The same condition makes the pregnant woman susceptible to other problems, such as gestational diabetes mellitus[20]. Also, periodontal disease has been indicated as a risk factor for premature birth and low birth weight[21]. Thus, maternal oral health needs to be promoted to reduce the risks for the pregnant woman and her child in the prenatal phase.

Another important aspect refers to the monitoring of the pregnant woman and the child. The SIS-Pré-natal (Prenatal, Birth, Postpartum and Child Monitoring and Assessment System) permits registering pregnant women and infants since the diagnosis of the pregnancy until the child's birth. Thus, the system supports cities, states and the Ministry of Health, providing information that allows the managers to plan, monitor and assess the promotion, prevention and care actions, with a view to reducing maternal, perinatal and neonatal morbidity and mortality rates[22].

A weakness is found in the consistency of the present findings, as the data collection based on the SIS-Pré-natal indicates inconsistency between the number of inhabitants and the number of pregnant women registered in the system. One example is the city of Cascavel, PR, which according to data from the Brazilian Institute of Geography and Statistics (IBGE)[23] has a population of more than 300 thousand inhabitants, but only five pregnant women registered in 2013. Hence, the question can be raised whether the health professionals are enrolling and registering the pregnant women appropriately, including the data in the SIS-Pré-natal to monitor the prenatal and postpartum care, or whether the registration of this information is delayed. Primary health care professionals are responsible for enrolling the pregnant woman at the start of prenatal care, for stratifying the risk and for linking the pregnant woman with the health service to give birth, in accordance with the gestational risk[2].

In an integrative review, weakness was identified in the way the Health Information System (HIS) is organized and practiced, compromising the reliability of the data produced, as they do not represent the reality of the Brazilian population's health situation[24].

Hence, knowledge is needed on the reliability of the SIS and the origin of the data, as these are fundamental in view of the need to change and adopt new strategies. The quality of the information needs to be studied, signaling weaknesses, with a view to the necessary reparations, resulting in reliable data[25].

The accomplishment of rapid tests during pregnancy to detect syphilis and HIV is fundamental to

guarantee appropriate intervention and treatment. The treatment of syphilis is considered particularly important, as the prevalence of this disease is a care quality indicator, as the primary care network offers its diagnosis and treatment[9]. When accomplished early and correctly, the treatments can reduce the chances of vertical transmission to only 8.3%[26]. With a view to effective prenatal care, during the study period, the National Immunization Program (NIP) of the Ministry of Health recommended the immunization of pregnant women against tetanus, influenza and hepatitis B[27]. No records were identified though of pregnant women immunized during prenatal care.

As regards the risk stratification, the PRMP started in 2011, with the stratification of the pregnant women into habitual, intermediary and high risk as one of its objectives. Since 2011, the Stork Network, according to Ministry of Health Decree 1.459 from June 24th 2011[5], determines the accomplishment of prenatal care, including the request for tests and the linkage of the pregnant woman with the health service according to the risk. In this study, all cities complied with the risk stratification, showing one of the positive aspects in the implementation of the PRMP.

Concerning the number of c-sections, to the detriment of normal birth in Brazil, it is important to highlight that, since the past century, the delivery and birth practices have undergone changes, due to the commercialization, medicalization and hospitalization of birth, indicating the urgent need for the natural rescue of giving birth. In 2012, the c-section represented 52% of births in Brazil, being 86% in the private sector and 43% in the public sector[28], much higher than the 10% to 15% recommended by WHO[14].

In addition, when compared to c-section, normal birth offers advantages, such as the lower cost for the health system and the woman's rapid recovery[1]. A study revealed that the high c-section rates registered nowadays are related to the cultural and family influence, the fear of pain, as well as the woman's request for sterilization and, mainly, the lack of information on the benefits and disadvantages of the different forms of giving birth[29].

● FINAL CONSIDERATIONS

According to the recommendations of the PRMP, the cities in the 10th RHD of the State of Paraná obtained unsatisfactory results concerning the start of prenatal care in the first pregnancy term and the accomplishment of rapid HIV and syphilis tests, as total results were inferior to 70%. Concerning the records and information on prenatal care, a lack of information was identified about the number of immunized pregnant women and who had dental appointments, as well as a possible delay of the registration in the information systems.

The prenatal care actions and strategies the PRMP proposes in the State of Paraná, a priori in the 10th RHD studied, need to be expanded in order to reach compliance rates with the strategies bordering on 100%, guaranteeing better quality of maternal and child health care.

In view of the collected data and the implementation of the PRMP in 2012, other similar studies are suggested to assess the prenatal care actions and their records in the State of Paraná.

● REFERENCES

1. Programa das Nações Unidas para o Desenvolvimento (PNUD). Objetivos de desenvolvimento para o milênio. Melhorar a saúde materna. [Internet] 2016 [acesso em 28 mar 2016]. Disponível: http://www.pnud.org.br/ODM5.aspx.

2. Paraná. Secretaria de Estado da Saúde do Paraná (SESA). Programa Rede Mãe Paranaense: Linha guia. [Internet] Paraná: SESA; 2012 [acesso em 12 jan 2015]. Disponível: http://www.saude.pr.gov.br/arquivos/File/MaeParanaense_2014_LinhaGuia_Ed03_148x210mm__1.pdf.

3. Duarte SJH, de Andrade SMO. Assistência pré-natal no Programa Saúde da Família. Esc. Anna Nery. [Internet] 2006; 10(1) [acesso 11 nov 2015]. Disponível: http://dx.doi.org/10.1590/S1414-81452006000100016.

4. Brasil. Portaria n. 1.459, de 24 de junho de 2011. Institui, no âmbito do Sistema Único de Saúde - SUS - a Rede

Cegonha. Brasília: Ministério da Saúde; 2011.

5. Cervo AL, Bervian PA, da Silva R. Metodologia Científica. 6ª ed. São Paulo: Pearson Prentice Hall; 2007.

6. Polgliane RBS, Leal MC, Amorim MHC, Zandonade E, dos Santos Neto ET. Adequação do processo de assistência pré-natal segundo critérios do Programa de Humanização do Pré-natal e Nascimento e da Organização Mundial de Saúde. Ciênc. saúde coletiva. [Internet] 2014; 19(7) [acesso em 07 nov 2015]. Disponível: http://dx.doi.org/10.1590/1413-81232014197.08622013.

7. Hass CN, Teixeira LB, Beghetto MG. Adequabilidade da assistência pré-natal em uma estratégia de saúde da família de Porto Alegre - RS. Rev. Gaúcha Enferm. [Internet] 2013; 34(3) [acesso em 12 dez 2015]. Disponível: http://dx.doi.org/10.1590/S1983-14472013000300003.

8. Viellas EF, Domingues RMSM, Dias MAB, da Gama SGN, Theme Filha MM, da Costa JV, et al. Assistência pré-natal no Brasil. Cad. Saúde Pública. [Internet] 2014; 30(Supl.1) [acesso em 12 dez 2015]. Disponível: http://dx.doi.org/10.1590/0102-311X00126013.

9. de Oliveira RLA, da Fonseca CRB, Cavalhaes MABL, Parada CMGL. Evaluation of pre-natal care from the perspective of different models in primary care. Rev. Latino-Am. Enfermagem. [Internet] 2013; 21(2) [acesso em 08 dez 2015]. Disponível: http://dx.doi.org/10.1590/S0104-11692013000200011.

10. Domingues RMSM, Hartz ZMA, Dias MAB, Leal MC. Avaliação da adequação da assistência pré-natal na rede SUS do Município do Rio de Janeiro, Brasil. Cad. Saúde Pública. [Internet] 2012; 28(3) [acesso em 01 jan 2016]. Disponível: http://dx.doi.org/10.1590/S0102-311X2012000300003.

11. Corrêa MD, Tsunechiro MA, Lima MOP, Bonadio IC. Avaliação da assistência pré-natal em unidade com estratégia saúde da família. Rev. esc. enferm. USP. [Internet] 2014; 48(n.esp) [acesso em 01 jan 2016]. Disponível: http://dx.doi.org/10.1590/S0080-623420140000600004.

12. da Silva EP, de Lima RT, Ferreira NLS, Costa MJC. Pré-natal na atenção primária do município de João Pessoa-PB: caracterização de serviços e usuárias. Rev. Bras. Saúde Mater. Infant. [Internet] 2013; 13(1) [acesso em 20 nov 2015]. Disponível: http://dx.doi.org/10.1590/S1519-38292013000100004.

13. Vilarinho LM, Nogueira LT, Nagahama EEI. Avaliação da qualidade da atenção à saúde de adolescentes no pré-natal e puerpério. Esc. Anna Nery. [Internet] 2012; 16(2) [acesso em 09 dez 2015]. Disponível: http://dx.doi.org/10.1590/S1414-81452012000200015.

14. World Health Organization (WHO). Global Health Observatory. [Internet] Antenatal care [acesso em 22 jan 2015]. Disponível: http://www.who.int/gho/maternal_health/reproductive_health/antenatal_care_text/en/.

15. Ministério da Saúde (BR). Programa de Humanização do Pré-natal e Nascimento. Humanização no parto. [Internet] Brasília: Ministério da Saúde; 2002 [acesso em 12 fev 2015]. Disponível: http://bvsms.saude.gov.br/bvs/publicacoes/parto.pdf.

16. Office on Woman's Health U.S. (US). Department of Health and Human Services, Office on Women's Health. Prenatal care fact sheet. [Internet] 2012 [acesso em 17 jan 2015]. Disponível: http://www.womenshealth.gov/publications/our-publications/fact-sheet/prenatal-care.html.

17. Gonçalves AC, Costa MCN, Braga JU. Análise da distribuição espacial da mortalidade neonatal e de fatores associados, em Salvador, Bahia, Brasil, no período 2000-2006. Cad. Saúde Pública. [Internet] 2011; 27(8) [acesso em 18 nov 2015]. Disponível: http://dx.doi.org/10.1590/S0102-311X2011000800013.

18. Santos Neto ET, Oliveira AE, Zandonade E, Leal MC. Acesso à assistência odontológica no acompanhamento pré-natal. Ciênc. saúde coletiva. [Internet] 2012;17(11) [acesso em 22 nov 2015]. Disponível: http://dx.doi.org/10.1590/S1413-81232012001100022.

19. Zanata RL, Fernandes KBP, Navarro PSL. Prenatal dental care: evaluation of professional knowledge of obstetricians and dentists in the cities of Londrina/PR and Bauru/SP, Brazil, 2004. J. Appl. Oral Sci. [Internet] 2008; 16(3) [acesso em 22 nov 2015]. Disponível: http://dx.doi.org/10.1590/S1678-77572008000300006.

20. Chokwiriyachit A, Dasanayake AP, Suwannarong W, Hormdee D, Sumanonta G, Prasertchareonsuk W, et al. Periodontitis and gestational diabetes mellitus in non-smoking females. J Periodontol. [Internet] 2013; 84(7) [acesso em 22 nov 2015].

21. Rodrigues AS, Lima DBGO, Ganhito JA, Romito GA, Lotufo RFM, Micheli G, et al. Parto prematuro e baixo peso ao nascer associados à doença periodontal: aspectos clínicos, microbiológicos e imunológicos. Rev. odontol. Univ. Cid. Sao Paulo. 2004; 16(1): 55-61.

22. Ministério da Saúde (BR). Datasus. SIS Pré Natal. [Internet] Brasília: Ministério da Saúde; 2015 [acesso em 18 fev 2015]. Disponível: http://datasus.saude.gov.br/sistemas-e-aplicativos/epidemiologicos/sisprenatal.

23. Instituto Brasileiro de Geografia e Estatística (IBGE). Cidades. Cascavel. [Internet] 2015 [acesso em 18 fev 2015]. Disponível: http://cidades.ibge.gov.br/xtras/perfil.php?lang=&codmun=410480.

24. dos Santos SR, Ferreira JA, Cruz EMMS, Leite EMAM, Pessoa JCS. Sistema de Informação em Saúde: Gestão e Assistência no Sistema Único de Saúde. Cogitare Enferm. [Internet] 2014; 19(4) [acesso em 26 jan 2016]. Disponível: http://dx.doi.org/10.5380/ce.v19i4.35347.

25. Rehem TCMSB, de Oliveira MRF, Ciosak SI, Egry EY. Registro das internações por condições sensíveis a atenção primária: validação do sistema de informação hospitalar. Rev. Latino-Am. Enfermagem 2013; 21(5): 1-6.

26. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde. Programa Nacional de DST e Aids. Protocolo para a prevenção de transmissão vertical de HIV e sífilis: Manual de Bolso. Brasília: Ministério da Saúde; 2007.

27. Ministério da Saúde (Brasil). Secretaria de Vigilância em Saúde. Departamento de Vigilância Epidemiológica. Manual de Rede de Frio. 4ª ed. [Internet] Brasília (DF): Ministério da Saúde; 2013 [acesso em 26 jan 2016]. Disponível: http://pni.datasus.gov.br/Download/manual_rede_frio.pdf.

28. Nakano AR, Bonan C, Teixeira LA. A normalização da cesárea como modo de nascer: cultura material do parto em maternidades privadas no Sudeste do Brasil. Physis. [Internet] 2015; 25(3) [acesso em 26 jan 2016]. Disponível: http://dx.doi.org/10.1590/S0103-73312015000300011.

29. Bittencourt F, Vieira JB, de Almeida ACCH. Concepção de gestantes sobre o parto cesariano. Cogitare Enferm. [Internet] 2013; 18(3) [acesso em 26 jan 2016]. Disponível: http://dx.doi.org/10.5380/ce.v18i3.33565.