

## Profile of the Pregnant Women Affected by Preterm Birth in a Public Maternity Hospital

Perfil de Gestantes Acometidas de Parto Prematuro em uma Maternidade Pública

Perfil de la Mujer Embarazada de Trabajo Afectada Prematura en una Maternidad Pública

Sara Susane Machado Pereira<sup>1\*</sup>, Maria de Nazaré Jesus Oliveira<sup>2</sup>, Jéssika Mikaelly Rodrigues Correia Koller<sup>3</sup>, Fernanda Cláudia Amorim Miranda<sup>4</sup>, Ivonizete Pires Ribeiro<sup>5</sup>, Adélia Dalva da Silva Oliveira<sup>6</sup>

### How to quote this article:

Pereira SSM, Oliveira MNJ, Koller JMRC, et al. Profile of the Pregnant Women Affected by Preterm Birth in a Public Maternity Hospital. 2018 Jul./Sep.; 10(3):758-763. DOI: <http://dx.doi.org/10.9789/2175-5361.2018.v10i3.758-763>

### ABSTRACT

**Objective:** Herein, our goal has been to characterize the pregnant women profile that experienced preterm birth. Moreover, describe the complications of preterm birth, and also to identify the number of deaths due to preterm birth. **Methods:** It is a retrospective cohort study with a quantitative approach, which was carried out in a public maternity hospital. The sample that represented the population consisted of 300 medical records of pregnant women with preterm birth. The research was approved by the Ethics Committee under the Legal Opinion No. 1,175,971. **Results:** The predominant age group was from 14 to 19 years old (26.38%); high school education (56.68%); married (38.11%); housekeeper (48.21%); unregistered race (99.67%); rural area as residence place (57.00%). The following were the higher incidence of complications within the variables: pre-eclampsia (28.66%) and premature amniorrhexis (17.27%). The major cause of death was pre-eclampsia. **Conclusion:** It should be noted that pre-eclampsia caused the highest number of deaths in the women investigated and this fact shows the alarming statistics, confirming that hypertensive diseases occupy the first place as cause of maternal death in Brazil.

**Descriptors:** Pre-eclampsia, Health profile, Prenatal care, Nursing care.

<sup>1</sup> Nursing Graduate by the Centro Universitário UNINOVAFAPI, Teresina (PI), Brazil. E-mail address: sarasuzane.01@gmail.com

<sup>2</sup> Nursing Graduate by the Centro Universitário UNINOVAFAPI, Teresina (PI), Brazil. E-mail address: oliveira.naza@gmail.com

<sup>3</sup> Nursing Graduate by the Centro Universitário UNINOVAFAPI, Teresina (PI), Brazil. E-mail address: jessikamkoller@gmail.com

<sup>4</sup> Nursing Graduate, Master's Degree in Nursing by the Universidade Federal do Piauí, Doctor's Degree in Biomedical Engineering by the UNIVAP, Professor of the Nursing Graduation Course at Centro Universitário UNINOVAFAPI, Teresina (PI), Brazil. E-mail address: famorim@uninovafapi.edu.br

<sup>5</sup> Nursing Graduate, Doctor's Degree in Tropical Medicine and Public Health, Adjunct Professor at UESPI, Professor of the Nursing Graduation Course at Centro Universitário UNINOVAFAPI, Teresina (PI), Brazil. E-mail address: iribeiro@novafapi.com.br

<sup>6</sup> Nursing Graduate, Master's Degree and Doctor's Degree in Public Health by the Universidade Federal do Piauí, Coordinator of the Nursing Graduation Course at Centro Universitário UNINOVAFAPI, Teresina (PI), Brazil. E-mail address: aoliveira@uninovafapi.edu.br

## RESUMO

**Objetivo:** Caracterizar o perfil das gestantes acometidas de parto prematuro; descrever as complicações do parto prematuro; identificar o número de óbitos por parto prematuro. **Método:** Pesquisa retrospectiva; transversal com abordagem quantitativa; realizada em uma maternidade pública, a amostra que representou a população constituiu-se de 300 prontuários de gestantes com parto prematuro. Pesquisa aprovada pelo Comitê de Ética; sob CAAE nº 47429315.1.0000.5210. **Resultados:** Faixa etária predominante foi 14 a 19 anos 26,38%; escolaridade ensino médio (56,68%); situação conjugal casada (38,11%); ocupação do lar (48,21%); raça não registrada (99,67%); local de moradia zona rural (57,00%). Maior incidência de complicações dentro das variáveis; foram pré-eclâmpsia (28,66%); amniorrexe prematura (17,26%). Causa maior de óbito: Pré-eclâmpsia. **Conclusão:** Destaca-se que pré-eclâmpsia foi o agravo que causou o maior número de óbitos nas mulheres investigadas; esse dado evidencia as estatísticas alarmantes; confirmando que as doenças hipertensivas ocupam o primeiro lugar como causa de morte materna no Brasil.

**Descritores:** Pré-eclâmpsia; Perfil de Saúde; Cuidado Pré-natal; Cuidados de Enfermagem.

## RESUMEN

**Objetivo:** Caracterizar el perfil de parto prematuro afectaba a las mujeres embarazadas; describir las complicaciones del nacimiento prematuro; identificar el número de muertes debidas al parto prematuro. **Método:** Estudio retrospectivo; cruzar con un enfoque cuantitativo; realizado en un hospital público, la muestra que representa la población constaba de 300 historias clínicas de mujeres embarazadas con trabajo de parto prematuro. De investigación aprobado por el Comité de Ética, la opinión N° 1.175.971. **Resultados:** Rango de edad predominante fue de 14 a 19 años 26,38%; educación secundaria (56,68%); estado civil casada (38,11%); ocupación de la casa (48,21%); No raza registrado (99,67%); lugar de residencia, rural (57,00%). Mayor incidencia de complicaciones en las variables y pre-eclâmpsia (28,66%); ruptura prematura de membranas (17,26%). Principal causa de muerte: la pre-eclâmpsia. **Conclusión:** Es de destacar que la pre-eclâmpsia fue la lesión que causó el mayor número de muertes investigadas en las mujeres; estos datos ponen de manifiesto las estadísticas alarmantes; lo que confirma que las enfermedades hipertensivas ocupan el primer lugar como causa de muerte materna en Brasil.

**Descriptores:** Pre-eclâmpsia; Perfil de Salud; La atención pre-natal; Los cuidados de enfermería.

## INTRODUCTION

Gestation is a physiological phenomenon that must occur without intercurrent. However, there are factors that can lead to the appearance of complications during the gestation process. Among them, preterm birth is the major cause of morbidity and mortality in the first days of the baby's life.<sup>1</sup>

Pregnancy occurs in the life cycle, most of the time could go without health deviations. Such a cycle is characterized by complex physiological, emotional, interpersonal and sociodemographic transformations, which imply an eminent risk potential and therefore demands multidisciplinary health care. In Brazil, maternal and perinatal

morbidity and mortality rates are still high, according to the World Health Organization data.<sup>2</sup>

Preterm birth is one that occurs before 38 weeks of gestation, it is classified according to its clinical evolution, in elective and spontaneous. The elective form occurs mostly due to maternal complications; and the spontaneous form tends to be multifactorial, in addition to including unknown causes.<sup>3</sup>

Brazil occupies one of the highest rates of prematurity in the world, being among the 10 countries with the highest number of registered cases. About 280 thousand premature births are performed annually on Brazil. This number is even more relevant when it is known that more than 70% of babies born before the period die within the first 28 days of life. The index by region brings the South and Southeast with 12% and 12.5% respectively occupying the first place in records. Followed by the Central West with 11.5%, the Northeast with 10.9% and the North with 10.8%.<sup>4</sup>

Prematurity in Brazil is the leading cause of death in the first month of life, about 70% of child deaths occur within the first 28 days after birth. The infant mortality coefficient is internationally standardized as the number of deaths of children under one year of age per thousand live births in the population living in a given geographic area in the year considered and estimates the risks of live births to die in the first year of life.<sup>5</sup>

During prenatal care, it is possible to diagnose possible problems with the pregnant woman and the fetus and to determine the care to be provided, since prenatal care has instruments that allow process evaluations, thus making it essential that gestation be followed from conception to the puerperium.<sup>1</sup>

In this context, in which prenatal care is inserted in basic care, it is important to emphasize that qualified and humane prenatal and puerperal care is provided through the incorporation of welcoming behaviors and without unnecessary interventions, easy access to services quality health care, with actions that integrate all levels of care, as follows: promotion, prevention and health care of pregnant women and newborns, from basic outpatient care to hospital care for high risk patients.<sup>6</sup>

In view of the abovementioned, it is clear that it is important to trace the profile of women with preterm birth, once the target public is defined, the more decisive and effective the prevention process becomes. Based on these considerations, the following hypothesis was elaborated: The incidence of preterm birth in a maternity hospital in Teresina is high; and most premature births happen in adolescents.

The study aimed to characterize the profile of pregnant women with preterm birth according to: age, schooling, marital status, occupation, race, place of residence; to describe the complications of preterm birth; and to identify the number of deaths due to premature birth labor.

## METHODS

It is a retrospective cohort study with a quantitative approach. It was carried out in a public reference maternity hospital for high complexity in the health care of women in *Piauí* State. The data were extracted from the medical records of the patients diagnosed with preterm birth filed at the Medical and Statistical Archive Service of the studied institution.

The population covered the group of pregnant women attended at the institution in the year 2014 with diagnosis of preterm birth, the sample that represented the population consisted of 300 medical records of pregnant women with preterm delivery. This sample was calculated from the perspective of a prevalence of preterm birth of 19.09% and a sampling error of 5%, with a confidence level of 95%.

A simple random sample was used to select the medical records; they were distributed in 2014, separated by months in a homogeneous way, and selected within each month a quantity of medical records proportional to the number of pregnant women attended and to the size of the sample. Finally, 300 medical records were selected.

The data collection process occurred from August to September 2015, using a questionnaire with items related to socio-demographic characterization (age, schooling, occupation, race, marital status and place of residence), types of complications, and the occurrence of deaths due to complications. The medical records printed for analysis were obtained from the Medical Archive Service of the institution.

The database was organized in spreadsheets of the program Microsoft Excel Starter 2010, with data validation after double typing. The study population was characterized by descriptive statistics and the data were processed by Statistical Package for the Social Sciences (SPSS), version 18.0, for Windows, and analyzed through descriptive and analytical statistics. The variables were described by means of the absolute (N°) and relative (%) frequencies, and by the measures of position (average) and variability (standard deviation). The final results were presented in tables and graphs.

The study was evaluated and approved by the Research Ethics Committee of the *Centro Universitário-UNINOVAFAPI* under the CAAE No. 47429315.1.0000.5210, in compliance with the recommendations of the Resolution No. 466/12 of the National Health Council.<sup>7</sup> The confidentiality and anonymity of the information was ensured to all participating women.

## RESULTS

The results obtained in three tables, with information on sociodemographic data, types of complications without giving birth, number and occurrence of death by type of complications.

**Table 1** – Socio-demographic characteristics of the sample. Teresina (PI), 2014.

Variable	N°	%
<b>Agegroup</b>		
From 14 to 19 years old	81	26.38
From 20 a 25 years old	81	26.38
From 26 a 30 years old	77	25.08
From 31 a 39 years old	58	18.89
40 ormore	10	3.26
Total	307	100.00
<b>Schooling</b>		
Illiterate	1	33.00
Complete ElementarySchool	128	41.69
High School	174	56.68
Incomplete College	-	-
Complete College	-	-
Unregistered	4	1.30
Total	307	100.00
<b>Maritalstatus</b>		
Married	117	38.11
Single	108	35.18
Divorced	4	1.30
Widow	1	33.00
Stable union	-	-
Unregistered	77	25.08
Total	307	100.00
<b>Occupation</b>		
Housekeeper	148	48.21
Student	60	19.54
Farmer	56	18.24
Wage earner	13	4.23
Statutory system	-	-
Unregistered	30	9.77
Total	307	100.00
<b>Race</b>		
Black	-	-
Yellow	-	-
White	-	-
Brown	1	33.00
Unregistered	306	99.67
Total	307	100.00
<b>Placeofresidence</b>		
Urbanezone	132	43.00
Ruralzone	175	57.00
Total	307	100.00

Source: *MDER's*Records.

**Table 2** - Presence and types of complications at birth labor.Teresina (PI), 2014

Variable	N°	%
<b>Complication at birth labor</b>		
Yes	245	79.80
No	62	20.20
Unregistered	-	-
Total	307	100.00
<b>Complication type</b>		
Pre-eclampsia	88	28.66
Urinary tract infection	49	15.96
Premature placental abruption	29	9.45
Premature amniorrhexis	53	17.26
Oligohydramnios	7	2.28
Polihydramnios	2	0.65
Anencephaly	3	0.98
Premature birth	14	4.56
Unregistered	62	20.20
Total	307	100.00

Source: MDER'sRecords.

**Table 3** - Occurrence of deaths by the complication type. Teresina-PI, 2014.

Complicationtype	N°	Yes N°%	No N°	%	Death	NR N°%	Total	N°%
Pre-eclampsia	10	11.36	78	88.6	4	-	88	100.00
Urinary tract infection	5	10.20	44	89.8	0	-	49	100.00
Premature placental abruption	4	13.79	25	86.2	1	-	29	100.00
Premature amniorrhexis	-	-	53	100.00	-	-	53	100.00
Oligohydramnios	-	-	7	100.00	-	-	7	100.00
Polihydramnios	-	-	2	100.00	-	-	2	100.00
Anencephaly	-	-	3	100.00	-	-	3	100.00
Premature birth	2	14.29	12	85.71	-	-	14	100.00
Unregistered	5	8.06	57	91.94	-	-	62	100.00
Total	26	8.47	281	91.53	-	-	307	100.00

Source: MDER'sRecords.

## DISCUSSION

In the results, the following socio-demographic characteristics were obtained, such as: age, schooling, marital status, occupation, race, place of residence; presence and types of complications at birth labor; and occurrence of death by the complication type.

Regarding the age group, the study showed an egalitarian predominance in the ages of 14 to 19 years old (26.38%) and from 20 to 25 years old (26.38%). Studies have reported the presence of preterm delivery in adolescents aged 10 to 19 years, which corroborates with the present study and the first hypothesis formulated by the researchers, however, a change in this profile is also observed, since it is also observed an equal number of women between the ages of 20 and 25 years old that experienced preterm birth in the records searched.<sup>8</sup>

Concerning the schooling, it was observed that the majority of the sample is composed of mothers with low schooling, complete high schooleducation in 56.68% of these women, and elementary education in 41.69%, similar to a study where the result shows that 41% of women completed high school.<sup>9</sup> In this sense, low schooling is associated with a lack of social incentives to receive adequate education.

Regarding the marital status, 38.11% of the puerperal women are married, only 0.33% are widows, corroborating a common study published in 2011 that identified a higher frequency of married mothers (6.4%) compared to unmarried premature mothers (4.4%).<sup>10</sup>

The study presented as home occupation, that is, domestic work without pay as the most frequent, with 48.21% of registered cases, and the statutory occupation did not present any records. One study states that the rate of women over the age of 20 working outside the home is high.<sup>11</sup> However, in relation to pregnant women, it was observed that most did not work outside the home at the time of delivery. Without a job, the chances of entering the job market are lower, family support may be compromised, and risks may affect pregnant women.

Corresponding to the race variable, most of the records studied did not present data on the type of race reported by the puerperal women, the percentage of 99.67%, and only 0.33% registered the brown skin color. According to a survey, the pregnant women reached the percentage of 82.35%, in the findings of this study there are the most common differences, which refer to skin color, identifying hair type, facial skull conformation, ancestry and genetics.<sup>12</sup>

For the purpose of the analysis, the dwelling place of the pregnant women of the study consists of a percentage of 57.00% resident in the rural area. According to one study, being associated to the issue of access to health services, considering a service structure, location and qualification of services, the majority resides in rural areas, in other words, where access to goods and services is restricted. Environmental factors may be determinant in the infant mortality rate.<sup>13</sup>

The study showed a higher incidence of complications within the variables, which brought about 28.66% of the women affected by premature labor. Hypertensive syndromes represent one of the most frequent changes in pregnancy, and pre-eclampsia came first in the study, in which the disease that affects more women in the gestational period, its incidence varies from 2 to 8% of pregnancies in the developed countries, and in Brazil, up to 10% or more. This disease is considered the first cause of maternal mortality in Brazil and the third cause in the world, with a high rate of perinatal morbidity and mortality.<sup>9</sup>

Pre-eclampsia appeared in the study in 28.66% of the women, thus being the most present complication for the evolution of preterm birth. The study also showed that such problems are the main risk factor, since 59.3% of the women investigated had chronic diseases, with gestational hypertension coming on a larger scale.<sup>9</sup>

Premature amniorrhexis was second in percentage terms with 17.26%, and thus a high risk factor for preterm birth. In the studies, it was highlighted by the similarity, where premature amniorrhexis came with a very high incidence,

the study also points out that to prevent preterm birth, the pregnant woman has to perform periodic prenatal consultations in order to be informed about the prophylaxis measures.<sup>14</sup>

It was evidenced the occurrence of death by type of pregnancy complications (88,64%), with a higher rate of pre-eclampsia and maternal morbidity and mortality, with an average of 100%. Pre-eclampsia is the most common in 90% of cases with wasting lives among all diseases that manifest or worsened during pregnancy.<sup>15</sup>

It was also observed the occurrence of deaths in which the majority was due to pre-eclampsia in pregnancy, being considered as a serious complication. Hypertension induced by the pregnancy state, known as Hypertensive Pregnancy Syndrome (HPS), is conceptualized as the increase in blood pressure that manifests itself, more specifically in the second half of pregnancy. These syndromes affect between 10 and 22% of the pregnancies considered to be high risk and stand out among the pathologies with the greatest impact in the complications of the puerperal pregnancy cycle with a tendency to premature births. In developed countries, 16.1% of maternal deaths are due to HPSs and hemorrhages. The data show that, from HPSs, preeclampsia is the most frequent complication during the puerperal pregnancy cycle, around 5 to 10% of pregnancies, and is the main cause of maternal and fetal death.<sup>16</sup>

## CONCLUSION

The study has made it possible to know the pregnant women profile of preterm birth, who were hospitalized in a public maternity hospital in *Teresina-PI*, relating the demographic characteristics, complications, occurrence of deaths. It was also possible to know the incidence of pregnant women with preterm birth attended at the maternity hospital.

The sample for the study was selected from a population of 1,489 records of pregnant women diagnosed with preterm birth hospitalized in 2014, after a statistical calculation, a total of 300 simple randomly selected charts were determined.

It was evidenced that the predominant age group was 14 to 25 years representing 26.38%. With regards to schooling, 174 had a high school education totaling 56.68% and 128 completed elementary school (41.69%). The predominant marital situation was that of married women (38.11%), occupation in the majority registered 148 was of the home, with representativeness of (48.21%). As for the place of residence the majority 175, resides in the rural zone (57%).

Regarding the complications, pre-eclampsia appeared in the study in 28.66% with 88 complications in the pregnant women to develop an evolution of preterm birth. Premature amniorrhexis came with a percentage with 17.26%, being 53 women affected with a high factor of risk for preterm birth.

Knowledge of the characteristics of a population group contributes to the reduction of health indicator indices, especially the infant mortality coefficient. These data support,

guide and subsidize the actions proposed by the various assistance services, including health care, as well as their implementation. Therefore, a continuous evaluation of these health indicators by public administrations would provide strategies for comprehensive childcare and instruments to reduce the incidence of child morbidity and mortality.

In the present study, two hypotheses were elaborated, the first one was the incidence of hospitalizations for preterm infants, confirmed by data from the records, since a high number of premature births was observed in the period studied. The second, affirmation of the high incidence of preterm births in adolescence, partially confirmed, since in relation to the age group there was an egalitarian predominance among adolescents and young adults.

This study had limitations, for example, with regards to the place of residence, where the medical records analyzed showed that the majority resided in the rural area, considering that the municipalities of the state as a rural area considered filling out the medical record. Another limitation was the race, which had to be excluded from the variables because it was not recorded in any medical records.

It is considered that knowing and understanding the complex process of birth and the factors that interfere with it is fundamental for effective quality assistance to the mother-child binomial, as well as to improve and rationalize the care provided at all stages of the reproductive cycle, prioritizing the actions of prevention, recovery and maintenance of life.

It is important to design public policies that establish adequate strategies for prevention, early diagnosis and treatment, in order to promote the quality of maternal life. New publications are expected to elucidate the gaps in this study.

## REFERÊNCIAS

1. Freitas F, Martins-Costa SH, Ramos JGL, Magalhães JA. Rotinas em obstetria. 5ª ed. Porto Alegre: Brasileira; 2007.
2. Brasil. Ministério da Saúde. Parto Prematuro. Organização Mundial de Saúde [periódico na Internet]. 2014 [acesso em 2015 Mar 10]. Available at: <http://prematuroidade.com/sobre-prematuros/parto-prematuro>.
3. Zugaib M. Obstetria. 2ª ed. São Paulo: Manole; 2008.
4. Brasil. Ministério da Saúde. Fabiano Camilo (Orgs.). Uma análise da situação de saúde e de evidências selecionadas de impacto de ações de vigilância em saúde: Dados estatísticos da incidência de partos prematuros. Brasília: Pan-americana da Saúde OPAS/OMS; 2010.
5. Ripsa. Rede Interagencial de Informações para a Saúde. Coeficiente de mortalidade infantil [periódico na Internet]. 2014 [acesso em 2015 Mar 5]. Available at: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0104-12902014000300908](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-12902014000300908).
6. Brasil. Ministério da Saúde. Adauto Martins Soares Filho, Ana Sudária de Lemos Serra, Carmem Lucia de Simoni, Carlos Augusto Souza Carvalho (Orgs.). Departamento de Atenção Básica: Ministério da Saúde; 2012.
7. Brasil. Ministério da Saúde. Resolução 466. Conselho Nacional de Saúde, do Ministério da Saúde, que impõe revisões periódicas a ela, conforme necessidades nas áreas tecnocientífica e ética [periódico da Internet]. 2012 [acesso em 2015 May 26]. Available at: [http://bvsms.saude.gov.br/bvs/saudelegis/cns/2013/res0466\\_12\\_12\\_2012.html](http://bvsms.saude.gov.br/bvs/saudelegis/cns/2013/res0466_12_12_2012.html).
8. Nader PRA, Cosme LA. Parto prematuro de adolescentes: influência de fatores sociodemográficos e reprodutivos, Espírito Santo, 2007. Esc Anna Nery Rev Enferm; 2010 Jun;14(2):338-345.

9. Souza LF, Botelho NM. Fatores de Risco para o Parto Prematuro em Puérperas que tiveram partos Pré-termo. Fundação Santa Casa de Misericórdia [periódico na Internet].2010 [acesso em 2015 Aug1]. Available at:  
<http://files.bvs.br/upload/S/0101-5907/2011/v25n4/a3056.pdf>.
10. Scardoelli CGM, Willian AM, Kelly I, et al. Influência do Perfil Sociodemográfico Materno nos Prematuros Nascidos no município de Maringá-PR. Encontro Internacional de Produção Científica [periódico na Internet].2011 [acesso em 2015 Jul 14]. Available at:[http://www.cesumar.br/prppge/pesquisa/epcc2011/anais/willian\\_augusto\\_melo\(3\).pdf](http://www.cesumar.br/prppge/pesquisa/epcc2011/anais/willian_augusto_melo(3).pdf).
11. Silva JRS, Luís PSS, Maria FSF, et al. Tatiana CR. Perfil Socioeconômico das Gestantes Atendidas no Serviço de Pré-natal da Estratégia Saúde da Família no Município de Monte Claros. Revista digital. Buenos Aires; 2011.
12. FirmoWCA, Paredes AO, Almeida AC, et al. Perfil dos exames laboratoriais em gestantes atendidas no Centro de Saúde de Lago Verde, Maranhão, Brasil. J ManagPrim Health Care [periódico na Internet]. 2013[acesso em 2015 Oct 15];4(2):77-86. Available at:<http://www.jmphc.com.br/saude-publica/index.php/jmphc/article/view/173/0>.
13. Ramos H, Cuman R. Fatores de risco para prematuridade: pesquisa documental. Esc Anna Nery RevEnferm. 2009;13(2):297-304.
14. Santos, Fernanda LB, Oliveiar MI, et al. Prematuridade entre Recém- Nascidos de mães com Amniorrexe Prematura. Esc Anna Nery RevEnferm. 2006; 10(3):432-438.
15. Vieira FN, Elise SS, Moises C, et al. Complicações de Paciente Obstétricas e puerperais admitidos em Unidade Intensiva. RevBrasTerapIntens[periódico na Internet]. 2005 [acesso em 2015 Jul 10];17(4):251-55. Available at:[http://www.amib.com.br/rbti/download/artigo\\_2010616162734.pdf](http://www.amib.com.br/rbti/download/artigo_2010616162734.pdf).
16. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Ações Programáticas Estratégicas: Manual dos comitês de mortalidade materna. 3ª ed. Brasília(DF): Editora do Ministério da Saúde; 2007.

Received in: 12/19/2016  
Required Reviews: 02/07/2017  
Approved in: 02/09/2017  
Posted in: 07/05/2018

**\*Corresponding Author:**

Sara Susane Machado Pereira  
Avenida Presidente Jânio Quadros, 580  
Santa Isabel, Teresina/PI, Brazil  
Zip Code: 64 053 380  
E-mail Address: sarasuzane.01@gmail.com  
Telephone number: +55 86 99567 7117