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PRENATAL CARE IN PRIMARY HEALTH CARE: MEDICAL KNOWLEDGE

PRÉ-NATAL NA ATENÇÃO BÁSICA: CONHECIMENTOS MÉDICOS

PRENATAL EN LA ATENCIÓN BÁSICA: CONOCIMIENTOS MÉDICOS

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RESUMO

Objetivo: avaliar o conhecimento sobre pré-natal na Atenção Básica (AB) entre médicos que atuam no Programa Mais Médicos para o Brasil (PMMB). **Método:** trata-se de um estudo quantitativo, transversal e analítico realizado com 101 médicos do PMMB em Alagoas. O estudo foi realizado em Maceió, em amostra por conveniência não probabilística, em 2017, no momento do encontro locorregional do PMMB. Aplicou-se um questionário composto por dez perguntas de múltipla escolha abordando o tema do pré-natal na AB.Os dados foram analisados no programa Epi Info por meio de medidas estatísticas de frequência e qui-quadrado. As questões foram divididas por temas: duas abordando Diabetes Mellitus Gestacional; duas sobre morbimortalidade materna; três a respeito de exames de imagem em obstetrícia e vitalidade fetal e três sobre exames complementares no pré-natal. **Resultados:** dos 101 médicos, 33,3% eram brasileiros e 66,7%, estrangeiros; 62,7% eram mulheres. Os profissionais brasileiros obtiveram uma média de acertos superior em relação aos estrangeiros, 61,67% contra 42,53%, sendo a média geral 49%. **Conclusão:** isso pode sugerir uma discrepância no direcionamento dos modelos educacionais, com um melhor enfoque no pré-natal por parte das faculdades brasileiras.

Descritores: Cuidado Pré-Natal; Educação Continuada; Atenção Primária à Saúde; Médicos.

ABSTRACT

Objective: to evaluate the knowledge about prenatal care in Primary Care (PC) among

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doctors who work in the MaisMédicos para oBrasil Program (PMMB). **Method:** it is a quantitative, cross-sectional and analytical study conducted with 101 PMMB doctors in Alagoas. The study was conducted in Maceió, in a non-probabilistic convenience sample, in 2017, at the time of the local-regional meeting of PMMB. A questionnaire was composed of ten multiple-choice questions addressing the topic of prenatal care in PC. The data was analyzed in the Epi Info program by statistical measures of frequency and chi-square. The issues were divided by themes: two addressing Gestational Diabetes Mellitus; two on maternal morbidity and mortality; three with respect to imaging tests in obstetrics and fetal vitality and three on complementary exams in prenatal care. **Results:** of the 101 physicians, 33.3% were Brazilian and 66.7% were foreign; 62.7% were women. Brazilian professionals obtained a higher average of hits compared to foreigners, 61.67% against 42.53%, with the overall average being 49%. **Conclusion:** this may suggest a discrepancy in the direction of educational models, with a better focus on prenatal care by Brazilian colleges.

Descriptors: Prenatal Care; Continuing Education; Primary Health Care; Doctors.

RESUMEN

Objetivo: evaluar el conocimiento sobre prenatal en la Atención Básica (AB) entre médicos que actúan en el Programa Mais Médicos para o Brasil (PMMB). **Método:** se trata de un estudio cuantitativo, transversal y analítico, realizado con 101 médicos del PMMB en Alagoas. El estudio fue realizado en Maceió, en muestra por conveniencia, no probabilística, en 2017, en el momento del encuentro locorregional del PMMB. Se aplicó un cuestionario compuesto por diez preguntas de múltiple elección, abordando el tema del prenatal en la AB. Los datos fueron analizados en el programa Epi Info a través de medidas estadísticas de frecuencia y chi-cuadrado. Las preguntas fueron divididas por temas: dos abordando Diabetes Mellitus Gestacional; dos sobre morbimortalidad materna; tres a respeto de exámenes de imagen en obstetricia y vitalidad fetal y tres sobre exámenes complementarios en el prenatal. **Resultados:** de los 101 médicos, 33,3% eran brasileños y 66,7% extranjeros; el 62,7% eran mujeres. Los profesionales brasileños obtuvieron una media de aciertos superior en relación a los extranjeros, 61,67% contra 42,53%, siendo la media general el 49%. **Conclusión:** esto puede sugerir una discrepancia en el direccionamiento de los modelos educativos, con un mejor enfoque en el prenatal por parte de las facultades brasileñas.

Descriptores: Cuidado Prenatal; Educación Continuada; Atención Primaria a la Salud; Médicos.

INTRODUCTION

The MaisMédicos para oBrasil Program (PMMB) has overcome the deficiency of medical staffing in needy and distant places of the great centers. The program was created through Law No. 12,871, of October 22, 2013, with the purpose of training human resources in the medical area for the Unified Health System (UHS), with the objectives of: reducing the shortage of doctors in the priority regions for UHS; improve medical education in the country; to expand the insertion of the doctor in training in the UHS care units; strengthen the policy of permanent education; promote the exchange of knowledge; improve

physicians for action in public health policies.[1]

In Alagoas, the program was also implemented in 2013, with the adhesion of the Federal University of Alagoas (UFAL) and the State Secretariat of Alagoas (SESAU), the latter as Coordinator of the process.[1]

The PMMB adopts the actions of reordering the offer of medical courses and vacancies for medical residency, prioritizing health regions with a lower ratio of vacancies and physicians per inhabitant and with health services structure in conditions to offer a sufficient field of practice and quality for students. The program also aims to establish new parameters for medical education in the country and seeks to promote health in the priority regions of UHS with the improvement of physicians in the area of basic health care, through the integration of teaching and service, including through international exchange.[1]

Primary Health Care (PC) is a set of individual and collective health actions that include health promotion and protection, prevention of diseases, diagnosis, treatment, rehabilitation and health conservation. The Family Health Strategy (FHS) seeks to reorganize Primary Care in Brazil following the precepts of the UHS and replacing principles of the traditional PC network in the places where the Family Health Teams. The goal of this program is to register domiciles and diagnose the health situation of the users and then carry out actions aimed at health problems.[2] Among the priority actions of the FHS is the follow-up of pregnancy, particularly in prenatal actions. The literature points to the protection that adequate prenatal care offers to maternal and neonatal health, including actions aimed at reducing risk and severity of morbidity and mortality for the mother-child binomial.[3]

Gestation is characterized by a special period in the life of the woman, which requires adequate prenatal accomplishment. This should be of quality and humanized including preventive actions and health promotion, as well as the diagnosis and appropriate treatment of diseases or problems that happen at that moment.[3]

In Brazil there is an increase in the number of prenatal consultations per woman who performs delivery in the UHS, from 1.2 consultations per child in 1995 to 5.1 consultations per child in 2003 (SIA-Datasus and AIH- Datasus, 2004). However, despite this expansion, data analysis also shows a deficit in the quality of this care, evidenced by morbidities still present in the period, such as congenital syphilis and arterial hypertension leading to maternal mortality.[4]

Although it is a physiological phenomenon that usually evolves without complications, gestation demands special care in prenatal care, which should welcome and accompany the woman. It has been observed, however, that the prenatal medical consultations in the UHS are being performed quickly, leading to inadequate diagnoses of possible abnormalities that go unnoticed, also making it impossible for women to adequately express their complaints and doubts about the pregnancy.[4]

The improvements observed in obstetric care in relation to gestational monitoring and control during gestation led to an active decrease in perinatal morbidity and mortality associated with diabetes in pregnancy. However, neonatal complications such as hyaline membrane, macrosomia, hypocalcemia, hyperbilirubinemia, polycythemia and hypomagnesemia in newborns, born of diabetic mothers still occur. Nevertheless, the congenital malformations surpass in almost three times those observed in the general population and contribute as the main cause of perinatal mortality.[2-6]

The basic principle used by Doppler flowmetry is the Doppler effect. Continuous Doppler is used in the obstetric propaedeutics for the auscultation of the heartbeat and for the evaluation of the blood flow in the peripheral vessels, being an important tool in the determination of the fetal well-being. Doppler spectral analysis provides qualitative data (velocity profile of determined flow) and quantitative data (systolic and diastolic frequencies). The improvement of the technology allowed to expand the scope of the investigation to early stages of the gestation and to extend it to the venous territory, including the study of the ductus venosus. Thus, the use of ultrasonography and the popularization of its indications provide essential continuous surveillance during pregnancy.[7]

It is worth noting that adequate follow-up of the pregnant woman results in benefits for the mother, fetus and baby, the detection and treatment of probable morbidities, low birth weight, prematurity, and encourages breastfeeding. The quality of the assistance to the pregnant woman must observe, among other factors, the number of consultations and the gestational age of prenatal beginning, incorporating the integral attention, emphasizing educational actions.[8]

For this it becomes important the accompaniment and qualification of the medical professionals for adequate assistance investing in their formation and permanent education.

METHOD

This is a quantitative, cross-sectional, analytical study performed with physicians who work in the MaisMédicos Program in Alagoas, in a sample for non-probabilistic convenience**.**

The study was carried out in Maceió, in 2017, at a locoregional meeting of the PMMB, with the application of a questionnaire composed of ten questions about prenatal care in primary care. The themes of the questions asked in the instrument were: gestational diabetes mellitus (GDM), maternal morbidity and mortality, imaging studies in obstetrics and request for complementary exams in prenatal care.

The instrument was applied by the supervisor of the physicians in groups, divided by municipalities, in a total of 26 supervisors, who performed the correction of the instruments.

Data was analyzed in the Epi Info program through statistical measures of frequency and chi-square. In order to present and analyze the results, in addition to the number of hits per question, the subjects' responses were summed according to the subjects surveyed.

RESULTS

101 physicians were studied, 33.3% of Brazilians and 66.7% of foreigners. Of the total, 62.7% of the study subjects were women. The total number of tests was 105, however, three tests had to be excluded because they did not have identification, making it impossible to classify as to gender and nationality. Another test was discarded because the participant did not respond to the test in a previously established time.

The value of correct answers and errors per question, without division by registered sex and nationality, is presented (Table 1). The issues are presented by themes, with 2 and 10 addressing Gestational Diabetes Mellitus, 1 and 9 maternal morbimortality, 3, 4 and 5 imaging tests in obstetrics and fetal vitality, and 6, 7 and 8 complementary prenatal examinations.

Table 1 - Distribution of questions and number of hits and errors for questions asked.

Question	Hits	%	Misses	%	Total
Q 1	98	97.03	3	2.97	101
Q 2	41	40.59	60	59.41	101
Q 3	78	77.23	23	22.77	101
Q 4	9	8.91	92	91.09	101
Q 5	68	67.33	33	32.67	101
Q 6	47	46.53	54	53.47	101
Q 7	28	27.72	73	72.28	101
Q 8	29	28.71	72	71.29	101
Q 9	65	64.36	36	35.64	101
Q 10	32	31.68	69	68.32	101

Note: The figure after represents its order in the questionnaire.

Discrimination by themes is presented in Table 2. We used acronyms for better visualization, that is, DMG for Gestational Diabetes Mellitus; M.M. for Maternal Morbidity and Mortality; I.E for Imaging Examinations in Obstetrics and Fetal Vitality; E.C for Prenatal Care.

Table 2 - Distribution of questions by theme and number of hits and errors by themes addressed.

Theme	Hits%	Misses%
GDM	36.14	63.86
M. M	80.69	19.31
I. E	51.15	48.85
P. C.	34.32	65.68

The performance divided by nationalities involved is found in Table 3, which describes the total of hits, the respective means of the group involved and the minimum and maximum scores performed by the doctors submitted to the survey. A higher average of hits was observed for Brazilians (61.76%), when compared to foreigners (42.53%). In addition, the maximum score was found among national members (9.00 vs 7.00), and the lowest score is in the group of foreign participants (0.00 versus 3.00).

Consequently, the analysis of the data found by statistical tests was performed, aiming to confirm the statistical value of the difference of correctness between Brazilians and foreigners. The Student's T test showed an equality of

variances among the samples studied, within the confidence interval (95% CI). The analysis of variance (ANOVA) found a value of p = 0.000, which presented the same result in the Kruskal-Wallis test. Bartlett's chi-square found a value of p = 0.19248, in which case the p value greater than 5% indicates an appropriate analysis of variance (ANOVA), which corroborates the result of a homogeneous variance. Thus, it was seen that there was a statistical significance for higher scores of Brazilians in relation to the participants of other nationalities.

Table 3 - Number of correct answers and errors in the questions by nationality.

Group	Participants	Hits*	Average (%)	Maximum	Minimum
Foreigners	67	285	42.53	7.00	0.00
Brazilians	34	210	61.76	9.00	3.00
Total	**101**	**495**	**49.00**	**9.00**	**0.00**

DISCUSSION

Medical education in Brazil has historically been a subject of wide debate. In this way, it is also subject to constant alterations and remodeling, at different levels. Among these, perhaps the most relevant of the last decade was the institution of the National Curricular Guidelines of the Medicine Undergraduate Course in 2014 by the National Education Council.[9]This document cites, in its article 3:"The medical graduate will have a general, humanistic, critical, reflexive and ethical education, capable of acting at different levels of health care..." [9] thus determining that the medical courses in Brazil have as main objective the formation of general practitioners as opposed to the precocious specialization.

This fact is reinforced in article 24 of the document, which establishes the norms about compulsory medical school internship: in paragraphs 3 and 4 it is determined that 30% of the hours of medical internship should be dedicated to Primary Care and Emergency Services and UHS Emergency, with that predominating over these[9]. It is clear, therefore, that the training of a general practitioner, fully qualified to exercise basic health care should be the priority of the country's medical graduations.

Ideally, the entry point of the pregnant woman into the health system for prenatal care is the Basic Health Unit (BHU). The multidisciplinary team should be able to provide such patients with continuous follow-up, even before the

pregnancy begins, with preconception counseling and early detection of gestation. Once the pregnancy is confirmed, it is necessary to institute the prenatal follow-up of the pregnant woman as soon as possible: Low-risk patients may have their prenatal care conducted entirely in basic care by the general practitioner, while high-risk patients should be recognized early and referred to the referral center where other consultations will be conducted.[10]Thus, it is clear that the role of the primary care physician is paramount for the functioning of all levels of the care network for pregnant women.

Knowing this, it is clear that the general practitioner must at least master the knowledge of obstetrics necessary for the conduct of low-risk pregnancies and the identification of high-risk cases. It is necessary, therefore, that the medical courses of the country promote the adequate learning of these competences and that these criteria be transferred to the foreign professionals who work in basic care in Brazil.

Considering that prenatal care is inherent in basic care, and that it can be performed by physicians with no training beyond graduation, the analysis of the generalists' knowledge about the subject is an important factor in the evaluation of medical education in Brazil and the process permission of the activity of foreign professionals. An individual analysis of the questions applied in this study allowed the identification of the subjects with the lowest percentage of correctness, which may represent an unsatisfactory approach by undergraduate courses, as well as to guide continuing education programs for primary care professionals.

A systematic study was carried out in the LILACS and SciELO databases, in addition to CAPES journals, in order to compare the present study and its results with previous research. It was contacted that there are no previous works involving the research of adequacy of prenatal knowledge in primary care by physicians participating in the MaisMédicos para oBrasil Program. Thus, it was relevant to discuss the topics covered in a research instrument and how the performance of the target group was presented.

Gestational diabetes mellitus (GDM) is by definition carbohydrate intolerance, which began in the current gestation and does not meet the criteria of candid diabetes mellitus.[11]It is one of the most common pathologies of gestation, being the main metabolic alteration in this period, with a prevalence

between 3 and 25%, depending on the diagnostic criteria, ethnicity and population observed.[11,12]

Its screening, discussed in questions 2 and 10, is of fundamental importance for the prevention of maternal and fetal adverse events, since GDM is associated with increased perinatal morbidity and mortality.[12] The main fetal complication is macrosomia, which is associated with childhood obesity and increased risk of metabolic syndrome in adult life[13.]In addition, and many others, fetal macrosomia leads to an increase in the number of deliveries by cesarean section, and its consequences, such as longer hospitalization, risk of hemorrhage and puerperal infections.[12,13]

Despite the well-known importance of screening for GDM, there is no consensus on how this should be done.[11-3]However, most of the references mention that the one in which screening should occur between 24 and 28 weeks, [11-4] which was argued in the 10th item, period in which the disease manifests itself and there is time for the institution of therapeutic measures to present results.[13]Among some references, and what is adopted in our country, it is considered a positive tracing when there is a fasting glycemia equal to or greater than 85 mg / dL associated with a risk factor, or Oral Glucose Tolerance Test (OGT) simplified in 1 hour with a value greater than or equal to 140 mg / dl.[13,14]Despite the relevance of the theme in the middle of basic care, one of the smallest percentage of correctness was observed in this subject, where only 36.14% of the individuals were successful.

Maternal mortality is considered a public health problem, especially in undeveloped countries that account for 99% of maternal deaths. In our country, hypertension leads as a cause, a fact that is repeated in the northeast region, followed by hemorrhages and infections.[15]Here we observed the best performance of the defendant physicians, where there were 80.69% of the answers on the subject.

The pregnancy-specific hypertensive disease (DHEG), discussed in question 9, is one of the most frequent complications of pregnancy, with variable presentations, ranging from mild cases of gestational hypertension, to preeclampsia and to severe forms such as eclampsia and HELLP syndrome.[16]DHEG is an exclusive entity of the second half of gestation, with a rare occurrence before 20 weeks of gestation.[17]

Puerperal hemorrhage is among the leading causes of death in the world, accounting for approximately 25% of all maternal deaths. Both vaginal delivery, with an incidence between 4 and 8%, can occur as well as cesarean delivery, occurring in about 6% of cases. Bleeding may lead to several complications related to the worst outcome, such as hypovolemic shock, coagulopathies, renal failure, Sheehan's syndrome, and adult respiratory distress syndrome.[16]

Maternal infections are the third cause of mortality during the gestation-puerperium period. Infectious pictures can be divided into non-obstetric and obstetric. Among non-obstetrics, those described as sepsis-related main ones are: urinary tract infection, community acquired pneumonia, appendicitis, cholecystitis, HIV, and malaria. In the obstetric site group are endometritis, chorioamnionitis, episiotomy infection, post-cesarean wall or uterine infection, infected abortion, as well as less frequent ones.[16,18]Question 1, which deals with this subject, is where we find the highest percentage of correct answers, 97.03%, which may highlight the competence of both members, both foreign and Brazilian, about the approach.

The imaging tests in obstetrics are tools used to evaluate gestational age, fetal morphology, placenta and its attachments, amniotic fluid and fetal vitality. There was an average result of success in answering the questions that involve the use of this propaedeutic, with a result 51.15% of those involved answering correctly what was requested.

Ultrasound examination shows great efficacy for gestational age dating, and presents the most accurate results when done in the first trimester. The evaluation of fetal morphology in the first trimester is used to track fetal malformations, such as chromosomal disorders, heart disease, and genetic syndromes. In the second trimester, the morphological examination should be performed between 20 and 24 weeks. As early as the third trimester, other structures can be analyzed, such as the placenta and amniotic fluid.[16,19]In a systematic review, it was concluded that the use of routine ultrasonography in prenatal care has benefits, however, the issue remains controversial if there is a reduction in maternal or neonatal mortality in habitual gestation with its use.[16]

Fetal vitality is measured in one of its earliest forms by monitoring the perception of fetal movements,[20] in addition to the use of obstetric sonar in routine prenatal visits. The methods of armed propaedeutics, which are Doppler velocimetry, cardiotocography and fetal biophysical study, are not indicated for

low risk prenatal care and are reserved for conditions in which there is a possibility of fetal oxygenation.[16,21]Doppler velocimetry is the main method, which examines blood flow velocities in maternal and fetal circulation vessels.[21]Despite the reasonable accuracy rate as a whole in the knowledge about imaging tests and fetal vitality, the fourth question, which deals with vitality, is where the worst performance by the participants is found, with a score of only 8.91 %.

Finally, performance was evaluated in items that mainly involved the use of prenatal laboratory tests, and we were faced with the worst overall result of a theme as a whole, where there was only 34.32% success in argued questions. Such examinations are of fundamental importance, being used in the screening and prevention of diseases that bring losses to pregnant women and the fetus. In the basic care of the UHS network, the Ministry of Health compiles the complementary tests that must be requested in the usual risk prenatal, dividing them by the trimester in which the gestation is found.

Hemoglobin, blood typing and RH factor, indirect Coombs (if Rh negative), fasting blood glucose, syphilis serologies, toxoplasmosis, HIV and hepatitis B, and urine summary plus uroculture are requested in the first consultation. Oncotic colpocitology, parasitological examination of feces and examination of vaginal secretion should be performed if there is clinical indication.[22]

During the second trimester, the Ministry of Health indicates completion of TOTG if there is a risk factor for DMG or fasting glycemia above 85mg / dl, preferably between 24 and 28 weeks. If maternal Rh is negative, the indirect Coombs test should be performed.[22]

The third trimester is the period in which you should request: blood count, fasting blood glucose, indirect Coombs (if Rh negative), VDRL, Anti-HIV, serology for Hepatitis B and urine summary plus uroculture. Toxoplasmosis serology should be repeated if IgG is not reagent. From the 37th week of gestation it is necessary to collect material for bacterioscopy of vaginal secretion.[22]

The evaluation of the performance in the nationality test showed that professionals trained in Brazil had an average hit rate 19 percentage points higher than the foreign doctors evaluated. This may suggest a discrepancy in the direction of educational models, with a better focus on prenatal care by Brazilian colleges, especially after curricular reform in Brazil.[9]However, it is important to emphasize that, although statistically based, this conclusion is subject to several

variables of an individual and collective character that were not necessarily recognized in this study, so that it would require confirmation by other similar works.

CONCLUSION

The results found allow us to conclude that in this sample, physicians trained in Brazil presented better performance in the test, when evaluating the correct answers index, the questions about GDM and about complementary tests requested in prenatal care were lower than those observed in other subjects, which may suggest specific deficiencies in these subjects, given valuable for assessment of content learning and need for continuing education planning for primary care physicians.

Finally, even with better performance doctors did not reach an ideal level, especially considering the importance of the service in question to the public health of the country. This evidences the need to better evaluate the Brazilian medical education, restructuring the necessary aspects to better prepare the graduates for the exercise of the profession in Primary Care.

REFERENCES

1. Lei nº 12.871, de 22 de outubro de 2013. Institui o Programa Mais Médicos, altera as Leis no 8.745, de 9 de dezembro de 1993, e no 6.932, de 7 de julho de 1981, e dá outras providências. Diário Oficial da União [Internet]. 2013 [cited 2018 Oct 22].Availablefrom: http://maismedicos.gov.br/legislacao. Acesso em: 10 maio 2017.

2. Ministério da Saúde (BR), Secretaria de Atenção à Saúde, Departamento de Atenção Básica. Política nacional de atenção básica [Internet]. Brasília: Ministério da Saúde;2006 [cited 2018 Aug 10].Availablefrom: http://189.28.128.100/dab/docs/publicacoes/geral/pnab.pdf

3. Líbera BD, Saunders C, Santos MMAS, Rimes KA, Brito FRSS, Baião MR. Evaluationofprenatalassistance in the point ofviewofpuerperasandhetalthcareprofessionals. Ciênc Saúde Colet. 2011; 16(12):4855-64. Doi:http://dx.doi.org/10.1590/S1413-81232011001300034

4. Ministério da Saúde (BR), Secretaria de Atenção à Saúde, Departamento de Ações Programáticas Estratégicas, Área Técnica de Saúde da Mulher. Pré-natal e Puerpério: atenção qualificada e humanizada - manual técnico [Internet]. Brasília: Ministério da Saúde;2005 [cited 2018 Aug 6].Availablefrom: http://bvsms.saude.gov.br/bvs/publicacoes/manual_pre_natal_puerperio_3ed.pdf

5. Landerdahl MC, Ressel LB, Martins FB, Cabral FB, Gonçalves MO. Women'sPerceptionAboutPre-ConceptionAttention in a Basic Health Unit. Esc Anna

NeryRevEnferm [Internet]. 2007 Mar [cited 2018 Aug 5]; 11(1):105-11.Availablefrom: https://www.redalyc.org/articulo.oa?id=127715305015

6. Mauad Filho F, Dias CC, Meirelles RS, Cunha SP, Nogueira A, Duarte G. Diabetes e gravidez: aspectos clínicos e perinatais. Revbrasginecol obstet. 1998 May; 20(4):193-8. Doi:http://dx.doi.org/10.1590/S0100-72031998000400003

7. Murta CGV, Batistuta PN, Cunha Filho JS. Doppler velocimetry in thestudyofthe fetal circulation: review onsafety. Radiol bras. 2002 Nov/Dec; 35(6):365-70.Doi: http://dx.doi.org/10.1590/S0100-39842002000600010

8. Silva EP, Lima RT, Osório MM. Impactofeducationalstrategies in low-riskprenatalcare: systematic review ofrandomizedclinicaltrials. Ciênc saúde coletiva. 2016 Sept; 21(9):2935-48. Doi:http://dx.doi.org/10.1590/1413-81232015219.01602015

9. Ministério da Educação (BR), Conselho Nacional de Educação. Resolução nº 3, de 20 de junho de 2014. Institui Diretrizes Curriculares Nacionais do Curso de Graduação em Medicina e dá outras providências [Internet].Brasília: Ministério da Educação;2014 [cited 2018 Aug 9]. Availablefrom:https://abmes.org.br/legislacoes/detalhe/1609

10. Ministério da Saúde (BR), Secretaria de Atenção à Saúde, Departamento de Atenção Básica. Atenção ao pré-natal de baixo risco [Internet]. Brasília: Ministério da Saúde;2012 [cited 2018 Sept09]. Availablefrom:http://bvsms.saude.gov.br/bvs/publicacoes/cadernos_atencao_basica_32_prenatal.pdf

11. MilechA. organizadores. Diretrizes da Sociedade Brasileira de Diabetes(2015-2016). São Paulo: A.C. Farmacêutica; 2016.

12. Mattar R, Zamarian ACP, Caetano ACR, Torloni MR, Negrato CA. Whatshouldbethescreeninganddiagnosticstrategies for gestational diabetes? Femina [Internet]. 2011 Jan [cited 2018 Aug 6]; 39(1):30-4.Availablefrom: http://files.bvs.br/upload/S/0100-7254/2011/v39n1/a2385.pdf

13. Bolognani CV, Souza SS, Calderon IMP. Gestational diabetes mellitus - focuson new diagnosticcriteria. Com Ciênc Saúde [Internet]. 2011 [cited 2018 Apr 9]; 22(1):31-42.Availablefrom: http://bvsms.saude.gov.br/bvs/artigos/diabetes_mellitus_gestacional.pdf

14. Jacob TA, Soares LR, Santos MR, Santos LR, Santos ER, Torres GC, et al. Gestational Diabetes Mellitus: A Literature Review. Braz J SurgClin Res [Internet]. 2014 Mar/May [cited 2018 Apr 9]; 6(2):33-7.Availablefrom: https://www.mastereditora.com.br/periodico/20140331_212133.pdf.

15. Morse ML, Fonseca SC, Barbosa MD, Calil MB, Eyer FPC. Maternal mortality in Brazil: whathasthescientificliteratureshown in thelast 30 years?Cad Saúde Pública. 2011 Apr; 27(4):623-38.Doi: http://dx.doi.org/10.1590/S0102-311X2011000400002.

16. Zugaib, M. organizador. Obstetrícia. São Paulo: Manole;2011.

17. Novo JLVG, Gianini RJ. Eclampsia as a cause of maternal mortality. RevBrasSaúde Materno-Infantil. 2010 Apr/June; 10(2):209-17.Doi:http://dx.doi.org/10.1590/S1519-38292010000200008.

18. Castro EO, Bortolotto MRFL, Zugaib M. Sepsisandsepticshockduringpregnancy: clinical management. RevBrasGinecol Obstet. 2008 Dec; 30(12):631-8. Doi:http://dx.doi.org/10.1590/S0100-72032008001200008

19. Meleti D, Caetano ACR, Nardozza LMM, Araujo Junior E, Moron AF. Does routineultrasound in lowriskpregnancycollaboratewiththereductionof maternal and neonatal mortality? Femina [Internet]. 2010 Aug [cited 2010 Sept19]; 38(8):436-9. Availablefrom:http://files.bvs.br/upload/S/0100-7254/2010/v38n8/a1613.pdf

20. Nomura RMY, Ferreira MVC, Latif IOA, Francisco RPV, Zugaib M. Agreementbetween maternal perceptionof fetal movementsandvisualizationbyultrasound. RevBrasGinecolObstet. 2013 Feb; 35(2):55-9. Doi: http://dx.doi.org/10.1590/S0100-72032013000200003.

21. Nomura RMY, Miyadahira S, Zugaib M. Antenatal fetal surveillance. Revista Brasileira de Ginecologia-Obstetrícia. 2009 Oct; 31(10):513-26. Doi:http://dx.doi.org/10.1590/S0100-72032009001000008.

22. Ministério da Saúde (BR), Secretaria de Atenção à Saúde, Departamento de Atenção Básica. Atenção ao pré-natal de baixo risco [Internet]. Brasília: Ministério da Saúde;2012 [cited 2018 Apr 5]. Availablefrom: http://bvsms.saude.gov.br/bvs/publicacoes/cadernos_atencao_basica_32_prenatal.pdf.