

Antenatal care within Brazil's Unified Health System

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Keywords

Antenatal care. Women's health. Unified Health System (SUS-Br). Maternal health services. Pregnant women. Program evaluation. Quality of health care.

Abstract

Objective

To assess antenatal care in health care units, so as to obtain a baseline for future evaluation studies.

Methods

A self-applied inquiry was conducted among municipal health managers within a probabilistic stratified random sample of 627 municipalities which, through expansion technique, extended the analysis to 5,507 municipalities. Data was collected from October 2003 to April 2004. The survey appraised information about the priority granted by the managers to each modality of care, as well as data concerning characteristics of the assistance provided and the declared estimate of the demand being covered. The Chi-square test and Student's t-test were performed in order to verify independence among the qualitative variables and mean differences, respectively.

Results

Almost half (43.8%; n=2,317) of the municipalities did not attend gestational risk; 81% (n=4,277) and 30.1% (n=1,592) reported that they attend over 75% of the demand for low and high risk antenatal respectively; 30.1% (n=1,592) attend over 75% of the demand for high risk care. Care for low risk ($\chi^2=282,080$; $P<0.001$ n=4,277) and for high risk pregnancies ($\chi^2=267.924$; $P<0.001$ n=5,280) were associated to geographic region, municipality's size and management modality within the Unified Health System. The guarantee of vacancy for labour and birth was also associated to management modality.

Conclusions

There were gaps related to the provision and the quality of antenatal care within the Unified Health System. Municipal based health care extends the provision of antenatal care, but there are inequalities among regions and among municipalities according to demographic size.

INTRODUCTION

The most important actions directed towards the control of maternal mortality depend upon access to and the quality of care dispensed by the health services, particularly during labor, birth and the postpartum period. Antenatal care has an impact on the reduction of maternal and perinatal mortality,¹¹ if women have access to services and the quality of these

services are sufficient to control the identified risks.¹⁰

The principal objectives of antenatal care are: to assure the normal development of pregnancy; to prepare the pregnant woman for normal childbirth, for the postpartum period and for normal lactation; to identify risk situations, as quickly as possible. These measures make it possible to prevent the most frequent complications that occur during pregnancy and the postpartum period.⁷

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Antenatal care should be concluded only after the postpartum consultation, but, postnatal care is not appropriately conducted in Brazil, despite the high coverage of the BCG vaccine, applied to newborns during the first month of life.⁸ Furthermore, antenatal care has a well known potential as an indicator of the quality of services,¹ not only because it disposes of formal indicators for monitoring its application, but also because it constitutes a traditional modality of care within the primary health care services.

In Brazil and Latin America, there are regional inequities in the coverage of antenatal care.¹¹ At present it is admitted that maternal mortality is an extreme situation that occurs during pregnancy, birth and the postpartum period, and that should be investigated, not only with regard to clinical aspects, but also in relation to factors that are not exactly associated to the health system.⁴

Several authors correlate the risk of maternal mortality to the pregnant woman's formal education, delimiting the social and economic influences of the population with respect to the risks. Low educational level is associated unfavorably to early initiation of antenatal care, as well as to adhesion and to the concentration of the number of antenatal consultations.^{3,7} Less years of formal education is associated to low birth weight, to perinatal mortality, neonatal mortality and infant mortality, as well as to the number of births.^{2,10}

Other risk factors for pregnant women are: parity; arterial hypertension during pregnancy; low weight gain; anemia and woman's age when the latter is younger than eighteen and over 35 years old.² Many of these situations associated to risks are susceptible to interventions on the part of the health care services.

Thus, the objective of this study was to analyze antenatal care within the Brazilian Health System's healthcare units, so as to obtain a baseline for future evaluation studies.

METHODS

This is an exploratory study based on an inquiry that intends to evaluate antenatal care in Brazil's Unified Health System.

For this purpose, a probabilistic random sample of 627 municipalities was selected, applying criteria based on population and geographical region, allowing all Brazilian municipalities the opportunity of integrating the sample within each stratum. This sample

was randomly selected on the basis of the municipal register of the Instituto Brasileiro de Geografia e Estatística's* [Brazilian Statistics and Geographical Institute's] (IBGE) Demographic Census for the year 2000. The 25 strata of the sample were defined by combining the five geographic regions with five classes of municipalities according to population size (up to 5,000 inhabitants; from 5,001 to 10,000 inhabitants; from 10,001 to 20,000; from 20,001 to 50,000 and over 50,000). The following are the results of this sampling technique: 50 municipalities from the Midwest were selected, 195 from the Northeast, 60 from the North, 190 from the Southeast, and 132 from the South, arriving at a sum total of 627 municipalities.

Each strata of the sample was submitted to the respective factor of expansion allowing for the extension of analysis to by inference to 5,507 municipalities. The adopted confidence level was 95%.

The instrument utilized to collect data was composed of four blocks of questions. The first contained administrative information concerning the municipality; the second, questions concerning policy priorities attributed to antenatal care, high risk antenatal care, care in birth and during the postpartum period; the questionnaire of the third block dealt with aspects related to the quality of antenatal care included in the *Programa de Humanização no Pré-Natal e Nascimento (PHPN)* [Program for the Humanization of Pre-natal Care and Care in Childbirth]; and the fourth block investigated the coverage of pre-natal within the municipal network as estimated by its manager.

In order to participate in the study the manager or another professional indicated by him/her were assured that data concerning the municipalities would be grouped together and treated in the aggregate.

Data was collected in the period from October 2003 to April 2004. The filled out questionnaires were submitted to a permanent process of critique, striving for consistency in the replies.

The SPSS program was utilized for the statistical treatment of the data. The Chi-square test (χ^2) and the Student's t-test were utilized to verify independence among the qualitative variables and mean differences, respectively.

The degree of priority reported by the municipal managers with respect to activities related to: low and high risk pre-natal care, care during childbirth as well as care during the postpartum period; the qual-

*The Instituto Brasileiro de Geografia e Estatística (IBGE) [Brazilian Statistics and Geographical Institute's]. Municipal registre. Censo Demográfico [Demographic Census], 2000. Available from URL: <http://www.ibge.gov.br/home/estatistica/populacao/censo2000/default.shtm> [2004 Jul 5]

ity of care offered by the municipalities their approximation to the strategies recommended by the PHPN. Analysis correlating the quality of care and coverage of low and high risk antenatal care with regional and demographic data was conducted.

The project for this study was approved by the Research Ethics Committee of Secretaria de Saúde do Distrito Federal (CEP-SES/DF). Since the study relied upon spontaneous replies on a theme of public interest, the term of informed consent was considered unnecessary in this case.

RESULTS

The percentage of municipalities under study that considered high and low risk antenatal care, care during childbirth and during the postpartum period as high priority was 45.3% (n=2,493). Among the municipalities that declared that these activities were high priority, 34.2% (853) are located in the Northeast region of Brazil, whereas 8.9% (n=222) are located in the Mid-West.

Among the municipalities that declared that activities related to antenatal care, as well as care during birth and the postpartum period were high priority, 93.3% (n=2,319) conducted active search for pregnant women so as to assure their entry into the antenatal care program, in coherence with the PHPN norms.

The bond that is constructed between the woman and the professional was pointed out as an important item in the process of humanization of care, contributing towards woman's adhesion to antenatal care and its continuity. However, it was noted that in 33.2% (n=824) of these services, it is not always the same professional who accompanies the woman throughout her antenatal care.

The presence and role of the obstetric nurse, both in antenatal care and in care during birth, has been stimulated in Brazil due to this professional's contri-

bution towards the expansion of coverage and the quality of these services. However, in 72.6% of these municipalities (n=1,773) the municipal health departments do not employ obstetric nurses in the network of health services.

As to care during birth, 93.6% (n=2,326) of the municipalities reported that they guarantee vacancies in their maternities to all women. Only 159 municipalities, representing 6.4% (n=159) of the total that affirm they give top priority to women's care during the gestational cycle, do not guarantee women vacancy in the maternity.

The tranquility acquired when women are assured they will be attended during birth is fundamental for the humanization of care during pregnancy. The PHPN recommends that women should visit and get to know the place of birth during pregnancy. In 65.3% (n=1,589) of the municipalities that attribute high priority to activities related to care during the gestational cycle, women are allowed to visit the place of birth during pregnancy. In 34.7% (n=843) of these, women do not visit the maternity as part of the antenatal routine.

The presence of a person accompanying the woman during labor and birth, whether this person is a member of the family or a professional, has been valued as a form of providing comfort, health and well-being to women and newborns. In 58.9% (n=1,433) of the municipalities that attribute high priority to care during the gestational period, the presence of a support person during birth is not permitted.

Table 1 presents aspects related to access and quality of care provided to pregnant women. The percentage (96.6%) of municipalities (n=5,286) that declared they attributed high priority to providing antenatal care was high, being that 85.7% of these (n=3,441) attribute high priority to high risk antenatal care.

When the two variables: "priority for high risk an-

Table 1 - Quality of antenatal care in municipalities with high priority for activities related to care during pregnancy, birth and the postpartum period and in the rest of the municipalities. Brazil, 2004.

Quality of antenatal care	Municipalities with high priority N (%)	Other municipalities N (%)	Total of the sample N (%)
Conducts active search for antenatal care	2,319 (93.3%)	2,653 (88.6%)	4,972 (90.7%)
Antenatal care is not always carried out by the same professional	824 (33.2%)	781 (26.3%)	1,605 (29.4%)
Obstetric nurses are not employed within the municipal networks	1,773 (72.6%)	2,479 (83.5%)	4,252 (78.6%)
Vacancy for birth in the maternity is not guaranteed	159 (6.4%)	395 (13.3%)	554 (10.2%)
Does not guarantee that the woman has the right to visit the place of birth during pregnancy	843 (34.7%)	1,598 (54.6%)	2,441 (45.6%)
Does not permit the presence of a person accompanying the woman throughout labor and birth	1,433 (58.9%)	2,031 (70.7%)	3,464 (65.3%)

Source: Ministry of Health, 2003-2004

Table 2 - Percentage of the priorities with respect to antenatal care according to risk and geographical region. Brazil, 2004.

Region	Low risk			Total	High risk			Total
	Low	Medium	High		Low	Medium	High	
North	3.3	5.0	91.8	100.0	4.4	8.5	87.1	100.0
Northeast	1.5	0.5	97.9	100.0	6.7	6.7	86.7	100.0
Southeast	1.5	1.6	97.3	100.0	5.6	9.7	84.7	100.0
South	0.8	3.1	96.1	100.0	3.3	4.2	92.5	100.0
Mid-West	2.0	2.0	96.0	100.0	11.8	19.3	69.0	100.0
Total	1.4	2.0	96.6	100.0	5.9	8.3	85.7	100.0

Source: Ministry of Health, 2003-2004

tenatal care” and “priority for antenatal care” were crossed, it was observed that 85.4% of the municipalities (n=3,405) attribute high priority simultaneously to antenatal care and to high risk antenatal care ($\chi^2=1,005.024$; $P<0.001$).

Although a significant correlation of medium intensity ($r=0.491$) may be attributed to the priorities attributed to antenatal care and high risk antenatal care, the t-paired test, when applied to both modalities of antenatal care, presents significant mean differences ($t=25.297$; $P<0.001$). This result indicates that the mean priority given to low risk antenatal care (m=9.55) is greater than the mean priority attributed by managers to high risk antenatal care (m=8.72). This result is predictable, for the municipalities present greater difficulties in providing procedures of medium and high complexity.

As to associations with the geographic region ($\chi^2=70,371.024$; $P<0.001$), 96.6% of all the municipalities (n=5,285) conferred high priority to low risk antenatal care. Among those municipalities which confer low or medium priority to low risk antenatal care, 8.3% (n=43) are located in the Northern region and 4.0% (n=18) are located in the Mid-Western region (Table 2).

Regional disparities become more evident when examining the results with respect to the priority given to high risk antenatal care, also associated to geographic region ($\chi^2=127.888$; $P<0.001$). In the Southern region, the great majority 92.5% (n=762) of the municipalities attributed high priority to high risk antenatal care, whereas in the Mid- Western region, 11.8% (n=44) of the municipalities conferred low priority to this modality of antenatal care (Table 2).

Priority with respect to both low and high risk antenatal care is also associated to the size of the municipality. High risk antenatal care ($\chi^2=59.908$; $P<0.001$) is a low priority for 8.5% (n=71) of the municipalities with less than 5,000 inhabitants, whereas, among the municipalities with more than 50,000 inhabitants, only 4.1% (n=18) declared low priority for high risk antenatal care (Table 3).

The way in which services handle the demand for care provides an indirect measure of the volume of activities offered to pregnant women by the municipality, that is, an estimate of the coverage. However, since it is an estimate declared by the manager, it may give rise to a bias in the reply due to the tendency on the part of the informant, to overestimate the supply of municipal services. Tables 4 and 5 indicate the

Table 3 - Distribution of the level of priorities (%) for high risk antenatal care, according to the size of the municipality. Brazil, 2004.

Size of the municipality	Low	Medium	High	Total
Up to 5,000	8.5	6.3	85.2	100.0
5,001 to 10,000	5.6	9.4	85.0	100.0
10,001 to 20,000	7.7	9.4	82.9	100.0
20,001 to 50,000	2.3	5.7	92.0	100.0
50,001 and more	4.1	12.2	83.8	100.0
Total	6.0	8.3	85.7	100.0

Source: Ministry of Health, 2003-2004

Table 4 - Estimate of the demand for low risk antenatal care attended by the municipality according to geographic region. Brazil, 2004.

Geographic region	Demand for low risk antenatal care attended N (%)					Total
	0 to 25%	25 to 50%	50 to 75%	75 to 100%	Does not attend	
North	17 (3.3)	9 (1.8)	122 (23.7)	331 (64.4)	35 (6.8)	514 (100.0)
Northeast	18 (1.1)	70 (4.9)	238 (14.7)	1,273 (78.7)	9 (0.6)	1,617 (100.0)
Southeast	26 (1.6)	35 (2.2)	184 (11.6)	1,298 (81.8)	44 (2.8)	1,587 (100.0)
South	9 (0.8)	26 (2.3)	78 (6.8)	1,010 (88.5)	18 (1.6)	1,141 (100.0)
Mid-West	18 (4.3)	9 (2.1)	28 (6.7)	366 (86.9)	-	421 (100.0)
Total	88 (1.7)	158 (3.0)	650 (12.3)	4,278 (81.0)	106 (2.0)	5,280 (100.0)

Source: Ministry of Health, 2003-2004

Table 5 - Estimate of the demand for high risk antenatal care attended by the municipality according to geographic region. Brazil. 2004.

Geographic region	Demand attended for high risk antenatal care N (%)					Total
	0 to 25%	25 to 50%	50 to 75%	75 to 100%	Does not attend	
North	26 (5.2)	53 (10.6)	78 (15.7)	141 (28.3)	200 (40.2)	498 (100.0)
Northeast	114 (7.0)	97 (5.9)	263 (16.1)	510 (31.2)	649 (39.7)	1,633 (100.0)
Southeast	140 (8.8)	114 (7.1)	61 (3.8)	447 (28.0)	833 (52.2)	1,595 (100.0)
South	88 (7.7)	52 (4.6)	113 (9.9)	395 (34.6)	493 (43.2)	1,141 (100.0)
Mid-West	44 (10.5)	63 (15.0)	72 (17.1)	99 (23.6)	142 (33.8)	420 (100.0)
Total	412 (7.8)	379 (7.2)	587 (11.1)	1,592 (30.1)	2,317 (43.8)	5,287 (100.0)

Source: Ministry of Health, 2003-2004

distribution of the percentage of the demand for low and high risk antenatal care, respectively, attended by municipalities, according to geographic regions.

Regarding the estimate of the demand attended for low risk antenatal care, 81.0% ($\chi^2=282.080$; $P<0.001$; $n=4,277$) of the municipalities reported that they attend over 75% of their demand. The inequality among municipalities is highlighted by the fact that 2.0% ($n=106$) of them declared that they do not even attend the demand for low risk antenatal care, and 4.7% of the municipalities have a low coverage, that is, they attend less than 50% of the demand. The percentage of the demand attended is associated to geographic region ($\chi^2=282.080$; $P<0.001$). The percentage of municipalities that attend over 75% of their demand is less than 80% of those in the Northern (64.4% $n=331$) and North-eastern (78.7% $n=1,273$) regions.

This situation becomes substantially worse when the demand for high risk antenatal care is taken into consideration, since 43.8% ($n=2,317$) of the municipalities do not attend this modality of care and only 30.1% ($n=1,592$) attend over 75% of their demand. Table 5 presents these results, indicating that there is a significant association between them and the geographic region ($\chi^2=267.924$; $P<0.001$).

Differences in the supply of care in pregnancy are associated to the size of the municipality's population, as occurs with respect to the provision of high risk antenatal care ($\chi^2=375.254$; $P<0.001$). Among the 1,311 municipalities with up to 5,000 inhabitants, 59.0% ($n=774$) do not attend high risk antenatal care and only 22.1% ($n=290$) attend over 75% of the demand. Among the 490 municipalities with more than 50,000 inhabitants, 50.8% ($n=249$) attend over 75% of the demand.

As to the type of administration, the municipal autonomy conferred by *Gestão Plena* [Full Administrative Autonomy] facilitates the provision of high risk antenatal care. There is an association between this type of administrative arrangement and the supply of high risk antenatal care ($\chi^2=97.888$; $P<0.001$). Among the municipalities that attend over 75% of the de-

mand, 35.5% ($n=228$) have this type of administration whereas 28.2% ($n=1,161$) are classified in the modality *Gestão Plena da Atenção Básica* [Primary Care Full Administrative Autonomy]. Even so, 30.2% ($n=194$) of the 643 municipalities conferred Full Administrative Autonomy do not attend high risk antenatal care and, among the 4,119 municipalities that have Primary Care Full Administration, this volume increases to 47.3% ($n=1,949$).

There is a significant association between the modality of administration and the guarantee of vacancy in the maternity ($\chi^2=93.709$ e $P<0.001$; $n=4,918$). In 93.7% ($n=651$) of the municipalities that have been conferred Full Administrative Autonomy ($n=695$) vacancy in the maternity is guaranteed, confirming the possibility that the provision of care during birth improves in municipalities that have this modality of management.

DISCUSSION

The results of this study are of interest to managers of the Brazilian Unified Health System (SUS) and to social movements involved in social control of health care. The availability of data concerning the provision of services to women in the municipalities makes it possible to redirect processes related to service management and provides subsidies for the system's social control.

By means of the January 1st 2000 *Portaria 569/GM* [a Government Directive], the Ministry of Health established directives and guiding principles for the PHPN, among which may be distinguished a set of rights related to: universality of dignified and good quality antenatal care, care during birth and the postpartum period, access to the place of birth with the right to a visit previously during antenatal care, the presence of a person accompanying the woman at birth and humanized care and security during birth. These rights are extensive to the newborn, with respect to adequate neonatal assistance.⁶ The Ministry of Health alerts that women in a situation of gestational risk must be guaranteed access to the necessary services.

The specific orientations regarding antenatal care included in the above mentioned Government Directive establish that it should begin within the first four months of pregnancy and that there should be a minimum of six consultations for each gestational period. It also defined a set of laboratory exams and procedures that are deemed necessary in order to fulfill the objectives of qualified and humanized care for pregnant women.⁶

This same Directive established that the sanitary authorities of the federal, state and municipal spheres are responsible for guaranteeing that these rights be respected.^{2,5,6} The responsibility for providing services, that now befalls upon the municipalities, has transformed the municipal health managers into fundamental actors within this process. The decentralization of the health administration has been responsible for the expansion of the coverage offered by the Brazilian Unified Health System.

The strategy of Humanization of Antenatal Care and Care in Birth is an object of the *Pacto Nacional pela Redução da Mortalidade Materna e Neonatal* [National Pact for Maternal and Neonatal Mortality Reduction], launched in March 2004 by the Ministry of Health.⁵ The goal of this pact is to reduce the rates of maternal and neonatal mortality in 15% until the end of the year 2006 and in 75% until the year 2015. The results of this study indicate the challenges that must be met in order to comply with this Pact.

If low risk antenatal care is conducted in order to establish a process of vigilance with respect to the health of pregnant women, with the purpose of controlling risks, it is necessary to guarantee an adequate structure of ambulatory and hospital care so as to attend to the identified risks. Ideally, all services of low risk antenatal care should dispose of the possibility of referring high risk cases identified.

Among the challenges related to decentralization of

health care is the persistence of inter and intra-regional disparities. The literature concerning this theme has adverted about the hypothesis that a vicious circle may be established by decentralizing policies and that the problems and virtues of decentralization may be equally distributed, consolidating inter and intra regional disparities. This situation neutralizes the ultimate objective of decentralization, which is to allow for greater liberty and governability in the public spheres of management and in the local societies.⁹

The results of this study confirm that there has been an expansion in attendance to the demand, revealing signs of improvement in antenatal care. However, it points out the gaps and the challenges that must be met in order to improve care in pregnancy, in its distinct demands. Regional and populational inequalities persist, and evidence of this emerges in the data that refers to the availability of an appropriate structure for delivering medium and high complexity care. It must be stressed that differential strategies are necessary in order to confront these situations and to promote equity in access to services and the conquest of health.

Evaluations of care in pregnancy, that take into consideration the operative capacity of the municipalities in their distinct conditions, particularly with respect to the modality of management, must be conducted. These evaluations require that other forms of evaluation be carried out that inform about the quality of care being provided by the Brazilian Unified Health System in order to meet the distinct necessities and cycles of women's lives.

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