



# Quality assessment of antenatal care home-based records of urban women

*Avaliação da qualidade dos registros de cartões de pré-natal de mulheres urbanas*

*Evaluación de la calidad de los registros de tarjeta prenatal de mujeres urbanas*

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## ABSTRACT

**Objective:** To evaluate the antenatal care (ANC) home-based records of puerperal women attended in public and private maternity hospitals. **Methods:** Cross-sectional study that analyzed photographs of 394 ANC home-based records of women who participated in the research *Nascer em Belo Horizonte* (*Born in Belo Horizonte*, in free translation). Records were assessed regarding completeness, legibility and completeness of sociodemographic, clinical, obstetric and laboratory data. **Results:** 88.5% of the cards had no record of the name of the primary care unit of reference, 76.9% of the maternity of reference and 82.4% of the ANC institution. Evaluation of edema, use of ferrous sulfate and folic acid were not registered in 55%, 91.1% and 92.6% of the cards, respectively. The absence of records in the weight chart was identified in 86.8% of the cards, and in the uterine height chart, 79.7%. **Conclusions and implications for practice:** There are large gaps in the registration of the ANC process in the home-based records, which may compromise the quality of care and follow-up of pregnant women. The findings point to the need for permanent education in service directed to health professionals, such as nurses, regarding the importance of carrying out and registering the actions recommended in ANC.

**Keywords:** Antenatal Care; Records; Primary Health Care; Nurses; Women's Health.

## RESUMO

**Objetivo:** Avaliar registros dos cartões de pré-natal de puérperas atendidas em maternidades públicas e privadas. **Método:** Estudo transversal que analisou fotos de 394 cartões de pré-natal de mulheres que participaram da pesquisa *Nascer em Belo Horizonte*. Os registros foram avaliados quanto ao preenchimento, legibilidade e completude das informações sociodemográficas, clínicas, obstétricas e exames laboratoriais. **Resultados:** Evidenciou-se que 88,5% dos cartões não apresentaram registro do nome da unidade básica de referência, 76,9%, da maternidade de referência e 82,4%, da instituição de realização do pré-natal. A avaliação do edema, o uso de sulfato ferroso e ácido fólico não foram registrados em 55%, 91,1% e 92,6% dos cartões, respectivamente. A ausência de registros no gráfico de peso foi identificada em 86,8% dos cartões, e no de altura uterina, 79,7%. **Conclusão e implicações para a prática:** Existem grandes lacunas no registro do processo de cuidado pré-natal nos cartões e cadernetas, o que pode comprometer a qualidade da assistência e o acompanhamento das gestantes. Os achados apontam para a necessidade da educação permanente em serviço direcionada aos profissionais de saúde, como os enfermeiros, quanto à importância da realização e registro das ações preconizadas no cuidado pré-natal.

**Palavras-chave:** Cuidado Pré-Natal; Registros; Atenção Primária à Saúde; Enfermeiras e Enfermeiros; Saúde da Mulher.

## RESUMEN

**Objetivo:** Analizar registros de las tarjetas de prenatal de puérperas atendidas en maternidades públicas y privadas. **Métodos:** Estudio transversal, con fotos de 394 tarjetas de prenatal, provenientes de la investigación *Nascer em Belo Horizonte* (*Nacer en Belo Horizonte*), que analizó registros en cuanto al llenado, legibilidad y completitud de las informaciones sociodemográficas, clínicas, obstétricas y exámenes de laboratorio. **Resultados:** El 88,5% de las tarjetas no tuvieron registro del nombre de la unidad básica de referencia, el 76,9%, de la maternidad de referencia y el 82,4%, de la institución de realización del prenatal. Evaluación del edema, uso de sulfato ferroso y ácido fólico no se registraron en el 55%, 91,1% y 92,6% de las tarjetas, respectivamente. La ausencia de registros en el gráfico de peso fue identificada en el 86,8% de las tarjetas, y en el 79,7% de altura uterina. **Conclusión:** Existen grandes lagunas en el registro del proceso de asistencia prenatal, pudiendo comprometer la calidad de la asistencia y el acompañamiento de las gestantes. **Implicaciones para la práctica:** Se necesita educación permanente dirigida a profesionales de la salud, como enfermeras, sobre la importancia de llevar a cabo y registrar las acciones recomendadas en la atención prenatal.

**Palabras clave:** Atención Prenatal; Registros; Atención Primaria de Salud; Enfermeras y Enfermeros; Salud de la Mujer.

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## INTRODUCTION

Antenatal care (ANC) is a set of actions aimed at women during gestational and puerperal periods, and the fetus, contributing to the identification of factors that can compromise the good development of pregnancy and, consequently, reduce maternal and fetal morbidity and mortality rates.<sup>1,2</sup> For monitoring the pregnancy and its outcome, the home-based ANC record is an indispensable instrument, as it contains the record of the maternal-fetal health condition and the actions taken during consultations.<sup>3,4</sup>

The home-based ANC record was created in Brazil in 1988 with the purpose of storing information, facilitating the dialogue between professionals who worked in antenatal care and those who performed childbirth in maternity hospitals.<sup>5</sup> Its use became popular in public health services, functioning as an instrument of dialogue between the levels of care.<sup>5</sup>

Currently, the registration in the ANC record also contributes to an effective communication between professionals, in view of the continuity of care, especially when there are antenatal consultations interspersed between nurses, doctors and specialists, as recommended in the Family Health Strategy (FHS).<sup>6</sup> The use of this home-based record also guarantees the right of access to information by the users and is in line with the global effort of person-centered care.<sup>3</sup> Furthermore, during the performance of antenatal care, the information registered in the home-based ANC record can support decision-making during pregnancy, childbirth, postpartum, and even in the next pregnancies.<sup>7</sup> The information also allows a longitudinal assessment of pregnancy and its evolution regarding clinical parameters, such as fundal height, weight gain, blood pressure, edema, among others.

The home-based ANC record must be provided in the first antenatal consultation, and filled out at each consultation in an appropriate, legible and complete manner, to fulfill its objective of means of communication between the pregnant woman, the health professionals of the basic health network and of childbirth care services – or referral and counter-referral services, in the necessary cases.<sup>5</sup> Another relevance of the home-based ANC record is of it being a source of information for the Sistema de Informações sobre Nascidos Vivos – SINASC (Live Born Information System, in free translation). Such information is used in studies that assess the quality of antenatal care and support maternal and child health policies of the Unified Health System.<sup>8</sup>

The home-based ANC records are standardized and include the woman's obstetric, personal and family history. They also end the examinations recommended for the first, second and third trimesters and the clinical evaluations at each consultation, including the graphs of fundal height and weight gain.<sup>9</sup> Therefore, the home-based ANC record constitutes, briefly, the recommendations according to clinical protocols. Thus, the absence of home-based records could indirectly express the low quality of antenatal care provided, in addition to limiting the information that would contribute to the production of indicators that support better organization and planning of antenatal care, and for users' understanding and alert about their health.

In recent decades, primary care services in Brazil have expanded and, currently, antenatal care coverage has been almost

universal.<sup>10,11</sup> More than 70.0% of the pregnant women who started their own ANC records before the 16<sup>th</sup> week of pregnancy, had more than six consultations, and 96.0% received the home-based ANC record.<sup>10</sup> However, the challenge still remains to improve the quality of this assistance, by offering all effective actions.<sup>12</sup> A previous national study showed that about 72.1% of pregnant women arrived at the maternity hospitals in possession of this document.<sup>10</sup> Furthermore, the home-based ANC records require improvements, as indicated by the few studies on the theme,<sup>2,4,5</sup> since their incompleteness points initially to the failure to perform the action or care.

In Belo Horizonte, antenatal care is offered throughout the primary care network of the Unified Health System (UHS) and, as in the rest of the country, access to this service is universal.<sup>11</sup> Considering the importance of the home-based ANC record, its use as an instrument to support and register antenatal care, in addition to its essential function for communication between professionals in the care and information network of women, it is recognized the relevance of assessing the situation of the home-based ANC record in terms of the quality of its filling out. Previous studies have proposed a similar assessment.<sup>2,4,5,13,14</sup> However, the evidence on this topic is still limited, as they partially analyze the data in the ANC record<sup>2,4</sup> and, in most cases, synthesize the evaluation of its completing,<sup>2,4,13</sup> which can mask serious lacks of filling it out, in addition to the expenditure of this type of study. Others have analyzed similar documents, such as the child's record,<sup>15</sup> but so far, the evidence is sparse even to strongly support its use, although it has already been demonstrated, in an international recommendation, that its various benefits outweigh the issues.<sup>3</sup>

Thus, it is proposed, in this study, to evaluate the home-based ANC records of puerperal women attended in public and private maternity hospitals in Belo Horizonte, regarding the filling out, legibility and completeness. The results of this analysis may contribute to advances in the quality of the home-based ANC records,<sup>2</sup> serve as an indirect parameter for evaluating antenatal care and encourage discussion on the subject of health records. In addition, this theme requires continuous notes, given its technical, ethical and legal importance.

## METHOD

This is a cross-sectional study, carried out from the photographic sample of 394 home-based ANC record referring to puerperal women. Such data come from the hospital-based cohort of the survey *Nascer em Belo Horizonte: inquérito sobre parto e nascimento* ("Born in Belo Horizonte: inquiry on labor and birth", in free translation), carried out from November 2011 to March 2013, in 11 public and private maternity hospitals in the city of Belo Horizonte. The study included 1,088 puerperal women who had hospital birth of a living newborn, of any weight or gestational age, or stillbirth, weighing more than 500g or gestational age greater than 22 weeks. The study evaluated the structure and process of maternity hospitals, sociodemographic, health and antenatal care and delivery conditions for women, as well as conditions at birth and newborn care in the maternity hospital.

Data collection was performed using three instruments: one applied to the director of the maternity, another to postpartum women, and the third to search for data in the medical records of women and their

newborns, as well as in the home-based ANC records. The interviews with the puerperal women took place at least six hours after the delivery, at the bedside, and the search in the medical records, after the woman and the newborn were discharged. The home-based ANC records were photographed after the interview with the mothers, constituting the source of data for this specific study.

The ANC records were considered any and all documents that the puerperal woman presented at the time of admission – whether from the UHS or the private sector –, and that provided information on procedures and exams performed during antenatal care, considering the different formats, sizes and conditions of conservation. There were 829 women who had their own ANC records photographed. However, there were losses due to non-access to the home-based ANC record and technical problems in data transfer – for example, the quality of the photo – resulting in the convenience sample of 394 home-based ANC records of puerperal women from five maternities. After sensitivity analysis – comparing the general characteristics between the samples – it was observed that the studied population preserved characteristics similar to the general sample.

In order to systematize the assessment of the filling out, legibility and completeness of the ANC records, it was decided to build a database, using an instrument containing 64 variables, prepared in spreadsheet format. These variables were based on the items that make up the home-based ANC record and refer to the woman's identification and origin, previous and current obstetric history, past clinical history, clinical history of the current pregnancy, and the use of Folic Acid and Ferrous Sulfate supplementation. The quantity and quality of the home-based records of the clinical evaluation of the pregnant woman at each visit was also investigated, including blood pressure, edema, and the graphs of Fundal Height (FH) and Body Mass Index (BMI), according to Gestational Age (GA) and laboratory tests in the first, second and third trimesters.

The photos were evaluated individually, with an average of 5 to 6 photos per home-based ANC record, totaling approximately 2,400 photos. The spreadsheet was filled in with standardized codes, as follows: 0 - Quantitative variables in white; 1 - Complete registration or registered; 2 - Incomplete registration; 3 - Unreadable registration; 4 - No registration; 5 - Not applicable; 6 - Recorded in another trimester; 7 - Problems with the photo; 8 - Incomplete exams and registered in another trimester. The technique of evaluating the photos of the home-based ANC records for data extraction was standardized, performed by two evaluators and, at the end of the procedure, a cross-checking of 40% of all records was performed to review the data. The extraction of data related to filling out the records took place from January to June 2017.

The data were analyzed by calculating absolute and relative frequencies. Analyses were performed with the aid of the statistical program STATA version 14.0 (Stata Corp., College Station, TX, USA).

The study *Nascer em Belo Horizonte* was approved by the Research Ethics Committee of the Universidade Federal de Minas Gerais (UFMG), under Opinion CAAE- 0246.0.203.000-11. Before the interview, the collection of data from the medical records and, photographing of their own ANC record, the women signed a Free and Informed Consent Form; and regarding adolescents, the legal guardian signed the Informed Assent Form.

## RESULTS

Of the total of 394 participants in the present study, 62.2% of women declared to be from Belo Horizonte and 37.8% from other cities, the majority from the metropolitan region. The mean age  $\pm$  standard deviation of the participating women was 27 years  $\pm$  6.5 years, with a minimum of 15 years and a maximum of 46 years. About 10.7% of women were between 14-24 years old, 47.2% between 25-34 years old and 41.6% 35 years old or more. As for the skin color, the majority declared themselves to be brown or black (64%). Concerning schooling, 85% had completed high school. Most women performed antenatal care with a medical professional (82.2%), in public institutions (68.3%), and had 6 or more antenatal consultations (86.5%). Delivery took place in public hospitals for 79.2% of the mothers, and the prevalence of cesarean delivery was of 58.9%.

In the evaluation of sociodemographic data and the pregnant woman's previous history, the variables with the highest number of missing home-based records were: the Basic Health Unit (BHU) of reference (88.5%); the reference maternity (76.9%); the institution for carrying out antenatal care (82.4%); and whether the pregnancy was planned or not (99.2%) (Table 1).

Regarding the home-based records of clinical evaluation in each consultation, all, with the exception of edema, obtained records above 97.7% (Table 2).

Table 3 shows that six or more consultations were recorded on 308 home-based ANC records (77.9%). The clinical parameters of blood pressure, gestational age, weight and fetal heart rate were recorded in 6 or more consultations, representing about 75.0% of cases. It was observed that 280 records (70.8%) had registered fundal height six times or more and, in 216 records (54.8%), the parameter edema was not registered at all.

When analyzing the quantitative data (number of times) referring to the filling out of the curves in the graphs of gestational weight / age (BMI/GA) and fundal height / gestational age (FH/GA), there is no record of both curves. That is, 95.2% for BMI/GA and 94.9% for FH/GA of the home-based ANC records were not filled out (data not shown). Only four records (1.1%) had more than six records for BMI/GA and two for FH/GA.

In the analysis of the registries of laboratory tests on home-based ANC records, there was a low frequency of records of tests in the first, second and third trimesters. The first trimester exams that obtained a frequency equal to or greater than 50% of complete home-based records were: urine routine test (57.8%), fasting blood glucose (61.9%), HBsAg (57.6%), Anti-HIV (57, 6%), VDRL (60.4%), blood count (52.7%), ABO-Rh (61.4%) and toxoplasmosis (58.8%) (Table 4). No exam registered in the third trimester had a frequency equal to or greater than 50% of complete registration.

Registries of use of supplemental ferrous sulfate were observed in 6.9% of the home-based ANC records (n=27). The use of folic acid was registered in 5.1% (n=20) (data not shown).

Regarding the complete registration of the records, after analyzing the total of 394, only one presented records of all clinical and obstetric variables and parameters.

**Table 1.** Assessment of completeness and legibility of home-based ANC records: sociodemographic information, obstetric history and past history.

Home-based ANC record information	Home-based ANC records				
	Complete n(%)	Incomplete n(%)	Absent n(%)	Unreadable n(%)	Not applicable n(%)
Woman's age	355 (90.1)	-	36 (9.1)	03 (0.7)	-
Education	234 (59.3)	-	155(39.3)	05 (1.2)	-
Marital status	239 (60.6)	-	150(38.0)	05 (1.2)	-
Basic Reference Unit	44 (11.1)	-	349(88.5)	01 (0.2)	-
Reference maternity	88 (22.8)	-	303(76.9)	03 (0.7)	-
Institution conducting the AN care	68 (17.2)	-	325(82.4)	01 (0.2)	-
Previous pregnancy	361 (91.6)	-	22 (5.5)	02 (0.5)	09 (2.2)
Previous vaginal delivery	210 (53.3)	02 (0.51)	73 (18.5)	03 (0.7)	106 (26.9)
Previous cesarean section	152 (38.5)	02 (0.51)	93 (23.6)	03 (0.7)	144 (36.5)
Previous abortions	221 (56.0)	-	90 (22.8)	03 (0.7)	80 (20.3)
Planned or unplanned pregnancy	01 (0.2)	-	391(99.2)	02 (0.5)	-
Previous diseases	271 (68.7)	-	121(30.7)	02 (0.5)	-
Allergies	33 (8.3)	-	360(91.3)	01 (0.2)	-

\*ANC: Antenatal Care

**Table 2.** Assessment of completeness and legibility of home-based ANC records: parameters of clinical evaluation.

Clinical parameters	Home-based ANC records			
	Complete n(%)	Incomplete n(%)	Absent n(%)	Unreadable n(%)
Gestational age	388 (98.4)	-	03 (0.7)	03 (0.7)
Weight	388 (98.4)	01 (0.2)	03 (0.7)	02 (0.5)
Fundal height	385 (97.7)	03 (0.7)	04 (1.0)	02 (0.5)
Edema	174 (44.1)	01 (0.2)	217 (55.0)	02 (0.5)
Blood pressure	392 (99.4)	-	-	02 (0.5)
Fetal heart rate	391 (99.2)	-	-	03 (0.7)

**Table 3.** Number of consultations and number of times that clinical parameters were registered in the pregnant woman's own ANC records.

Number of times	Consultations n (%)	GA assessment n (%)	Weight assessment n (%)	FH assessment n (%)	Edema assessment n (%)	BP assessment n (%)	FHR assessment n (%)
0	01(0.2)	05(1.2)	05(1.2)	06(1.5)	216(54.8)	01(0.2)	01(0.2)
1	05(1.2)	07(1.7)	06(1.5)	08(2.0)	11(2.7)	06(1.5)	07(1.7)
2	06(1.5)	05(1.2)	07(1.7)	10(2.5)	14(3.5)	09(2.2)	07(1.7)
3	15(3.8)	17(4.3)	16(4.0)	19(4.8)	11(2.7)	17(4.3)	21(5.3)
4	24(6.0)	24(6.0)	28(7.1)	37(9.3)	12(3.0)	28(7.1)	29(7.3)
5	35(8.8)	38(9.6)	36(9.1)	34(8.6)	15(3.8)	32(8.1)	33(8.3)
6	44(11.1)	49(12.4)	53(13.4)	61(15.4)	28(7.1)	50(12.6)	52(13.2)
7 or +	264 (66.8)	249(62.9)	243(61.4)	219(55.4)	87(21.8)	251(63.4)	244(61.5)

\*FHR: Fetal heartbeat; GA: Gestacional age; FH: Fundal height; BP: Blood pressure.

**Table 4.** Completeness of the home-based ANC records of laboratory tests.

Laboratory tests	Complete n(%)	Incomplete n(%)	Absent n(%)	Complete registration in another trimester n(%)	Unreadable n(%)
Urine routine test 1	228(57.8)	12 (3.0)	80 (20.3)	63 (15.9)	11 (2.8)
Uroculture 1	170 (43.1)	07 (1.7)	155(39.3)	52 (13.2)	10 (2.5)
Fasting blood glucose 1	244 (61.9)	18 (4.5)	50 (12.6)	75 (19.0)	07(1.78)
HBsAg 1	227 (57.6)	16 (4.0)	70 (17.7)	73 (18.5)	08 (2.0)
Anti-Hiv 1	227 (57.6)	14 (3.5)	80 (20.3)	64 (16.2)	09 (2.2)
VDRL 1	238 (60.4)	12 (3.0)	57 (14.4)	79 (20.0)	08 (2.0)
Toxoplasmosis 1	232 (58.8)	18 (4.5)	62 (15.7)	75 (19.0)	07 (1.7)
Complete blood count 1	208 (52.7)	55 (13.9)	56 (14.2)	68 (17.2)	07 (1.7)
ABO/Rh 1	242 (61.4)	18 (4.5)	53 (13.4)	74 (18.7)	07 (1.7)
Record of all 1 <sup>st</sup> trimester exams	123 (31.2)	142 (36.0)	45 (11.4)	31(7.8)	07 (1.7)
Glucose tolerance test 2	111 (28.1)	03 (0.7)	68 (17.2)	18 (4.5)	12 (3.8)
Indirect Coombs 2	32 (8.1)	-	57 (14.4)	03 (0.7)	09 (2.2)
Urine routine test 3	132 (33.5)	02 (0.5)	204(51.7)	43 (10.9)	13 (3.3)
Uroculture 3	139 (35.2)	04 (1.0)	203(51.5)	38 (9.6)	10 (2.5)
Fasting blood glucose 3	145 (36.8)	03 (0.7)	195(49.4)	42 (10.6)	9 (2.2)
HBsAg 3	84 (21.3)	-	274(69.5)	25 (6.3)	11 (2.8)
Anti-HIV 3	101(25.6)	1 (0.2)	258(65.4)	24 (6.0)	10 (2.5)
VDRL 3	179 (45.4)	1 (0.2)	166(42.1)	38 (9.6)	10 (2.5)
Complete blood count 3	150 (38.0)	23(5.8)	169(42.8)	41(10.4)	11 (2.8)
Toxoplasmosis 3	114 (28.9)	01(0.2)	228(57.8)	41(10.4)	10 (2.5)
Record of all 3 <sup>rd</sup> trimester exams	17(4.3)	210(53.3)	123(31.2)	10 (2.5)	10 (2.5)

\* Exams for the first (1), second (2) and third (3) trimesters.

## DISCUSSION

The results obtained in this study showed unsatisfactory quality of the completeness and legibility of the pregnant women's own ANC records, and a high absence of identification records and of actions taken in the ANC records. Regarding referral services, it is recommended that the maternity referenced for delivery should be explicit on the home-based ANC records,<sup>6</sup> in order to direct her to the service according to the complexity demanded individually. However, the woman has the possibility to seek care elsewhere. Referencing pregnant women in the network avoids the problem of pilgrimage, that is, the need for the pregnant women to have to go through more than one unit, in search of delivery assistance,<sup>16</sup> in addition to guaranteeing the right of access to information and in line with care centered on the person – in this case, the woman.<sup>3</sup> This search for motherhood

can lead to unfavorable outcomes for women and fetuses, due to inadequacies in meeting their needs.<sup>11,16</sup>

In turn, the registration of the Basic Reference Unit – mainly in the antenatal care monitored in the Unified Health System (UHS) – allows referral and counter-referral, and the discharge responsible for continuity of care in the puerperium and the newborn. A hypothesis that would justify the devaluation of the registration of data related to the care network, is that it may not be well agreed between the levels of assistance – especially for pregnant women not residing in Belo Horizonte –, or even that the professionals are unaware of the agreed attention network.

The under-reporting of planned or unplanned pregnancies was a negative finding in this study, which can affect the way antenatal care is conducted and the morbidity and mortality rates of women and children. It is a fact that unplanned pregnancy represents risk, increasing anxiety and depression, especially

in the puerperal period.<sup>12</sup> In addition, when pregnancy is not planned, it is necessary for the professional to do more to promote the attachment of this woman to antenatal care. This commitment reinforces the guidelines regarding the importance of antenatal actions and attendance to consultations, and it is essential, when there is discontinuity in the monitoring, that there is an active search. Thus, it is essential that professionals understand and record the circumstances in which pregnancy is being developed. It should also be noted that the ANC record can facilitate the woman's knowledge in relation to her own health condition, her risks, leading her to be more engaged in adopting healthy behaviors.<sup>3</sup>

Regarding the clinical-obstetric evaluation, in the present study, data from satisfactory records were obtained for some parameters to the detriment of others. Fundal height was a parameter with a high frequency of records, having a prevalence similar to data from a study conducted in Juiz de Fora, Minas Gerais.<sup>17</sup> The evaluation of this parameter is important to identify situations of intrauterine growth restriction after the 20<sup>th</sup> week of pregnancy. In contrast, the vast majority of the home-based ANC records had no registration of the evaluation of edema, a relevant clinical sign that may indicate gestational risk, related to hypertensive syndromes and diabetes mellitus, among other complications.<sup>18</sup> The unsatisfactory record of edema, found in this study, was also found in another study conducted in the Southeast region.<sup>17</sup> It is noteworthy that, among the ANC records analyzed, there was a higher occurrence of filling in among those in which there was a field for the registration of edema, compared to those which did not have this field. Although the fields direct and influence the evaluation of the professional, such must be aware of the importance of evaluating and recording the appearance of edema in all consultations.

Blood pressure was the most registered clinical parameter, in all consultations, in most of the analyzed home-based ANC records. The fetal heart rate and the weight of the pregnant woman, in each consultation, also obtained high registration rates. Similarly, in a study carried out in the city of Rio de Janeiro, the results showed a high record of these procedures, especially that of blood pressure. Of the pregnant women, 96.3% confirmed, through an interview, that their blood pressure was measured.<sup>19</sup> This high adherence to assessing blood pressure is possibly due to hypertension being the most common clinical complication in pregnancy, occurring in 10 to 22% of pregnant women, often associated with unfavorable maternal and perinatal outcomes.<sup>18,20</sup>

It is known that blood pressure assessment is mandatory; however, it must be associated with other clinical parameters, to indicate or not any complication during pregnancy. For example, to assess the greatest risk of pre-eclampsia, blood pressure must be assessed together with sudden weight gain and/or the presence of edema.<sup>6,18</sup> It is emphasized the need for professionals to make detailed records – in the case of edema – describing its

location and type, so that there is a better differentiation between physiological and pathological edema.

Weight was a parameter that in this study also obtained high rates of home-based records in all consultations. This result is in agreement with another study carried out in Belo Horizonte.<sup>13</sup> However, filling in the gestational weight gain curve was precarious, despite having more records than the fundal height curve according to gestational age. This low percentage of filling out of the curves was also found in a study carried out in Rio Grande do Norte.<sup>14</sup> Insufficient filling out of the curves makes it difficult to monitor the evolution of pregnancy and to identify deviations in fetal development.<sup>14</sup> It is necessary for health professionals to carry out the procedures and, consequently, their records, in the logic of the clinic; that is, its applicability. In this way, it will make sense to weigh, measure and record the weight gain curves for decision-making.

When analyzing the filling out of laboratory tests, it was detected under-reporting of the tests in the first, second and third trimesters. A significant reduction in the records of the exams, from the first to the third trimester – about one third – is highlighted, corroborating the findings of a cross-sectional study carried out in two public hospitals in Belo Horizonte,<sup>13</sup> and with the national results of the survey *Nascer no Brasil* (Born in Brazil, in free translation).<sup>10</sup>

It is questioned, therefore, the reason why professionals valued and recorded some parameters – such as blood pressure and FHR –, to the detriment of others, such as the under-reporting of edema and of FH, since they are all relevant to the clinical practice and qualifies antenatal care. Some hypotheses are considered, such as the devaluation of the repercussions, due to complications identified through these parameters; or the care model, which gives greater value to parameters evaluated using hard technology – such as a sphygmomanometer and doppler. In this sense, it is important to reaffirm the essence of health work as living labor; that is, it involves the professional's ability and autonomy in transforming hard technology, instruments and equipment, and their knowledge into their own way of doing. This performing is effective in different actions and relationships, which are due, among other factors, to the organization and the predominant logic in the current work process, as well as the meaning attributed to its products.<sup>21</sup> Thus, in antenatal care, it is valuable to discuss the meaning and value of the evaluation of each clinical parameter and its record, in order to meet the needs of women and the surveillance of pregnancy risks.

The findings of the present study point to the unsatisfactory use of the home-based ANC record by health professionals assigned to the services of care for pregnant women, including Primary Health Care. A similar study, which analyzed the child's record, also found a low frequency of filling out of items essential to child monitoring.<sup>15</sup> Analysis of four surveys in Rio Grande do Sul showed variable filling out over time, presenting almost a general filling out of some items while very scarce of others.<sup>4</sup> A recent

meta-analysis by the World Health Organization listed several reasons demonstrated as possible causes of under-reporting of these documents by professionals, such as being too busy, or perceiving it as an extra job. It also includes not having received adequate training and thinking that the woman will not read the ANC record, will forget it at home when she goes to the service for the consultation, or even lose the document.<sup>3</sup> It should be noted that the fact that women do not value this document may be due to unawareness of its importance, due to the lack of guidance, or due to the professional's own devaluation.

The audit of the home-based ANC record has been used to assess the quality of care provided during antenatal care and the fulfillment of previously defined criteria. In this sense, it considers that the absence of registration implies the inference of not performing the procedure or complementary examination.<sup>22</sup> However, despite the significant value for the evaluation of antenatal care, few studies have proposed this type of analysis, possibly because it is expensive and time-consuming. The evaluation is important because, despite the high coverage of antenatal care in Brazil – reaching practically universal levels –, most regions have inadequate assistance.<sup>23</sup> It is also reinforced the recent recommendation of the World Health Organization to use this type of record and document in addition to the home-based records that remain in the health service, based on evidence – even if limiting – of the desirable effects overcoming the undesirable effects in relation to its use in maternal and child care.<sup>3</sup>

It is believed that these problems in filling out the home-based ANC record compromises the integrality of care, as it prevents a good articulation of the performance between the various professionals involved in antenatal care, and affects the longitudinally of care within the health care network. This continuity of care stands out in Brazil, which still has high maternal mortality, linked to causes that can be prevented by adequate antenatal care, such as hypertensive diseases and infections.<sup>11</sup> Thus, the home-based ANC records must be integrated with the health information system and complement the records maintained in the respective services,<sup>3</sup> being a means of interlocution between the health team professionals. Nursing professionals, as members of the antenatal care team, must record, in the patient's medical record or other documents, the information inherent to the care process and to the management of work processes, and thus ensure continuity and quality of care.<sup>24</sup>

The demand for improving the quality of home-based ANC records, as was evident in this study, can be obtained by continuing education in health. This education must be guided by an active teaching-learning methodology, which values the professionals' experiences, and elects the daily problems in the formulation of changes that impact, in the ways of doing, the complex living labor in health.<sup>21,25</sup> The construction of this knowledge, in the Freire's perspective, is also a political act, as it considers knowledge as a social process, which implies the

human being's action-reflection on the world, in order to transform the lived reality, from the recognition of contradictions.<sup>26</sup> Such contradictions were evidenced, in the case of this study, in the valorization of some records in detriment of others equally important. Thus, the pedagogical approach to the situation must involve the work process, the autonomy of the professionals, the products generated and the meanings conferred to them, in light of scientific evidence, so as not to cause damage resulting from differences in live labor.

This study has some limitations – such as the impossibility of evaluating all home-based ANC records – for several reasons, including the illegibility of the records and the quality of the photographs, making it difficult to read and interpret the information. However, the sample studied showed a relevant size, with the same sociodemographic and care characteristics of the total sample of the survey. It is also noteworthy that these findings were similar to the few studies that presented a similar evaluation proposal. Anyhow, the results must be interpreted considering that some women, whose records were evaluated came from other municipalities in the metropolitan region, limiting a possible representation of the antenatal care performed in Belo Horizonte, but rather of the births that occurred in that municipality.

## CONCLUSION

There were large gaps in the registration of the antenatal care process in the home-based ANC records of the evaluated public, given that the registration of basic procedures and parameters of antenatal consultations fall short, generating uncertainty that they were performed. Failure to record essential information compromises the quality of care and the proper monitoring of pregnant women. To verify the performance of unregistered procedures, new studies are recommended that compare the data registered in the home-based ANC records with the information of women.

Thus, the findings of this study point to the need for continuing education in service, directed to health professionals – mainly doctors and nurses – regarding the importance of carrying out and recording the actions recommended in antenatal care. The adequate and legible filling out of the home-based ANC record increases the reliability of this important communication tool between professionals and teams in obstetric and perinatal care, at different levels of health care. Finally, perhaps the basis of all the results is in the work processes still in force in health care, which prioritizes hard technologies to the detriment of light technologies, with registration being a lighter technology in relation to the intervention itself.

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## REFERENCES

- World Health Organization. WHO recommendations on antenatal care for a positive pregnancy experience [Internet]. Geneva: WHO; 2016 [citado 2020 maio 25]. Disponível em: <https://apps.who.int/iris/bitstream/handle/10665/250796/9789241549912-eng.pdf?sequence=1>
- Gonçalves LA, Costa LC, Ferreira VL, Abreu MS. Avaliação dos registros do número de consultas de pré-natal no cartão da gestante, sanitas e sisprenatal. *Rev Admin Hosp e Inov em Saúde RAHIS*. 2014 mar;11(4):266-77. <http://dx.doi.org/10.21450/rahis.v11i4.2170>.
- World Health Organization. WHO recommendations on home-based records for maternal, newborn and child health [Internet]. Geneva: WHO; 2018 [citado 2020 maio 25]. Disponível em: <https://apps.who.int/iris/bitstream/handle/10665/274277/9789241550352-eng.pdf?ua=1>
- Gonzalez TN, Cesar JA. Posse e preenchimento da Caderneta da Gestante em quatro inquéritos de base populacional. *Rev Bras Saúde Mater Infant*. 2019 jun;19(2):375-82. <http://dx.doi.org/10.1590/1806-93042019000200007>.
- Santos No ET, Oliveira AE, Zandonade E, Gama SGN, Leal MC. O que os cartões de pré-natal das gestantes revelam sobre a assistência nos serviços do SUS da Região Metropolitana da Grande Vitória, Espírito Santo, Brasil? *Cad Saude Publica*. 2012 set;28(9):1650-62. <http://dx.doi.org/10.1590/S0102-311X2012000900005>. PMID:23033181.
- Ministério da Saúde (BR). Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Atenção ao pré-natal de baixo risco. Brasília: Editora do Ministério da Saúde; 2012 [citado 2020 maio 25]. 318 p. Disponível em: [http://bvsmms.saude.gov.br/bvsm/publicacoes/cadernos\\_atencao\\_basica\\_32\\_prenatal.pdf](http://bvsmms.saude.gov.br/bvsm/publicacoes/cadernos_atencao_basica_32_prenatal.pdf)
- Valente MMPQ, Freitas NQF, Áfio ACE, Sousa CS, Evangelista DR, Moura ERF. Assistência Pré-Natal: um olhar sobre a qualidade. *Rev Rene Fortaleza*. [Internet]. 2013; [citado 2020 maio 25];14(2):280-9. Disponível em: <http://periodicos.ufc.br/rene/article/view/3375/2613>
- Andreucci CB, Cecatti JG. Desempenho de indicadores de processo do Programa de Humanização do Pré-natal e Nascimento no Brasil: uma revisão sistemática. *Cad Saude Publica*. 2011;27(6):1053-64. <http://dx.doi.org/10.1590/S0102-311X2011000600003>. PMID:21710003.
- Ministério da Saúde (BR). Caderneta da Gestante [Internet]. 4<sup>a</sup> ed. Brasília: Ministério da Saúde; 2016 [citado 2020 maio 25]. 48 p. Disponível em: <http://portal.arquivos2.saude.gov.br/images/pdf/2018/agosto/31/Caderneta-da-Gestante-2018.pdf>
- Viellas EF, Domingues RMSM, Dias MAB, Gama SGN, Theme Filha MM, Costa JV et al. Assistência pré-natal no Brasil. *Cad. Saude Publica*. 2014;30(suppl 1):S85-100. <http://dx.doi.org/10.1590/0102-311X00126013>.
- Leal MC, Szwarcwald CL, Almeida PVB, Aquino EML, Barreto ML, Barros F, et al. Reproductive, maternal, neonatal and child health in the 30 years since the creation of the Unified Health System (SUS). *Ciênc. saúde coletiva*. 2018;23(6):1915-28. <https://doi.org/10.1590/1413-81232018236.03942018>.
- Bahk J, Yun SC, Kim Y, Khang YH. Impact of unintended pregnancy on maternal mental health: a causal analysis using follow up data of the Panel Study on Korean Children (PSKC). *BMC Pregnancy Childbirth*. 2015;15(1):85. <http://dx.doi.org/10.1186/s12884-015-0505-4>. PMID:25881099.
- Carrilho JM. Avaliação dos Dados do Cartão de Pré-natal e Registro da Rotina Prevista na Assistência Pré-natal de Baixo Risco em uma Coorte de Gestantes em Belo Horizonte [dissertação]. Belo Horizonte (MG): Faculdade de Medicina da Universidade Federal de Minas Gerais; 2014.
- Coelho TTG, Medeiros ACQ, Ribeiro WCS, Menêzes TB. Avaliação do Grau de Completude do Cartão da Gestante de Puérperas Atendidas em um Hospital Universitário. *R. Bras. Ci. Saúde*. 2015;19(2):117-22. <http://dx.doi.org/10.4034/RBCS.2015.19.02.05>.
- Amorim LP, Senna MIB, Gomes VE, Amaral JHL, Vasconcelos M, Silva AG et al. Preenchimento da Caderneta de Saúde da Criança nos serviços de saúde em Belo Horizonte, Minas Gerais, Brasil. *Epidemiol Serv Saude*. 2018;27(1):e201701116. <http://dx.doi.org/10.5123/S1679-49742018000100016>. PMID:29451613.
- Amorim T, Felisbino-Mendes MS, Schreck RSC, Ribeiro SP, Rezende EM, Martins EF. Born in Belo Horizonte: the trajectory of parturient women and their reproductive outcomes. *Rev Esc Enferm USP*. 2019;53:e03441. <http://dx.doi.org/10.1590/s1980-220x2018000903441>. PMID:31166530.
- Coutinho T, Monteiro MFG, Sayd JD, Teixeira MTB, Coutinho CM, Coutinho LM. Monitoramento do processo de assistência pré-natal entre as usuárias do Sistema Único de Saúde em município do Sudeste brasileiro. *Rev Bras Ginecol Obstet*. 2010 nov;32(11):563-9. <http://dx.doi.org/10.1590/S0100-72032010001100008>. PMID:21271168.
- Folk DM. Hypertensive disorders of pregnancy: overview and current recommendations. *J Midwifery Womens Health*. 2018;63(3):289-300. PMID:29764001.
- Vettore MV, Dias M, Domingues RMSM, Vettore MV, Leal MC. Cuidados pré-natais e avaliação do manejo da hipertensão arterial em gestantes do SUS no Município do Rio de Janeiro, Brasil. *Cad. Saúde Pública* [online]. 2011 maio;27(5):1021-34. <https://doi.org/10.1590/S0102-311X2011000500019>.
- Townsend R, O'Brien P, Khalil A. Current best practice in the management of hypertensive disorders in pregnancy. *Integr Blood Press Control*. 2016 jul 27;9:79-94. <http://dx.doi.org/10.2147/IBPC.S77344>. PMID:27555797.
- Merhy EE. Em busca do tempo perdido: a micropolítica do trabalho vivo em saúde. In: Merhy EE, Onoko R, organizadores. *Agir em saúde: um desafio para o público* [Internet]. São Paulo: Hucitec; 2002. p. 71-113 [citado 2020 maio 25]. Disponível em: [https://digitalrepository.unm.edu/lasm\\_pt/145](https://digitalrepository.unm.edu/lasm_pt/145)
- Zanchi M, Gonçalves CV, Cesar JÁ, Dumith SC. Concordância entre informações do Cartão da Gestante e do recordatório materno entre puérperas de uma cidade brasileira de médio porte. *Cad Saude Publica*. 2013;29(5):1019-28. <http://dx.doi.org/10.1590/S0102-311X2013000500019>. PMID:23703007.
- Nunes JT, Gomes KRO, Rodrigues MTP, Mascarenhas MDM. Qualidade da assistência pré-natal no Brasil: revisão de artigos publicados de 2005 a 2015. *Cad Saude Colet*. 2016;24(2):252-61. <http://dx.doi.org/10.1590/1414-462X201600020171>.
- Resolução COFEN nº. 429/2012 de 8 de junho de 2012 (BR). Dispõe sobre o registro das ações profissionais no prontuário do paciente, e em outros documentos próprios da enfermagem. *Diário Oficial da União*

- [periódico na internet], Brasília (DF), 8 jun 2012; Seção 1 [citado 2020 maio 25]. Disponível em: [http://www.coren-ro.org.br/resolucao-cofeno-4292012\\_2155.html](http://www.coren-ro.org.br/resolucao-cofeno-4292012_2155.html)
25. Gigante RL, Campos GWS. Política de formação e educação permanente em saúde no Brasil: bases legais e referências teóricas. *Trab Educ Saúde*. 2016 set/dez;14(3):747-63. <http://dx.doi.org/10.1590/1981-7746-sip00124>.
26. Freire P. A alfabetização de adultos: crítica de sua visão ingênua; compreensão de sua visão crítica. In: Freire P. *Ação Cultural para a Liberdade: e outros escritos* [Internet]. Rio de Janeiro: Paz e Terra; 2003 [citado 2020 maio 25]. Disponível em: [http://www.gestaoescolar.diaadia.pr.gov.br/arquivos/File/otp/livros/acao\\_cultural\\_liberdade.pdf](http://www.gestaoescolar.diaadia.pr.gov.br/arquivos/File/otp/livros/acao_cultural_liberdade.pdf)