sciendo

ПРИЛОЗИ. Одд. за мед. науки, XXXIX 2–3, 2018
CONTRIBUTIONS. Sec. of Med. Sci., XXXIX 2–3, 2018

МАНУ
MASA

10.2478/prilozi-2018-0049

ISSN 1857-9345
UDC: 618.4-06-084

# INTRAPARTUM PROCEDURES FOR PREVENTION OF INFECTIONS AND COMPLICATIONS IN MOTHERS DURING CHILDBIRTH

**Svetlana Krstevska Blazhevska[1] and Doncho Donev[2]**

[1] Clinical Hospital Acibadem Sistina, Skopje, Republic of Macedonia

[2] Institute of Social Medicine, Medical Faculty, "Ss. Cyril and Methodius" University of Skopje, Republic of Macedonia

**Corresponding author**: Svetlana Krstevska Blazhevska, Clinical Hospital Acibadem Sistina, Skopje, Skupi 5, 1000 Skopje, R. Macedonia; E-mail: svetlana.krstevska@yahoo.com

## ABSTRACT

**Introduction:** Multiple factors can cause infection and other pathological conditions in mothers during childbirth. These risk factors and diseases/complications can be prevented or timely detected through the implementation of special protocols/procedures. The aim of this paper is to identify the implementation of procedures/measures for the prevention and detection of infections and risk factors for morbidity and mortality in four hospitals in the Republic of Macedonia, before and during childbirth.

**Material and Methods:** A retrospective study was conducted in four hospitals in R. Macedonia, in December 2016, on certain days according to the same principle of selection in all institutions. The questionnaire used contained relevant and specific questions related to the application of procedures and protocols at the maternity clinic at the time of admission to the birthplace and immediately prior to delivery.

**Results:** The study analyzes the performed procedures from 137 obstetric histories. Cardiotocograph was taken after the admission in a hospital in 86% of the mothers; a temperature was measured at only 47.5%, and arterial tension at 89.8%. Immediately before delivery, the color and odor of the vaginal discharge in 98.5% of the mothers was checked, urine was analyzed only in 8% of the mothers, and the analysis of the time of rupture of the mammalian sheaths in 98.6% of the mothers.

**Conclusion:** The study showed that part of the analyzed procedures was not sufficiently implemented, and the percentage distribution varied between hospitals. There is a need for introduction of organized programs with standard procedures in maternity wards in order to protect against infections and other pathological conditions during childbirth.

**Keywords**: childbirth, intrapartum procedures, infections, prevention, obstetric protocols, standardized procedures

## INTRODUCTION

Pregnant women and newborns are a vulnerable group in terms of developing infections, especially before, during and immediately after birth. Chances of developing infections, and other pathological conditions and complications immediately after birth increase if all preventive procedures for safe delivery are not taken.

In the mid-developed countries, it is estimated that 36% of neonatal deaths are due to infections. Bacterial infections related to the time of

delivery are one of the leading causes of maternal morbidity and about 1/10 of all causes of maternal mortality. Peripartial infections lead to severe maternal morbidity, followed by pelvic pain, vaginal bleeding and secondary sterility.

Health workers are in charge of the healthcare of pregnant women and newborns. Even a minor negligence by them may endanger the health of this vulnerable group. It is necessary all risk factors for infection to be prevented or timely detected through the implementation of special protocols and procedures for safe delivery.

For all deliveries, standard procedures should be implemented in order to reduce the risk of infections and other complications in mothers and neonates [4-7]. Intrapartum procedures that reduce infections and associated complications in births include: hygiene of hands of healthcare workers with using protective gloves, minimal number of vaginal examinations, mother's urinalysis, cardiotocography, timely diagnosis, and prolonged childbirth treatment, especially during premature rupture of the membranes, rational use of antibiotics in the maternity, good estimate of Apgar score in neonates, vital sings, blood pressure and temperature in pregnant women and newborn, proper umbilical cord care in neonates, etc.

Introducing standard procedures for compulsory execution will be a useful approach to organizing safe delivery and prevention of infections and complications in the mother and newborn. This will allow health professionals to memorize and implement all necessary procedures and measures in order to make the delivery safe and respond adequately even in the event of adverse complications. The purpose of this paper is to identify the implementation of procedures and measures to prevent infections and to detect risk factors for morbidity and mortality in four maternity wards in R. Macedonia before and during childbirth.

## MATERIAL AND METHODS

A retrospective study was conducted in four maternity hospitals in the Republic of Macedonia: University Clinic of Gynecology and Obstetrics at the Medical University in Skopje, Special Hospital for Gynecology and Obstetrics "Mother Teresa" – Skopje, the Department of Gynecology and Obstetrics at the Clinic Hospital, the Faculty of Medical Sciences in Shtip and the Department of Gynecology and Obstetrics at the Clinical Hospital Acibadem Sistina in Skopje. Data from the obstetric histories of 137 mothers were processed in December 2016 on certain days of the month, according to the same principle of choosing the days in all four hospitals. The data were collected from obstetric histories by using the questionnaire with relevant and specific questions related to the procedures taken and the discovering the possible risk factors for infection and other pathologic conditions of the pregnant women before and during childbirth. The questionnaire was prepared according to the WHO Checklist for safe childbirth. Questions were grouped into two groups, wherein each group corresponded to two stages related to delivery (the first at admission of the pregnant women in the maternity department and the second immediately before delivery).

For data processing and presentation of the obtained results, several statistical methods and tests were used to display frequencies by number and percentage, and to test the significance of differences in variables with Pearson or X2 test (Chi-square test).

## RESULTS

The research includes analysis of obstetric histories for implementation of some procedures in 137 patients before and during childbirth in December 2016, in four birthplaces in the Republic of Macedonia.

*I. Procedures to be done during admission of the pregnant woman in maternity hospital*

The following procedures were analyzed during admission of the pregnant woman in the obstetric ward: cardiotocography, measurement of blood pressure, body temperature and biochemical analysis of urine.

*Cardiotocography at admission*

Cardiotocography (CTG) is a parallel electronic follow up of the baby's heartbeat and the contractions of the uterus. It is carried out during pregnancy as well as in the time of childbirth. Its application provides data on the condition of the

fetus in the uterus, whether it gets enough oxygen through the placenta. Also, the CTG record shows how contractions of the uterus affect the heartbeat of the fetus.

The results obtained as to whether a cardiotocography is implemented are shown in Chart 1.

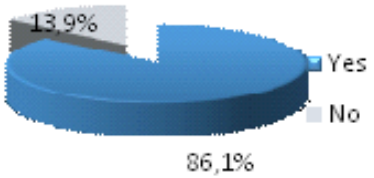



**Chart 1.** *Application of cardiotocography to pregnant women at the time of admission in the hospital*

During admission, a cardiotocography was done in 86.1% of pregnant women, and it was not in 13.9%. The percentage difference is statistically significant for p <0.05. In 19 mothers that do not have cardiotocographs, 18 or 94.7% are from Special hospital for Gynecology and Obstetrics "Mother Teresa" – Skopje and one patient is from Clinical hospital in Shtip.

*Measuring body temperature*

Body temperature measurement is a simple routine procedure that needs to be done in every pregnant woman at admission in the hospital. Increased body temperature is the first indicator of a possible infection in the pregnant women. The results of the collected data are show in Table 1.

**Table 1.** *Measurement of body temperature in pregnant woman at the time of admission in the hospital*

| Measured body temperature | N° | % |
|---|---|---|
| Yes | 65 | 47.5 |
| No | 71 | 51.8 |
| Missing | 1 | 0.7 |
| Total | 137 | 100.0 |

At admission, the body temperature was measured in 47.5% and was not measured in more than half or 51.8% of pregnant women. Percentage in the difference is statistically inconsistent for p<0.05.

Out of 71 patients who did not measure body temperature, 45 or 63.4% were from University Clinic of Gynecology and Obstetrics at the Faculty of Medicine in Skopje, and 26 or 36% were from the Special Hospital for Gynecology and Obstetrics "Mother Teresa" – Skopje.

*Measurement of arterial blood pressure*

High blood pressure in pregnancy is a condition that requires special attention and monitoring. Whether or not hypertension occurred during pregnancy or the woman had elevated blood pressure before conception, these patients must have more intensive monitoring and care. The results obtained from the insight into the obstetrics data related to the blood pressure measurement are shown in Table 2.

**Table 2.** *Measurement of blood pressure in pregnant women at the time of admission in the hospital*

| ***Measured arterial blood pressure*** | **N°** | **%** |
|---|---|---|
| Yes | 129 | 94.2 |
| No | 7 | 5.1 |
| Missing | 1 | 0.7 |
| Total | 137 | 100.0 |

Blood pressure was measured in most of the patients at admission, in 94.2%, and was not measured in 5.1%. The percentage difference is statistically significant for p <0.05.

The blood pressure was not measured in 7 pregnant women, and 71.5% out of them were from the Clinical hospital in Shtip. Only one patient was from the Special Hospital for Gynecology and Obstetrics "Mother Teresa" – Skopje and one patient from the University Clinic for Gynecology and Obstetrics in Skopje.

*Biochemical analysis of urine*

During pregnancy it comes to an increased load on the kidneys and heart of the future mother. Therefore, to monitor the status of these two systems, in each visit to a gynecologist and before childbirth, a woman should take a urine sample for analysis. Results are shown in Table 3.

**Table 3.** *Analyzed urine in the pregnant women at the time of admission in the hospital*

| ***Biochemical analyses of urine at the admission in hospital*** | N° | % |
|---|---|---|
| Yes | 17 | 12.4 |
| No | 119 | 86.9 |
| Missing | 1 | 0.7 |
| Total | 137 | 100.0 |

At the time of admission in the hospital, in a relatively small number of pregnant women, urine was analyzed, which was only 12.4%. That analysis was not performed in a large percentage - 86.9%. The percentage difference is statistically significant for p <0.05.

Out of the 119 patients without analysis of urine, 12.6% were from the Clinical Hospital in Shtip, 10.1% from the Acibadem Sistina Clinical Hospital in Skopje, 37% from the University Clinic of Gynecology and Obstetrics at the Medical Faculty in Skopje and 40, 3% were from the Special Hospital for Gynecology and Obstetrics "Mother Teresa" – Skopje.

*II. Procedures to be done immediately before childbirth of pregnant women in the obstetric ward*

The following procedures were analyzed immediately before delivery of the pregnant woman in the obstetric ward: measurement of body temperature and blood pressure, checkup of vaginal discharge, time of rupture of membranes.

*Measurement of body temperature*

Increased body temperature may be a sign of infection in the mother, especially during prolonged labor, or if the membranes have been ruptured for more than 18 hours. The results obtained as to whether the body temperature of the pregnant women prior delivery was measured are shown in Chart 2.

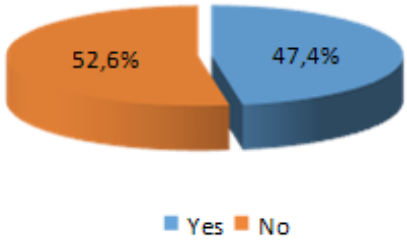



**Chart 2.** *Measured body temperature in the pregnant women immediately before delivery*

Immediately before childbirth, body temperature was measured at 47.4% of the pregnant women and was not measured in more than a half or 52.6%. The percentage difference is statistically not significant for p>0.05.

Out of the 72 patients who did not measure body temperature immediately before birth, 45 or 62.5% were from the University Clinic for Gynecology and Obstetrics-Skopje, and 27 or 37.5% were from the PHI Special Hospital for Gynecology and Obstetrics, "Mother Teresa" – Skopje.

*Checking the odor and color of the vaginal discharge*

Particular attention should be paid if the discharge is with unpleasant smell and if there is a green or yellowish color. These signs may refer to chorioamnionitis, an infection that may be the cause of morbidity in pregnant women so in the newborn. The results obtained for the implementation of this procedure are shown in Chart 3.

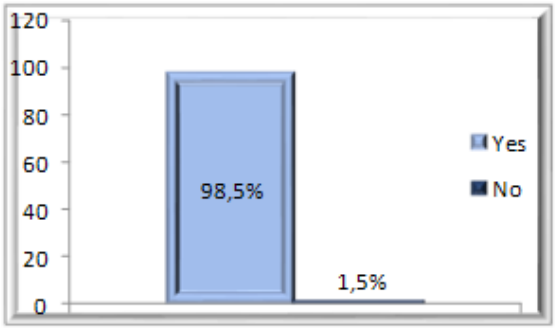



**Chart 3.** *Tested vaginal discharge (color, odor) in pregnant women shortly before delivery*

Immediately before delivery 98.5% of pregnant women were checked for vaginal discharge (color, odor). Only 2 pregnant women or

1.5% weren't tested. The percentage difference is statistically significant for p <0.05.

*Measurement of arterial blood pressure*

Measurement of blood pressure of the pregnant women immediately before childbirth should be also routine procedure during admission to the hospital. Results for the measurement of arterial blood tension are displayed at Chart 4.

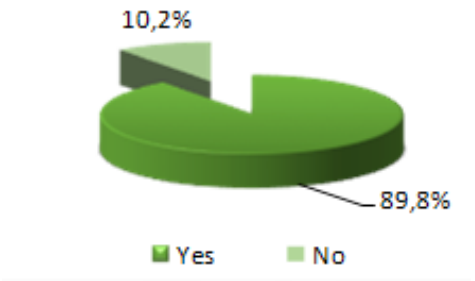



**Chart 4.** *Measurement of arterial blood pressure in pregnant women immediately before delivery*

Immediately before childbirth, arterial tension was measured in 89.8% of pregnant women prior delivery and was not measured in 10.2%. The percentage difference is statistically significant for p <0.05. Out of the 14 patients whose arterial tension was not measured immediately before delivery, 4 or 28.6% were from Special Hospital for Gynecology and Obstetrics "Mother Teresa" - Skopje.

*Biochemical analysis of urine*

Analysis of urine is procedure which should be done to every pregnant woman before delivery for the purpose of detection of signs of preeclampsia or infection of urinary tract. The results of a retrospective study about application of this procedure are presented in Chart 5.

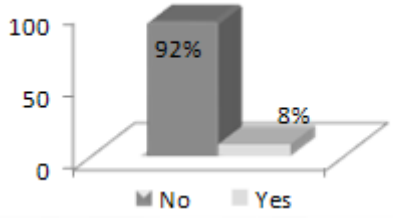



**Chart 5.** *Biochemical analysis of urine in pregnant women immediately before delivery*

In pregnant women immediately before delivery urine was analyzed in only 8.0%, and it was not analyzed in 92.0% of them. The percentage difference is statistically significant for p<0.05.

From 126 pregnant women who did not have a urine analysis before delivery, 15 or 11.9% were from the Clinical hospital - Shtip, 14 or 11.1% were from the Clinical hospital Acibadem Sistina - Skopje. 47 or 37.4% were from the University Clinic for Gynecology and Obstetrics at the Medical Faculty in Skopje, and 50 or 39.7% were from the Special Hospital for Gynecology and Obstetrics "Mother Theresa" – Skopje.

*Analysis of the time of rupture of membrane (mammalian sheets)*

The diagnosis and management of the delivery in conditions of premature spontaneous rupture of membranes in term pregnancy requires special consideration and monitoring of the duration of the so-called "careful waiting" before starting with induction for delivery, as well as the use of antibiotics before delivery and the criteria for their application in the pregnant women and healthy newborns. The results obtained about implementation of this procedure are shown in Table 4.

**Table 4.** *Analyzed time of the rupture of membranes in pregnant women immediately before delivery*

| Analyzed time of the rupture of membranes | **N°** | **%** |
|---|---|---|
| Yes | 135 | 98.6 |
| No | 1 | 0.7 |
| Missing | 1 | 0.7 |
| Total | 137 | 100.0 |

Immediately before delivery the time of the rupture of membranes was analyzed in 98.6% of pregnant woman, and it was not done in 0.7%. The percentage difference is statistically significant for p<0.05.

## DISCUSSION

In the study some procedures were analyzed during admission of the pregnant women

in the maternity hospital and immediately before childbirth. The time of admission of the pregnant women in the hospital was chosen because then should be detected and treated possible complications, with a main goal to prepare the woman (and her companion) for the childbirth and be advised to indicate the signs and symptoms of childbirth for which assistance should be sought.

Checking the women immediately prior to delivery is important for detecting and treatment of complications that can occur during labor and which can harm the woman and the newborn. Infections in newborns are associated with maternal infection. Chorioamnionitis is an infection in mother, most often bacterial and severely associated with prolonged rupture of membranes. The USAID program for reducing infections in newborns says that the risk of this infection is rupture of membranes (spontaneously or artificially) more than 18 hours, more than three vaginal examinations during labor, as well prolonged labor for more than 24 hours [8].

The cardiotocography is a graphical presentation of the progress of delivery and presentation of condition of the pregnant women and fetus during delivery. It helps in managing the delivery in order to reduce Section Cesarean, avoid frequent vaginal examinations and avoid unnecessary interventions during birth, avoiding intrapartum neonatal asphyxia. Ugwumadu A, clarifies in his study that through the cardiotocography changes in the fetal heart rate could be monitored. It can suggest disturbance of the compensatory mechanisms in the fetus with the possibility of developing prenatal damage in the fetus. The cardiotocography is widely accepted in the obstetric departments, but in practice, its use varies significantly from 8-80% [9, 10]. In our study cardiotocography was applied in a larger number of subjects, in 86.1%. That percentage could be large, because the cardiotocograph can be set up very quickly, and the record should be realized until shortly before delivery. According to Vandenbroucke L at al. following the frequency of the fetal heart via a cardiotocography can be diagnosed chorioamnionitis in a latent phase, which is a consequence of prematurely ruptured membranes [9-12]. At the same time for a correct interpretation of the record from the cardiograph, well-trained medical staff is needed.

Measurement of body temperature in our study was achieved in 47.5% of women at admission in the hospital, as well as in 47.4% of the women immediately before delivery.

Testing the color and odor of vaginal discharge was performed in 94.2% of the pregnant women. Measurement of body temperature and the smell of vaginal discharge can promptly suspect of maternal infection, chorioamnionitis. If the pregnant woman has a temperature higher than 380C degrees, accompanied by an unpleasant odor of vaginal discharge and/or rupture of the membranes for more than 18 hours, it is necessary to start with antibiotic therapy [11-13].

Measurement of arterial tension is a procedure that needs to be conducted throughout the whole pregnancy and during delivery. High blood pressure may be associated with the occurrence of preeclampsia and/or eclampsia that can affect the life of the pregnant woman and newborn. In a study of Perry H. et al., conducted in 108 hypertensive pregnant women, it has been found that the regular measurement of blood pressure even at home, leads to a reduced number of visits to an obstetrician/gynecologist [13]. Parallel to the measurement of arterial tension, urine analysis is of great importance. According to the recommendations in the WHO-checklists diastolic pressure is ≥110 mmHg and 3+ (+++) proteinuria or diastolic pressure ≥90 mmHg, 2+ (++) proteinuria and the occurrence of severe headache, visual problems and/or epigastric pain is an indication for the administration of magnesium sulphate to the pregnant woman. Antihypertensive drug should be given if the systolic pressure of the pregnant woman is above 160 mmHg. The goal is to control blood pressure below 150/100 mmHg [14]. In our study in 94.2% of patients arterial tension was measured upon admission to the hospital, and in 89.8% of the patients arterial blood pressure was measured immediately before birth. It's a good indicator of prevention of preeclampsia and/or eclampsia in the pregnant woman.

Analysis of the urine was made only in 12.4% of the pregnant women in time of admission in the hospital for delivery, and only in 8% immediately before childbirth, which is really small percentage. With this simple analysis, urinary infection can be detected on time, which may be the cause of infection of the pregnant women, early labor or infection of the newborn. By biochemical analysis of urine except opportunity to detect urinary infection, should be monitored proteinuria in the urine, too. Pres-

ence of proteinuria and higher values of diastolic pressure may indicate the need for using antihypertensives. Such a systematic approach in treatment of hypertension prevents the occurrence of preeclampsia and eclampsia in the pregnant woman, two pathological conditions that can lead to serious consequences for the mother's health and complicate the pregnancy and delivery and health of the newborn. Knowles SJ et al., in their prospective study, conclude that the source of severe infections in pregnant women in 25% of the examinees was the urinary tract [15].

## CONCLUSION

The standard procedures are useful approach for organizing a safe childbirth and for prevention, early recognition and treatment of infections and adverse events and complications in mothers. The data obtained indicate a varying percentage of application rates of the examined procedures/measures at the maternity hospitals in which the study was conducted. Some of the procedures, such as biochemical analysis of urine, were performed in low percentage in all four hospitals. Therefore, implementation of easily applicable, cheap and stage programs and protocols such as the checklists created by the WHO in every birthplace in the Republic of Macedonia are necessary. Implementation of obstetric protocols with standardized checklists, organized in the form of questions and guides for the application of certain interventions, will provide for more adequate care for the pregnant woman and better protection against infections and other pathological conditions before and during childbirth. It will reduce morbidity, as well as the mortality of this vulnerable group. At the same time, checklists will improve communication between the medical staff and help them to avoid potential complications during hospitalization for delivery in all obstetrics hospitals in the Republic of Macedonia.

## REFERENCES


1. WHO, UNICEF, UNFPA, United Nations Population Division and World Bank. Trends in maternal mortality: 1990-2015. Estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Geneva: World Health Organization; 2015. Available at: http://www.who.int/reproductivehealth/publications/monitoring/maternal-mortality-2015/en/
2. Ministry of Health of the Republic of Macedonia. Guidelines for medical care in intrapartal care. Ministry of Health of the Republic of Macedonia, 2015: 67.
3. Spektor JM, Agrawal P, Kodkany B, Lipsitz S, Lashoher A, et al. Improving quality of care for maternal and newborn health: Prospective pilot study of the WHO safe childbirth checklist program. PLoS One. 2012; 7(5): e35151. doi: 10.1371/journal.pone.0035151. Epub 2012 May 16.
4. Ministry of Health of the Republic of Macedonia. Strategy for Safe Motherhood of the Republic of Macedonia for the period 2010-2015 with an action plan. Ministry of Health of the Republic of Macedonia, Skopje, 2009: 27.
5. Kumar S, Yadav V, Balasubramaniam S, Jain Y, Joshi CS at al. Effectiveness of the WHO SCC on improving adherence to essential practices during childbirth, in resource constrained settings. BMC Pregnancy Childbirth. 2016 Nov 8; 16(1): 345.
6. Lavender DT. Improving quality of care during labor and childbirth and in the immediate postnatal period. Best Pract Res Clin Obstet Gynaecol. 2016 Oct; 36: 57-67. doi: 10.1016/j.bpobgyn.2016.05.011. Epub 2016 Jun 25.
7. True BA, Cochrane CC, Sleutel MR, Newcomb P, Tullar PE, Sammons JH Jr. Developing and Testing a Vaginal Delivery Safety Checklist. J Obstet Gynecol Neonatal Nurs. 2016 Mar-Apr; 45(2): 239-48. doi: 10.1016/j.jogn.2015.12.010. Epub 2016 Feb 2.
8. USAID, Better intrapartum practices to reduce newborn infection. Maternal and Child Health Integrated Program: 2013: 1–7. Available at: http://reprolineplus.org/system/files/resources/MCHIP_Brief_LaborCarePrevNBSepsis_En.pdf
9. Haws RA, Yakoob MY, Soomro T, Menezes EV, Darmstadt GL and Bhutta ZA. Reducing stillbirths: Screening and monitoring during pregnancy and labour. BMC Pregnancy childbirth, 2009; 9 (Suppl 1): S5. https://doi.org/10.1186/1471-2393-9-S1-S5
10. Ugwumandu A. Understanding cardiotocographic patterns associated with intrapartum fetal hypoxia and neurologic injury. Best Pract Res Clin Ostet Gyneacol., 2013 Aug; 27(4): 509–36. https://doi:10.1016/j.bpobgyn.2013.04.002
11. Vandenbroucke L, Doyen M, Le Lous M, Beuchee A, Loget P, at al. Chorioamnionitis following preterm rupture of membranes and fetal heart rate variabilitiy. PLos One., 2017 Sep 25;

12(9): e0184924. https://doi:10.1371/journal.pone.0184924

12. Zanella P, Bogana G, Ciullo R, Zambon A, Serena A, Albertin MA. Chorioamnonitis in the delivery room. Minerva Pediatr. 2010 Jun; 62 (3 Suppl 1): 151–3.
13. Perry H, Sheehan E, Thilaganathan B, Khalil A. Home blood-pressure monitoring in a hypertensive pregnant population. Ultrasound Obstet Gynecol. 2018 Apr; 51(4): 524–30.
14. WHO: WHO Safe Childbirth Checklist. Available at: http://www.who.int/patientsafety/implementation/checklists/childbirth/en/
15. Knoweles SJ, O'Sullivan NP, Meenan AM, Hanniffy R, Robson N. Maternal sepsis incidence, aetiology and outcome for mother and fetus: prospective study. BJOG. 2015 Apr; 122(5): 663–71. Doi:10.1111/1471-0528.12892.

**Резиме**

## ИНТРАПАРТУМ ПОСТАПКИ ЗА СПРЕЧУВАЊЕ ИНФЕКЦИИ И КОМПЛИКАЦИИ КАЈ МАЈКИТЕ ЗА ВРЕМЕ НА ПОРОДУВАЊЕТО

**Светлана Крстевска Блажевска[1], Дончо Донев[2]**

[1] Клиничка болница „Аџибадем Систина", Скопје, Република Македонија

[2] Институт за социјална медицина, Медицински факултет, Универзитет „Св. Кирил и Методиј", Скопје, Република Македонија

**Вовед**: Повеќе фактори можат да предизвикаат инфекција и други патолошки состојби кај родилките за време на породувањето. Тие ризични фактори можат да бидат спречени или да бидат откриени навреме преку спроведување посебни процедури и постапки кај родилките во родилиштето. Целта на трудот е идентификација на спроведувањето на процедурите и мерките за превенција и откривање инфекции и ризични фактори за морбидитет и морталитет кај родилките пред и за време на породувањето.

**Материјал и методи:** Спроведена е ретроспективна студија во четири родилишта во Република Македонија, со период за анализа во месец декември 2016 г., во одделни денови од месецот определени по ист принцип во сите родилишта. Податоците беа собирани од акушерските истории на родилките. Користен е прашалник што содржи релевантни и специфични прашања поврзани со примената на постапките и процедурите кај родилката во времето на прием во родилиштето и непосредно пред породувањето.

**Резултати**: Во студијата се обработени податоци од 137 акушерски истории. При приемот во родилиштето направен е кардиотокограф кај 86 % од родилките, телесната температура е измерена само кај 47,5 %, а артериската тензија кај 89,8 %. Непосредно пред породувањето бојата и мирисот на вагиналниот исцедок е проверен кај 98,5 % од родилките, анализа на уринатa е направена само кај 8 %, а анализа на времето на руптура на околуплодовите обвивки кај 98,6 % од родилките.

**Заклучок**: Студијата покажува дека дел од анализираните процедури се споведуваат недоволно, а процентуалната застапеност на истите постапки кај родилките се разликува меѓу родилиштата. Постои потреба од воведување организирани програми со стандардизирани процедури во секое родилиште во Република Македонија за задолжително извршување стандардни процедури кај родилките заради заштита од инфекции и други патолошки состојби пред и за време на породувањето.

**Клучни зборови**: породување, интрапартум постапки, инфекции, превенција, акушерски протоколи, стандардизирани процедури