



Journal of Nursing

Revista de Enfermagem

UFPE On Line

ISSN: 1981-8963

ORIGINAL ARTICLE

CONGENITAL MALFORMATIONS: DEMOGRAPHIC PROFILE OF MOTHERS AND PREGNANCY CONDITIONS

MALFORMAÇÕES CONGÊNTAS: PERFIL SOCIODEMOGRÁFICO DAS MÃES E CONDIÇÕES DE GESTAÇÃO

MALFORMACIONES CONGÉNITAS: PERFIL DEMOGRÁFICO DE LAS MADRES Y LAS CONDICIONES DEL EMBARAZO

Lucimar de Lara Aires Silvestre dos Reis¹, Rogério Ferrari²

ABSTRACT

Objectives: to delineate the socio-demographic factors of mothers of newborns with congenital malformations and characterize the conditions of pregnancy. **Methodology:** cross-sectional, quantitative, descriptive study conducted in two hospitals of Cáceres/MT/Brazil, with 174 patients. Data collected from medical records and transcripts for registration forms, analyzed by descriptive statistics and presented in tables. The Committee of ethics in research, 143 protocol/9, approved the study. **Results:** there was a predominance of mothers aged between 21 to 30 years (44.8%), from Cáceres (74.7%), mixed race (54.0%), married (39.1%), high school (37.9%), Primiparous (48.9%), performing until 6 (61.5%), prenatal childbirth C-section (52.2%), single-fetus (98.3%), less than 37 weeks gestation (66.1%), morbidity (82.8%). **Conclusion:** are very important historical records included information about the maternal history, allowing the systematization of these data and the possibility of raising occurrences of malformations. **Descriptors:** The congenital normality's; Genetic Variation; Infant Mortality.

RESUMO

Objetivos: delinear os fatores sociodemográficos das mães de recém-nascidos com malformações congêntas e caracterizar as condições da gestação. **Metodologia:** estudo descritivo transversal, quantitativo, realizado em dois hospitais de Cáceres/MT/Brasil, com 174 pacientes. Os dados foram coletados dos prontuários e transcritos para formulários de registro, sendo analisados por estatística descritiva e apresentados em tabelas. O estudo foi aprovado pelo Comitê de Ética em Pesquisa, protocolo 143/09. **Resultados:** houve predomínio de mães com idade entre 21 a 30 anos (44,8%), procedentes de Cáceres (74,7%), pardas (54,0%), casadas (39,1%), ensino médio completo (37,9%), primigesta (48,9%), realização de até 6 pré-natais (61,5%), parto cesárea (52,2%), feto único (98,3%), gestação menor que 37 semanas (66,1%), sem morbidade (82,8%). **Conclusão:** são de suma importância os registros do histórico constando informações quanto aos antecedentes maternos, permitindo a sistematização desses dados e a possibilidade de levantar ocorrências de malformações. **Descritores:** Anormalidades Congêntas; Variação Genética; Mortalidade Infantil.

RESUMEN

Objetivos: describir los factores socio-demográficos de las madres de recién nacidos con malformaciones congénitas y caracterizar las condiciones del embarazo. **Metodología:** estudio descriptivo transversal, cuantitativo realizado en dos hospitales de Cáceres/MT/Brasil, con 174 pacientes. Se recopilaron datos de registros médicos y transcripciones para formularios de inscripción, se analizaron mediante estadística descriptiva y presentadas en los cuadros. El estudio fue aprobado por el Comité de ética en la investigación, protocolo 143/09. **Resultados:** hubo un predominio de las madres entre 21 a 30 años (44,8%), de raza mixta (54.0%), casado (39.1%), Cáceres (74.7%), high School secundaria (37,9%), Primiparous (48,9%), realizar hasta 6 (61,5%), el parto prenatal cesárea (52,2%), single-feto (98.3%), menos de 37 semanas de gestación (66,1%), sin morbidade (82,8%). **Conclusión:** son muy importantes los registros históricos incluyeron información sobre la historia materna, lo que permite la sistematización de estos datos y la posibilidad de elevar las ocurrencias de malformaciones. **Descriptores:** Anomalías congénitas; Variación genética; Mortalidad infantil.

¹Doctor, master in Health Science, specialist in obstetrics and gynecology, Faculty of medical sciences, Federal University of Mato Grosso UFMT/. Cáceres (MT), Brazil. E-mail: lucimarlarareis@gmail.com; ²Academic, degree in medicine, University Estácio de Sá/UNESA. Rio de Janeiro (RJ), Brazil. E-mail: rgrferrari@gmail.com

INTRODUCTION

The anomalies are in shape, defects congenital structure and/or function of organs, cells or cellular components of gifts made before birth and arising at any stage of fetal development. Because of the literature, it said that the factors related with the congenital anomaly are in the following order: socioeconomic conditions, nutritional deficiencies, environmental causes related to ionizing radiation, the methyl-mercury and lead certain drugs, alcoholism, rubella, congenital syphilis, among others.¹

Demographic factors can determine low levels of socio-economic population, the high incidence of infectious diseases and deficiencies, scarce resources for health and research, self-medication, prohibition of abortion, in addition to the environmental quality and precarious working conditions. What implies the prevalence of congenital malformations (MCs).²

The maternal age over 35 years or under 20 years³⁻⁵ represents imminent risk for certain congenital malformations such as Down syndrome, Gastroschisis and other vascular disruption, respectively.

The prevalence of some congenital anomalies varies between racial groups, such as polydactyl postaxial more common in blacks; and, congenital heart defect, anencephaly, spine bifida, tracheo-oesophageal fistula and hypospadias in the white race.⁴

Some maternal illnesses if configure how risk factors such as diabetes mellitus, which can determine congenital malformation of the central nervous system and cardiovascular system;⁵ arterial hypertension, hypothyroidism, epilepsy what constitutes moderate risk for microcephaly growth Retardation and intra-uterine (CIUR);⁶ syphilis showing high exposure to dental anomalies, bone anomalies, mental retardation; rubella with high exposure to deafness, microcephaly, blindness, heart disease; toxoplasmosis can cause hydrocephalus, blindness, Chorioretinitis, mental retardation; the herpes simplex with low exposure to scars, microcephaly, midistrofia and mental retardation; chickenpox with low exposure to scars, midistrofia and mental retardation; and; Cytomegalovirus infection with high exposure to retardation, mental retardation, deafness.⁷

The lifestyle becomes home and more risk factor for congenital malformation since some habits like smoking, illicit drug use and alcoholism cause negative effects during

pregnancy.⁸ Other factors such as malnutrition, maternal prenatal monitoring, low education level, practice of self-medication, if associated with other factors trigger greater fragility for the occurrence of congenital malformation.⁹

Social factors are those not classified as genetic components or physical, chemical or biological aggressors, including those covering economic, socio-political, socio-cultural factors and psychosocial.¹⁰ these factors are related to people (environmental factors), and deserve to be highlighted by showing the demographic variables, including the age, gender and ethnic group; the social variables: marital status, income, occupation and education; as well as lifestyle variables, smoking, alcohol intake, drug use and dietary intake.⁴

The scarcity of official data in Brazil concerning congenital anomalies points to the need for improvement of existing information systems, as well as a greater exchange between the official government bodies and public and private institutions in order to give the information to the population. Considering the paucity of information concerning congenital anomalies in the country, especially in the socio-demographic and statistical, epidemiological aspects,¹¹ this study aims to:

- Delineate the socio-demographic factors of mothers of newborns with congenital malformations and characterize the conditions of pregnancy.

METHOD

Article drawn from the dissertation << **epidemiological profile of congenital malformations in the municipality of Cáceres/Mato Grosso, Brazil during the period from 2004 to 2009** >>, presented at Programa de Pós-Graduação em Ciências da Saúde, at the University of Brasília/UNB. Brasília-DF, Brazil. 2010

Cross-sectional, quantitative, descriptive study performed in two hospitals in the city of Cáceres/MT, Brazil's Midwest Regional Hospital of Cáceres "Antonio Fontes" (HRCF) and São Luiz Hospital (HSL).

The HRCF is a referral hospital for 22 municipalities in the southwest region of the State of Mato Grosso with exclusive service to patients of the SUS. It is a general hospital with a capacity of 120 beds, performing outpatient attendances in medium and high complexity and hospitalization through referrals from other municipalities belonging to the Intermunicipal Consortium of the southwestern Mato Grosso (CISOMT). His

specialties are orthopedics, high-risk obstetrics and Gynecology, trauma and emergency, surgical clinic, adult ICU and NICU, Pediatric Clinic and surgical clinic.

The HSL is philanthropic, private and meets the SUS. Features a low-complexity in ambulatory attention and hospitalization, and meets urgencies and emergencies.

In addition to the 22 municipalities in the region, the HRCAF and HSL have a great demand of pregnant women from Bolivia especially at the municipality of Sam Matias since the nearest town of this municipality with inpatient suitable within the Bolivian territory is 500 km, while the municipality of Caceres is 100 miles, even in the absence of any deal between Brazil and Bolivia as regards health, by ethical issues hospitals can't deny service to the Bolivian population.

Data collection began after project approval by the Ethics Committee of the period from January to March 2010, with a frequency of 2 to 3 times a week.

A search by the inpatient sector of both hospitals found that from January 2004 to December 2009 were institutionalized 12,241 women for some kind of obstetric procedure. Through the books of complications of the birth, Center (HSL and HRCAF) and NICU (HRCAF) found 312 records of cases of congenital malformations. After the identification of the record number of mothers of stillborn and newborn diagnosed with MCs, began a search for records by the Archives Service of the two hospitals surveyed in order to collect all available information relating to the mother and the baby.

Were included in the study all records of births, alive or dead in HRCAF and HSL in the period January 2004 to December 2009, which presented diagnosis of congenital malformation with gestational age greater than or equal for 22 weeks and/or weight equal or greater than 500 grs. The charts were excluded with unreadable font does not fit the criteria for inclusion. Leaving the end 174 records.

The collected data were transcribed for a registration form included 24 items, with regard to socio-demographic data, obstetric and newborn babies; which were filled from the transcription of the information contained in the record of attendance of pregnant women, on the chart of Anamnesis Neonatal and Neonatal type-approval certificate, these documents are stored in the File of the two hospitals investigated and then released in Microsoft Office Excel worksheets®. For the

purposes of statistical analysis, we used the version 3.3.2 of the EPI INFO program 2005, the software SPSS® version 13 for Windows® and SigmaStat.

The research project was submitted to the Committee of ethics in research (CEP) of the Faculty of Health Sciences at the University of Brasilia (UnB), being approved in November 17, 2009 as Registry No. 143/09.

In this study considered as congenital malformation, the presence of any structural alteration to the birth, diagnosed by clinical examination and/or for additional tests, such as x-rays, ultrasonography, echocardiography, indicated in specific situations during the follow-up on Neonatology unit.

For the analysis of the documents the data were grouped in four variables, namely: socio-demographic variables of the mother (age, origin, ethnicity, marital status, education); gestation variables current (number of pregnancies, number of queries in prenatal care, labor type, type of gestation, gestation duration morbidities); newborn-related variables (gender, birth weight, time of diagnosis, APGAR in 1° and 5° minute of life, outcome, surgery); variables related to malformations, congenital grouped by system. In the study are sociodemographic variables emphasis of mother and current gestation, variables related to the objective of the present study.

RESULTS AND DISCUSSION

In the year 2004 there were approximately 18.60% (32) of the cases raised in 2005 totaled 13.95% (24 cases), in 2006 8.13% (14 cases), in 2007, 4.65% (8 cases), in 2008 23.25% (41 cases) and in 2009, 31.39% (55 cases), comprising an incidence of 1.43% (174 cases) of congenital malformations during the studied period. There was a variation of the MCs between 0.4% (2007) and 2.7% (2009). The z test for proportions demonstrated that there has been a steady reduction in the rate of malformations of 2004 to 2007 and an increase in the years of 2008 and 2009.

This reduction evidenced in the years 2004 to 2007 may be due to underreporting, since many records for those years ago presented the field intended for the occurrence of congenital malformation or not with the lack of description or described incorrectly.

In table 1 shown, the physiological systems involved where congenital anomalies found in this research. The nervous system showed how more affected (37.9%), followed by the musculoskeletal system (20.7%).

Table 1. Distribution of frequency and percentage of congenital malformations involved regarding the physiological systems of newborns assisted at the Regional Hospital of Dr. Antonio Cáceres and Sources from Hospital São Luiz, Cáceres-MT over the period 2004 to 2009 (N = 174).

/System Malformation	n	%
Nervous System	66	37.9
Musculoskeletal System	36	20.7
Other Anomalies	27	15.5
Cardiovascular and respiratory system	15	8.6
Malformation of the head, face and neck	14	8.1
Digestive System	12	6.9
Genitourinary System	4	2.3
Total	174	100

Recognizing the socioeconomic condition of a pregnant woman can be the principle for the prevention, care and control of congenital malformations. Then, when it comes to monitoring, control, evaluation and

monitoring in health, all actions of the professionals must registered in order to obtain a universe of contextualized information,¹² table 2 below presents these data.

Table 2. Sociodemographic characteristics of pregnant women with newborns affected with congenital malformations assisted in the Regional Hospital of Dr. Antonio Cáceres and São Luiz Hospital Sources in the period from 2004 to 2009, Cáceres-MT (N = 174).

	n	%	% valid
Age			
10 to 20 years	75	43.1	44.1
21 to 30 years	78	44.8	45.9
31 to 40 years	12	6.9	7.1
41 years and more	5	2.9	2.9
Total valid	170	97.7	
NI	4	2.3	
Origin			
Cáceres	130	74.7	74.7
Mirassol D'oeste	10	5.7	5.7
Pontes e Lacerda	6	3.4	3.4
Quatro Marcos	6	3.4	3.4
Curvelândia	5	2.9	2.9
Bolivia	4	2.3	2.3
Araputanga	4	2.3	2.3
Other	9	5.2	5.2
Ethnicity			
White	40	23	23.5
Parda	94	54	55.3
Yellow	1	0.6	0.6
Black	35	20.1	20.6
Total valid	170	97.7	
NI	4	2.3	
Marital status			
Married	68	39.1	42.8
Single	56	32.2	35.2
Consensual union	35	20.1	22
Total valid	159	91.4	
NI	15	8.6	
Schooling			
No	1	0.6	1.3
Elementary school	9	5.2	11.8
High school	66	37.9	86.8
Total valid	76	43.7	
NI	98	56.3	

NI = not identified

With regard to maternal age found that, 44.8% (78 cases) are aged between 21 to 30 years, followed by women with an age ranging from 10 to 20 years with 43.1% (75 cases).

Different from that found in the case of old age, in Danish study concluded that more than half of 126673 pregnancies resulting in abortion with simultaneous rotary movement,

ectopic pregnancy or intrauterine fetal demise were women at the age of 42 years and that this result was probably the increase in the number of inappropriate concepts to life, less uterine and hormonal function. In another study developed in England, demonstrates a higher frequency of birth defects among

newborns of mothers aged over 35 years, mainly of chromosomal abnormalities.¹

Authors Brazilians have detected relationship between maternal age and congenital malformation in teenage mothers and they concluded that the chances of a teenager with multiple pregnancies produce a child with malformation is 6.14 times compared to teens with gestation only, and for unmarried mothers late, chances are 11.4 compared mothers aged 20 to 34 years.¹

Regarding the variable origin, we highlight the municipality of Caceres with the largest number of cases 74.70% (130 cases). This probably is due to the fact the hospital units are easily accessible to the population of the municipality.

A fact that attracted our attention was the high occurrence of cases of MCs from city of San Matias in Bolivia where he met 2.3% (4 cases). Since there is no agreement between the two countries, one realizes that the cases from this town served in hospitals identically to cases of Brazilian municipalities.

The cities with the highest number of inhabitants have greater infrastructure, adequately cared for, trained professionals, which minimizes considerably the cases of malformations in these locations.

For the smaller towns, the index cases of MCs is high when compared with the index of larger cities. Accordingly, a possible justification for that commonality is due to the lack of adequate medical care offered in smaller town. What makes you think the inefficiency of preventive and assistance during the prenatal period in these locales? This point is corroborated by two other¹³⁻⁴ authors who maintain that studies carried out in public hospitals and affiliated to the SUS rates of congenital malformations are larger and may related to low socio-demographic index, deficiencies in implementing preventive measures and assistance during the prenatal period.

As to the ethnicity of the mothers, the brown color were prevalent, with 54% (94 cases), resembling those of another study author¹⁵ with 48.1% (3,580 cases).

Mothers who plead totaled 23% white (40 cases) and 20.1% blacks (35 cases). We opened here a particularity as to the ethnicity of this large-scale population result of miscegenation between blacks, Indians, and whites, Bolivians and in certain communities is common to the marriage or the practice of sexual relations between inbred. Exists in our region a culture that does not press for the primary prevention of women.

With respect to marital status, cases of MCs were more evident in the married moms with 39.1% (68 cases). However, the number of cases where single mothers was next with 32.2% (56 cases), and there is thus a balance between married and unmarried mothers. For this variable, there is similarity to another work,¹⁶ in which the number of married women 58% (232 cases) is greater than that of unmarried women 42% (168 cases).

Monitoring and pré-gestational were to be desired, because the biggest index refers to married women means little or almost none knew about the possible causes of congenital malformation, leading to reflect on the basic attention to health, which is sometimes fails or fail to achieve 100% coverage in prenatal care and guidance to family planning.

However, making a comparison with another study¹⁷ there is a difference for this variable. According to these authors, the most frequent cases of MCs - 61% (42 cases) were mothers who live without the presence of a partner - single or legally separated and widows - being contrary to the data of the present study.

Regarding education, the number of mothers with secondary level was prevalent 37.9% (66 cases), in accordance with study found¹⁷ whose study points out that 65% (63 cases) of mothers surveyed also feature high education index and contradicting another study,¹⁸ whose indexes of less educated women were higher. The author points out that the level of education related to the socio-economic standard, considering the impact of these cases on families with less financial resources.

It was observed that in 56.3% (98 cases) of charts there was records of the level of education of the mothers of the RNs with anomalies and in cases such as congenital malformation, is stillborn, neomorto or live births the maternal history helps in the understanding of disease to avoid further complications, either on recidivism or front of caring for babies.

Stresses that the knowledge/education may highlight the socioeconomic demographic pattern of mothers, this incidence of MC is determining factor, especially in the treatment and monitoring of the child. The level of education related to the socio-economic standard, considering the impact of these cases on families with less financial resources.

Socio-demographic aspects of the predominant characteristics of point mothers studied population, comprising the age group between 21 to 30 years, residents mostly

Cáceres-MT, brown color, married, and not being informed the education level in large scale.

The data concerning the characteristics of the current pregnancy of mothers with MCs cases presented in table 3 below:

Table 3. Characteristics of the gestation of expectant mothers with newborns affected with congenital malformations assisted in the Regional Hospital of Dr. Antonio Cáceres and São Luiz Hospital Sources in the period from 2004 to 2009, Cáceres-MT (N = 174).

	n	%	% valid
Gestation			
First	85	48.9	48.9
Second	32	18.4	18.4
Third	27	15.5	15.5
Fourth	16	9.2	9.2
Fifth or more	14	8	8
Prenatal consultations			
No	6	3.4	5.3
Up to six	107	61.5	93.9
More than six	1	0.6	0.9
Total valid	114	65.5	
NI	60	34.5	
Current Delivery			
Cesarean	96	55.2	56.5
Vaginal	74	42.5	43.5
Total valid	170	97.7	
NI	4	2.3	
Type of gestation			
Only	171	98.3	98.3
Gemelar Car	3	1.7	1.7
Duration of gestation			
< 37 weeks	115	66.1	71.4
37 to 41 without	46	26.4	28.6
Total valid	161	92.5	
NI	13	7.5	
Morbidities			
Yes	1	0.6	0.7
No	143	82.2	99.3
Total valid	144	82.8	
NI	30	17.2	

As for the pregnancy, most mothers with newborns suffering from MCs-48.9% (85 cases)- are Primiparous. As to the other, 18.4% (32 cases) of women investigated had one gestation 15.5% (27 cases) 2 pregnancies and 9.2% (16 cases) three pregnancies. In this respect, it is possible to say that there was a higher incidence of Primiparous mothers, agreeing to study found¹⁹ whose indexes were 53.64% of Primiparous mothers.

In the case of results with more than one pregnancy, would need to raise data regarding previous pregnancies, if were accompanied by professionals, if the patient had already been targeted at some point about the genetic counseling, if made use of medicines, among other information. The historical/diagnosis is important during childbearing years ahead and maternal gestation, which implies that care as these can prevent a pregnancy with MC or its recurrence.²

As for the number of pre-natal consultations, it appears that 3.4% (6 cases) of mothers have not made any query and 61.5% (case 107) made up of prenatal consultations 6. What differs from the research found¹⁷ in which 93% (63 cases) of mothers held 4 or more queries, and resembles to another

author studies¹⁹ in which 12% (14 cases) of mothers did 1 to 3 consultations throughout gestation. Put another way it turns out in this study that mothers held a very low number of queries, resulting in the increase of cases of malformations.^{18,20}

The results leave point that 61.5% (case 107) performed six or less queries do not have how to measure if these consultations were in early pregnancy, with diagnostic exams in a timely manner to correct possible malfunctions.

In confronting these results with the age and level of education of mothers reaffirming hypothetically that the majority of these for cultural reasons or even for lack of knowledge it took to start prenatal care.

Secondary prevention through prenatal care aims to, among other things; prevent cases of congenital malformation by means of early diagnosis. Many tests have become "routine" on fetal ultrasound prenatal screening and today represents a technological breakthrough capable of contributing to this investigation and possible correction of congenital malformation.²

The prenatal care has as one of its objectives to identify risk factors for the occurrence of congenital malformation, as well as prevent extrinsic factors to cause damage to the fetus.¹⁷ it is important to stress that the prenatal and neonatal care is considered of great importance to minimize the risk of fetal death.²¹⁻²

As to the type of delivery, it observed that 52.2% (96 cases) were of type Cesarean and 42.5% (74 cases) vaginal birth. The prevalence of Cesarean birth on the vaginal checked in other studies.^{17-9.23}

If we consider the number of stillbirths, the sharp percentage of births cesarean section is justified because in many cases the mothers' anxiety by MC diagnostic condition, induces the professional to achieve them, because it could be an alternative to "relief" to the mother.

As for the type of gestation, 98.3% (171 cases) was a single fetus. In addition, just 2.7% (3 cases) car. There are records that State that pregnancy car is major cause of MC and prematurity with low weight, which requires special care for these babies.

Primary care as to the type of pregnancy, the way in which she is developing, deserves to accompanied by health professionals, so that preventive measures can be taken especially when it presents the case of twin pregnancy with multiple fetuses.⁸

In the variable duration of pregnancy, most 66.1% (115 cases) was below 37 weeks, followed by 26.4% (46 cases), which corresponds to the period between 37 to 41 weeks contradicting another study¹⁹ where the Parthians the term prevailed with 70% (77 cases).

As for morbidity obtained 82.8% (143 cases) negative, 17.2% (30 cases) not inform and only 0.6% (1 case). Data such as these are important for monitoring postpartum. Once again faced with a high rate of reported cases, leading to reinforce the need of professionals in encountering all the information of every procedure and observation.

Identify the morbidity rate of MC is a preponderant factor for decision-making as it becomes possible to measure index, plan and execute actions that will reduce them. Generally speaking, regarding the characterization of gestation it was observed that the lack of information in the records of pregnant women, as a condition of life, drug use, information regarding previous pregnancies, use of medications during pregnancy, undertake further study as to the

involvement of MC as well as stronger results for this search.¹³

The appropriate follow-up of pregnant women with fetal development evaluation is necessary, as the MCs could be in many cases diagnosed during pregnancy, providing medical ducts for each case. Being the determining factor for the decision regarding the anticipated cesarean section in the case of MC without healing alternatives.^{2.24}

Make a contribution concerning the humanization in healthcare, especially in the case of MC because this condition causes discomfort to mothers. The role of primary care in health, especially of professionals in basic health units of the host family, monitoring and decision-making, help the mothers driving reality of mild way, without further complications.

CONCLUSION

The information obtained in this study allow you to describe some of the socio-demographic characteristics and pregnancy of mothers with children with congenital malformations. In most cases they are between the ages of 21 to 30 years, are from the municipality of Cáceres, brown color, married, with complete secondary education, with realization of first pregnancy to prenatal, childbirth, cesarean section 6 fetus with gestational age less than 37 weeks and without co-morbidities.

The incidence of congenital malformations in the municipality of Caceres in the period from 2004 to 2009 showed an average of 1.43% (174 cases). Among the results showed a high rate of MCs affecting the nervous system, which would be preventable with folic acid supplementation, as that which already used in public health in the country.

The recognition of the way of life, socioeconomic and environmental condition of pregnant women, is configured as factors for the control and reduction of MCs is of paramount importance before historical records and post pregnancy on the part of the professionals involved, included information about the maternal background as pre-existing diseases, socioeconomic conditions, pregnancy information, use of medications, alcohol, drugs, among other because only in this way will become possible the systematization of these data and the possibility of raising the likely occurrence of MCs in certain patients.

Managers cannot ignore the need for improvement of public policies related to MCs; the search of intensification in scientific research in this area, the need for professionals trained to meet women of

childbearing age and mothers with children suffering from MCs, monitoring and evaluation of the data contained in the information system and expansion of references and reference to meeting the MCs.

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Submission: 2013/09/13

Accepted: 2013/10/20

Publishing: 2014/01/01

Corresponding Address

Lucimar de Lara Aires Silvestre dos Reis
Rua João de Albuquerque, 43
Bairro Cavahada
CEP: 78200000 – Cáceres (MT), Brazil