The use of technology in the classification of obstetric risk: An integrative literature review

Michele de Pinho Barreiros[1], Hanna Ariane Monteiro Carrera[2], Elisângela da Silva Ferreira[3], Maria Elizabete de Castro Rassy[4], Regina Racquel dos Santos Jacinto[5] Carla Monique Lavareda Costa[6], Luiza Karla Alves de Paula[7], Karla Vanessa Silva dos Santos[8], Cristiane Patrícia Siqueira Monteiro[9], Fabiane Lima da Silva[10], Anne Caroline Gonçalves Lima[11], João Victor Elyakim Pantoja Magno[12], Jhennifer Pereira Rodrigues[12], Andressa Torres Oliveira[13], Elane Magalhães Oliveira[14], Júlio Éliton Lima Guimarães[15], Janaína Cunha Romeiro[16], Josiane Macedo de Oliveira Rupf[17], Creusa Barbosa dos Santos Trindade[18], Adams Brunno Silva[19], Luciana Gonçalves de Oliveira[20], Anna Thalita de Souza Cardoso[21], Caroline Saraiva Farias[22], Ana Caroline Guedes Souza Martins[23], Heliana Helena de Moura Nunes[24]

[1] Nurse. Specialist in Obstetric Nursing from the Federal University of Minas Gerais - UFMG/Federal University of Pará - UFPA; Master's student at the Postgraduate Program in Management and Health in the Amazon at Fundação Santa Casa de Misericórdia do Pará - FSCMPA; CO/PPP coordinator of the Santa Casa de Misericórdia do Pará Foundation - FSCMPA., Belém, Pará, Brazil. Correspondent author: E-mail: michelebarreiros@outlook.com

[2] Nurse. Resident in Obstetric Nursing at the Federal University of Pará - UFPA., Belém, Pará, Brazil.

[3] Nurse. Resident in Oncology Nursing at Hospital Ophyr Loyola; Specialist in Obstetric Nursing at Faculdade Metropolitana da Amazônia - FAMAZ; Master in Biology of Infectious and Parasitic Agents from the Federal University of Pará; PhD in Engineering of Natural Resources of the Amazon from the Federal University of Pará.- UFPA Belém, Pará, Brazil.

[4] Nurse. Specialist in Epidemiology from the Federal University of Pará - UFPA; Specialist in Health Education for SUS preceptors at Hospital Sírio Libanês; Master in Tropical Diseases from the Federal University of Pará - UFPA; PhD in Nursing from the Federal University of Rio de Janeiro - UFRJ, Belém, Pará, Brazil.

[5] Nurse. Specialist in Obstetrics and Neonatology from INESUL Instituto Superior de Londrina and Maternal and Child and Family Health from the Federal University of Maranhão. Belém, Pará, Brazil.

[6] Nurse. Fundação Santa Casa de Misericórdia do Pará - FSCMPA; Specialist in Indigenous Health from the Venda Nova do Imigrante College – FAVENI; Specialist in Integrated Clinic at the Federal University of Pará – UFPA; Specialist in Obstetric and Gynecological Nursing at Escola Superior da Amazônia – ESAMAZ; Master in Nursing from the State University of Pará – UFPA. Belém, Pará, Brazil.

[7] Nurse. Fundação Santa Casa de Misericórdia do Pará, Post-graduation. Belém, Pará, Brazil.

[8] Nurse. Fundação Santa Casa de Misericórdia do Pará, Specialist in Obstetric Nursing from the University Center of the State of Pará – CESUPA; Belém, Pará, Brazil.

[9] Nurse. Fundação Santa Casa de Misericórdia do Pará, Nurse graduated from the Federal University of Pará – UFPA; Specialist in Obstetric Nursing from the Federal University of Pará – UFPA. Belém, Pará, Brazil.

[10] Nurse. Fundação Santa Casa de Misericórdia do Pará, Specialist in Obstetric Nursing from the Federal University of Pará – UFPA; Belém, Pará, Brazil.

[11] Nurse. Hospital de Clínicas Gaspar Vianna - FHCGV, Master in Public Health at UFRJ. Specialist in Obstetric Nursing ESAMAZ, Nursing specialists in Surgical Center, CME and RPA CGESP Goiânia, Specialist in health education for SUS preceptors (Hospital Sirio Libanes / MS), Preceptor of the multiprofessional residency program in cardiovascular health FHCGV. Belém, Pará, Brazil.

[12] Nurse. State University of Pará -UEPA, Belém, Pará, Brazil.

[13] Nurse. Federal University of Piauí, Postgraduate in Pediatric and Neonatal ICU, Belém, Pará, Brazil.

[14] Nurse. Hospital Universitário João de Barros Barreto, Postgraduate in Infectious Diseases Nursing from the Integrated Faculty of Brasília, Pediatric and Neonatal ICU Nursing from the IBRA Faculty and ICU Nursing - Intensive Care Unit from the FAECH. Belém, Pará, Brazil.

[15] Nurse. Federal University of Pará - UFPA, Belém, Pará, Brazil.

[16] Doctor at UFPA. Residency in Family and Community Medicine at UEPA. Professor of the Community Health Interaction Module at CESUPA. Master's Student of the Professional Master's Program Teaching in Health - Medical Education - CESUPA. Belém, Pará, Brazil.

[17] Nurse. Specialist in Epidemiology and Hospital Infection Control; Specialist in Quality and Patient Safety and Specialist in Intensive Care Nursing; Master's student in Tropical Diseases. Belém, Pará, Brazil.

[18] Pedagogue graduated from the Federal University of Pará - UFPA; School Supervisor graduated from the Federal University of Pará - UFPA; Master in Management and Regional Development from the University of Taubaté – UNITAU; PhD in Science and Mathematics Education from the Federal University of Pará – UFPA;

[19] Nurse in surgical Clinic. Master in Nursing at UEPA, Belém, Pará, Brazil.

[20] Doctor. Belém, Pará, Brazil.

[21] Obstetrician Nurse Specialist in Women's and Children's Health, Fundação Santa Casa de Misericórdia do Pará – FSCMPA. Belém, Pará, Brazil.

[22] Nurse, Fundação Santa Casa de Misericórdia do Pará – FSCMPA. Belém, Pará, Brazil.

[23] Nurse. Doctoral Student in Clinical Research in Infectious Diseases at National Institute of Infectious Diseases-INI-FIOCRUZ-RJ. Professor at UEPA, Belém, Pará, Brazil.

[24] Nurse. Specialist in Higher Education Methodology for Health from the State University of Pará – UEPA; Specialist in Obstetric Nursing from the State University of Pará – UEPA; Master in Nursing from the Anna Nery School of Nursing Federal University of Rio de Janeiro – UFRJ; PhD in Nursing from the Anna Nery School of Nursing at the Federal University of Rio de Janeiro – UFRJ., Belém, Pará, Brazil.

Abstract — Objective: To analyze from scientific productions how technology with the insertion of Modified Obstetric Alert Scores (MEOWS) can support the health professional responsible for carrying out the reception and risk classification in obstetrics in maternity hospitals. Method: This is an integrative literature review that selected 20 articles in the MEDLINE, LILACS, SciELO and PUBMED databases, which were analyzed and the inclusion criteria applied: articles available in full, published in Portuguese, English and Spanish, that answered the research question. Results: The selected articles were grouped into thematic categories, 1) Nurse's role in welcoming with Obstetric Risk Classification; 2) Insertion of the Modified Obstetric Warning Scoring System (MEOWS) in the Obstetric Urgency and Emergency Unit; 3) Technology and its contribution to Nursing Care. Final considerations: The technology offers a better guarantee for patient safety, as it allows intervention and quick access to the obstetric care needed in the face of the evidenced risk.

I. INTRODUCTION

In Brazil, public health has undergone several changes which challenge the health professional in the formulation of new strategies for the prevention and complications of diseases. Faced with this reality, professionals who work directly in care need to always be updated about the dynamic care process, especially the nursing team. [1]

In 2011, the Ministry of Health released the Rede Cegonha Program with the objective of promoting to women and children the improvement of assistance and quality in health, emphasizing actions to reduce maternal and infant mortality, similar to the National Policy for the Humanization of Attention and Management of the

Unified Health System. In addition, in 2014, the use of the Welcoming and Risk Classification in Obstetrics Manual (A&CRO), updated in 2017, was established in all obstetric urgency and emergency services in the country. [2]

This manual was created to provide guidelines and standardized procedures, preventing unfavorable outcomes, enabling access for pregnant women, offering adequate assistance in resolving complications in a timely manner for each case. [2]

The high rates of maternal and neonatal mortality, added to the high rates of cesarean surgeries in recent years, highlight the need to deepen discussions that support

bolder changes in the obstetric and neonatal care model prevailing in the country. [3]

In 1997, in the United Kingdom, the first early warning system was developed based on abnormal physiological parameters, with the aim of early identification of patients at risk of complications. According to some research, changes in physiological parameters were found up to eight hours before unfavorable events happened. [4]

In addition, it became evident that in pregnant women it would be unfeasible to use this method, since the woman undergoes several changes in her body during her gestational period, it was then that in 2007, the United Kingdom validated and recommended the use of an early warning score adapted for the obstetric population (Modified Early Obstetric Warning System-MEOWS). [4]

In this way, several preventive actions are designed every day, in order to improve reception with the obstetric risk classification, one of them is the implementation of the early deterioration alert score (Modified Early Warning System - MEOWS), still in obstetric screening.

In view of this, the world, in recent decades, has been going through a process of transformation and innovation in the technological area of health. In this context, the incorporation of new technologies has contributed a lot to the improvement of the population, as well-planned technology has helped to prevent errors and damages caused to the patient, with this, there is an improvement in the quality of health care provided to society. [5]

Several studies report the benefits of using mobile technologies in health interventions, since they help in clinical decision-making, patient education and qualification of health professionals. The vast majority of these technologies are considered health promotion, well-being and disease prevention strategies. [5]

The insertion of the early warning score has been adopted by several institutions which have shown significant results, with this, this score of early deterioration during reception and risk classification in obstetrics still in the urgency and emergency unit, constitutes a strategy that enables a faster response to maternal complications.

Thus, with the objective of analyzing from the scientific productions, how technology with the insertion of Modified Obstetric Alert Scores (MEOWS) can serve as support to the health professional responsible for carrying out the reception and risk classification in obstetrics in maternity hospitals.

II.   METHOD

The present study is an integrative literature review, defined from the elaboration of the following research question: "How can technology, from the insertion of the Modified Obstetric Alert Score (MEOWS), contribute to the improvement of of reception with obstetric risk classification?".

For the selection of articles, the platforms MEDLINE (Medical Literature Analysis and Retrieval Sistem on-line), PUBMED of the U.S National Library of Medicine National Institutes of Health, LILACS (Literatura Latinoamericana e do Caribe em Ciências Health) and SCIELO (Scientific Electronic Library Online).

The search took place between October and December 2020. The inclusion criteria for the articles present in the review were the free availability of abstracts, publication in the last five years (March/2015-December/2020) in Portuguese, English or Spanish and those related to the research topic, that is, from the descriptors "Technology", "Prevention", "Morbimortality" and "Maternal Mortality".

The present review included the choice of 19 articles, which were subjected to analysis through an instrument containing information regarding the identification of the publication, authors, type of publication, objective, methodological detail, results and recommendations/conclusions.

After the analysis, a table was created in order to promote a broader view of the studies, in addition to synthesizing them, considering aspects such as authors, year and main findings, presented in a descriptive way in the results.

III.   RESULTS

Nineteen articles were selected from the MEDLINE, LILACS, SciELO and PUBMED databases, from which the inclusion and exclusion criteria of fully available articles published in Portuguese, English and Spanish were analyzed and applied, which met the selection criteria, to compose the sample in this integrative review, as explained in table 1, below:

Table 1. Synthesis of the main findings on the use of technology with the insertion of MEOWS in the obstetric risk classification, Brazil, 2021.

N	Authors (Year)	Main findings
1	Serafim RC, Temer MJ, Parada CMGL, Peres HHC, Serafim CTR, Jensen R. (2020)	The evaluation of the Reception System and Risk Classification in Obstetrics was considered excellent technical quality by nurses and health professionals.
2	Tuyishime E, Ingabire H, Mvukiyehe JP, Marcel Durieux & Theogene Twagirumugabe. (2020)	The use of the MEOWS tool is a viable tool, being considered for expansion of other DHs.
3	Edwards W, Dore S, van Schalkwyk J, Armson BA. (2020)	The standardized approach facilitates assessment based on scientific evidence, and allows for the reduction of preventable maternal morbidity and mortality from sepsis, as well as all duplicate causes.
4	Costa RLM, Santos AAP dos, Sanches MET de L. (2019)	It showed that the profile of the studied clientele provides subsidies for the care practice of health professionals during prenatal care.
5	Schuler L, Katz L, Melo BCP, Coutinho IC. (2019)	The use of MEOWS showed that a significant number of patients have trigger events, which were not recognized by the nursing team in 99.2% of cases.
6	Blumenthal EA, Hooshvar N, McQuade M, McNulty J. (2019) [18]	The performance of early warning systems in an American population, influence cases of maternal morbidity by SHEG.
7	Rashidi Fakari F, Simbar M, Zadeh Modares S, Alavi Majd H. (2019) [19]	The study demonstrated the need for a standardized and widely approved system with high validity and reliability, with standard definitions for obstetric triage to determine the correct priority and waiting times for obstetric care services.
8	Silva RM, Brasil CCP, Bezerra IC, Queiroz FFSN. (2019)	It was evidenced as a technology, it is a facilitator and an adjunct in the empowerment of pregnant women interested in obtaining knowledge about pregnancy.
9	Camargo Neto O, Andrade GKS; Karpiuck, LB, Ganassin, AR. (2018)	It was found that the performance of health professionals, with notoriety to nurses, who, regardless of the protocol they use, are supported, in a legal and scientific way, to carry out decision-making about the reception with risk classification of those who seek care in the health services.
10	Carvalho SS, Oliveira BR, Nascimento CSO, Gois CTS, Pinto IO. (2018) [20]	The study recognized the need for differentiated assistance to pregnant women and that the implementation of the sector establishes improvements that guarantee a relationship of trust between users and professionals, as well as effectiveness in attending to urgencies and pregnancy emergencies.
11	Galvão J, Silva JC. (2017)	MEOWS is the most appropriate tool for maternal conditions, not validated, and which requires adaptation to physiological changes related to different morbidities.
12	Figueiroa MN, Menezes MLNM, Monteiro EMLM, Aquino JM, Mendes NOG,Silva PVT. (2017)	It was concluded that the service under analysis needs agreements and evaluations to promote strategies for coping with difficulties.
13	Ryan HM, et al. (2017)	Changing MEOWS trigger parameters can improve your prediction on ICU admission.
14	Pereira IM, Bonfim D, Peres HHC, Góes RF, Gaidzinski RR. (2017)	The application enabled a more dynamic data collection; maintained the integrity of the information; assisted data transmission and storage; facilitated the organization and processing of information and provided

		greater security of results.
15	Silva AKC, Matos CGS, Freitas KSPF, Costa EA, Sousa MC. (2017)	It is concluded that the contact of the pregnant woman with the nurse is of paramount importance, they feel more relaxed in addition to placing full confidence in the work developed by the nursing team.
16	Brilhante AF, Vasconcelos CTM, Bezerra RA, Lima SKM, Castro RCMB, Fernandes AFC. (2016)	The clientele that seeks gynecological and obstetric care needs to be better informed in primary care about the signs and symptoms that characterize emergency and urgency, since the high demand for the service unnecessarily and the lack of training of professionals led to a waiting time above the recommended by the Ministry of Health of Brazil.
17	Singh A, Guleria K, Vaid NB, Jain S. (2016)	Monitoring MEOWS rigorously and documenting all vital parameters should be a fundamental part of any patient's assessment to detect acute illness at a very early stage and make a difference in outcome.
18	Sandy EA, Kaminski R, Simhan H, Beigi R. (2016) [21]	Contemporary obstetric triage is important to both providers and healthcare leadership.
19	Lee SH, Nurmatov UB, Nwaru BI, Mukherjee M, Grant L, Pagliari C. (2016)	Improvements in intermediate outcomes have been reported in many studies and there is modest evidence that interventions delivered through technology can improve health care.

Source: Research Protocol, 2019.

The articles selected in the table above were carefully evaluated and grouped into categories Technology and its contribution to Nursing Care. themes. The categories were: Nurse's role in reception with Obstetric Risk Classification; Insertion of the Modified Obstetric Warning Scoring System (MEOWS) in the Obstetric Urgency and Emergency Unit.

IV.   DISCUSSION

Nurse's role in welcoming with obstetric risk classification

Many authors emphasize in their research on urgency and emergency services in Brazil, characterized by a scenario with the existence of immense queues, with disputes for care without risk criteria, taking into account only the order of arrival. Thus, it is noted that overcrowding in hospitals favors dehumanized care, generating dissatisfaction among users. [6]

Costa, Santos and Sanches (2019) discuss in their research that in order to improve the organization of the work process, the Ministry of Health, through the National Humanization Policy, suggests the implementation of the Reception and Risk Classification (A&CR), having as the main strategy, the regulation of care, with the nurse as the main agent. [7]

Other authors discuss the triage models in force today, which have the duty to organize the demands of patients, who seek care in the units, carrying out the identification of immediate assistance needs, as well as recognizing those who can wait. a safe service. [8]

Demand for emergency services has increased in recent decades, with the need to develop other care organization strategies. Risk classification, still in reception, has been an essential practice in human care, as

it aims at quality based on a policy of prioritization of patient needs. [7]

With this, the implementation of the "Reception with Risk Classification" service, in maternity hospitals, constitutes a marker that allows the guarantee of access and the realization of the principle of equity, as it allows the identification of priorities in care. In this way, when the pregnant woman or the postpartum woman seeks the urgency/emergency service, she starts to be attended according to the complexity of her case. [9]

Still in this context, Brilhante, Vasconcelos, Bezerra, Lima, Castro, Fernandes emphasize that the reception in obstetric emergency must have peculiarities according to the needs related to the pregnancy-puerperal process. Because the anxiety that permeates pregnancy, childbirth and birth lead to insecurity and concern for women and their families. For this researcher, this is mainly due to the lack of information during prenatal care, which makes the search for emergency services in maternity hospitals frequent. Because of this, welcoming the woman and companion has the function of favoring the role of pregnant women, especially in labor and delivery. [9]

Therefore, Camargo Neto, Andrade, Karpiuck and Ganasin (2018) understand that the role of welcoming and screening this patient belongs to the nurse, since he/she meets all the necessary conditions for the application of

evaluation scales, which leads him/her to critical judgment, ordering the order and form of care. [10]

Insertion of the modified obstetric warning scoring system (MEOWS) in the obstetric urgency and emergency unit

The study carried out by Schuler, Katz, Melo and Coutinho (2019) brings data from Brazil on the maternal mortality rate, based on the proportion of maternal deaths for every 100,000 live births, in the country this rate is still very high. high, being 64.5 per 100,000 live births. In addition, it was shown that about 40 to 50% of maternal deaths could be avoided. Delay in recognition, diagnosis, and treatment precede most deaths from bleeding, preeclampsia/eclampsia, and infection. [4]

As a result, some physiological changes in vital signs that can occur during pregnancy in young/healthy patients end up hindering the early recognition of clinical decompensation, since these patients have a good response to pathological mechanisms. [11]

Edwards, Dore, Van Schalkwyk and Armson (2020) observed in their study that there was a period for the occurrence of physiological deterioration in patients with severe morbidity, and although this event happens slowly and progressively, it ends up going unnoticed. and/or is treated inappropriately. According to some authors, signs of abnormality can usually be detected up to eight hours before unfavorable events, such as admission to the Intensive Care Unit (ICU) and cardiorespiratory arrest. [12-13]

Galvão and Silva (2017) found in their study that the MEOWS is a modified alert score adapted to the obstetric population, as it correlates physiological parameters with maternal morbidity. In addition to being an easy-to-understand score, it uses the following signs: HR, RR, T, BP, AVDI consciousness level and urinary output with a score ranging from -3 to +3. Therefore, when performing the patient assessment, he follows a reassessment pattern according to the presented score score or following specific standardized measures. [11]

Tuyishime, et al. (2020) state that this system is not a system that will define the treatment of pregnant women, but it is a tool that will assist in the early recognition of deteriorating women. Therefore, Shuler et al. (2019) found that in a sample of 83% of patients who were classified as high obstetric risk, 49% of them had abnormalities in physiological parameters, demonstrated by changes in MEOWS scores.[14]

Thus, the authors state that MEOWS is a tool created to offset the need for a specific early warning system for the obstetric population, in order to identify patients at risk of severe obstetric complications and promote early intervention. [13;15]

Mobile technology and its contribution to nursing care

Technology in the field of health has evolved and the increase in the use of smartphones has brought opportunities to improve health conditions, as many people use this resource to obtain access to information, in addition to using it as a tool for health management. [16]

For Silva, Brasil, Bezerra and Queiroz (2019) mobile devices (telephony, texts, videos, Internet and smartphone applications) have a technology that has transformed people's daily lives, as they offer different learning and entertainment experiences. With this, he states that technology brings benefits to health care and greater possibility of apprehending knowledge by users, professionals and researchers, especially when these resources are associated with therapeutic measures. [17]

Other authors have reported in their research on the benefits of using an application in health interventions, as this tool improves the choice of clinical decisions, patient education and qualification of health professionals. Most available health apps are considered health promotion, wellness and disease prevention strategies. [5]

Therefore, the use of mobile technology in nursing care has been essential to ensure agility in the organization and improvement in the processing of a large amount of information, in a shorter period of time, minimizing error rates. [17]

V.   FINAL CONSIDERATIONS

In view of what was studied in this review, it can be concluded that the technology offers a better guarantee of patient safety, as a rapid intervention for pregnant women allows access to necessary care in the face of the evidenced risk. In addition, continued use of these tools reduces manual resource failures.

Therefore, welcoming the pregnant woman in the risk classification shows skills that facilitate communication between the team and the pregnant woman, revealing attitudes that emphasize the importance of studies and team training in the identification of warning signs. Furthermore, understanding the use of technological resources in the adequacy of care is essential for the qualification of nursing care provided not only in obstetric triage, but throughout the hospital complex.

REFERENCES

[1] Silva, M. H. S., Santana, M. M., de Lima, A. M., de Santana Teles, W., da Silva, M. C., Debbo, A., ... & Calasans, T. A.

S. Estratégias para aumento da adesão dos usuários aos atendimentos em uma unidade de saúde da família no interior da Bahia. Research, Society and Development, 10(11), 2021, e381101119345-e381101119345.

[2] Serafim, R.C., Temer, M.J., Parada, C.M.G.L., Peres, H.H.C., Serafim, C.T.R., & Jensen, R. System for reception and risk classification in obstetrics: a technical quality assessment. Revista Latino-Americana de Enfermagem, 28. 2020.

[3] Brazil. Secretaria de Saúde. Manual de Acolhimento e Classificação de risco em obstetrícia, 64 p. 2017

[4] Schuler, L., Katz, L., Melo, B.C.P., & Coutinho, I.C. The use of the Modified Early Obstetric Warning System (MEOWS) in women after pregnancies: a descriptive study. Revista Brasileira de Saúde Materno Infantil,19(3), 545-555. 2019.

[5] Lee, S.H., Nurmatov, U.B., Nwaru, B.I., Mukherjee, M., Grant, L., & Pagliari, C. Effectiveness of mHealth interventions for maternal, newborn and child health in low- and middle-income countries: Systematic review and meta-analysis. J Glob Health, 6(1), 010401. 2016.

[6] Silva, A.K.C., Matos, C.G.S., Freitas, K.S.P.F., Costa, E.A., & Sousa, M.C. A importância do Enfermeiro na Classificação de Risco em Urgência e Urgência Obstétrica. In: 6 Seminário Pesquisar, 1-6. 2017.

[7] Costa, R.L.M., Santos, A.A.P., & Sanches, M.E.T. Assessement of the Profile of Assisted Women During the Obstetric Risk Classification Process / Avaliação do Perfil de Mulheres que Receberam Assistência Durante a Classificação de Risco Obstétrica. R. pesq. cuid. Fundam, 11(2), 488-94. 2019.

[8] Figueiroa, M.N., Menezes, M.L.N.M., Monteiro, E.M.L.M., Aquino, J.M., Mendes, N.O.G., & Silva, P.V.T. User embracement and risk classification at obstetric emergency: evaluating operationalization in a maternity hospital school. Escola Anna Nery, 21(4). 2017.

[9] Brilhante, A.F., Vasconcelos, C.T.M., Bezerra, R.A., Lima, S.K.M., Castro, R.C.M.B., & Fernandes, A.F.C. Implementação do protocolo de acolhimento com classificação de risco em uma emergência obstétrica. Rev Rene, 17(4), 569-75. 2016.

[10] Camargo Neto, O., Andrade, G.K.S., Karpiuck, L.B., & Ganassin, A.R. A atuação do enfermeiro no sistema de acolhimento e classificação de risco nos serviços de saúde. J. health sci, 20(4). 2018.

[11] Galvão, J., & Silva, J.C. Sistemas de avaliação precoce na identificação de morbidades maternas: revisão sistemática. Saúde e Pesquisa, 10(3). 2017.

[12] Edwards, W., Dore, S., Van Schalkwyk, J., & Armson, B.A. Prioritizing Maternal Sepsis: National Adoption of an Obstetric Early Warning System to Prevent Morbidity and Mortality. J Obstet Gynaecol Can, 42(5), 640-643. 2020.

[13] Ryan, H.M., et al. Validating the Performance of the Modified Early Obstetric Warning System Multivariable Model to Predict Maternal Intensive Care Unit Admission. Journal of obstetrics and gynaecology Canada: JOGC = Journal d'obstetrique et gynecologie du Canada: JOGC, 39(9), 728-733. 2017.

[14] Tuyishime, E., Ingabire, H., Mvukiyehe, J.P., Durieux, M., & Twagirumugabe, T. Implementing the Risk Indentifivation (RI) and Modified Early Obstetric Warning Signs (MEOWS) tool in district hositals in Rwanda: a cross-sectional study. BMC Pregnancy Childbirth, 568(20). 2020.

[15] Singh, A., Guleria, K., Vaid, N.B., & Jain, S. Evaluation of maternal early obstetric warning system (MEOWS chart) as a predictor of obstetric morbidity: a prospective observational study. European journal of obstetrics, gynecology, and reproductive biology, 11-17. 2016.

[16] Pereira, I.M., Bonfim, D., Peres, H.H.C., Góes, R.F., & Gaidzinski, R.R. Tecnologia móvel para coleta de dados de pesquisas em saúde. Acta Paulista de Enfermagem, 30(5), 479-488. 2017.

[17] Silva, R.M., Brasil, C.C.P., Bezerra, I.C., & Queiroz, F.F.S.N. Uso de tecnologia2 móvel para o cuidado gestacional: avaliação do aplicativo GestAção. Rev. Bras. Enferm, 72(3). 2019.

[18] Blumenthal, E.A., Hooshvar, N., McQuade, M., & McNulty, J. A. Validation Study of Maternal Early Warning Systems: A Retrospective Cohort Study. Am J Perinatol, 36(11), 1106-1114. 2019.

[19] Rashidi Fakari, F., Simbar, M., Zadeh Modares, S., & Alavi Majd, H. Obstetric Triage Scales; a Narrative Review. Arch Acad Emerg Med, 7(1). 2019.

[20] Carvalho, S.S., Oliveira, B.R., Nascimento, C.S.O., Gois, C.T.S., & Pinto, I.O. Perception of a nursing team in the implantation of a reception with risk classification sector for pregnant women. Revista Brasileira de Saúde Materno Infantil, 18(2), 301-307. 2018.

[21] Sandy, E.A., Kaminski, R., Simhan, H., & Beigi, R. Contemporary Obstetric Triage. Obstet Gynecol Surv, 71(3), 165-177. 2016.