"A PROSPECTIVE OBSERVATIONAL STUDY TO COMPARE THE MATERNAL OUTCOMES BETWEEN MODIFIED EARLY OBSTETRICS WARNING SYSTEM (MEOWS) AND STANDARD OF CARE GROUPS AMONG HIGH RISK PREGNANT WOMEN."

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With reference to the above, we wish to inform you that your proposed research project titled **"A PROSPECTIVE OBSERVATIONAL STUDY TO COMPARE THE MATERNAL OUTCOMES BETWEEN MODIFIED EARLY OBSTETRICS WARNING SYSTEM (MEOWS) AND STANDARD OF CARE GROUPS AMONG HIGH RISK PREGNANT WOMEN",** is ethical and justifiable. The proposed research project has been cleared by the JNMC Institutional Ethics Committee.

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LIST OF ABBREVIATIONS USED

BMI	-	Body mass index
CEMACH	-	The Confidential Enquiry into Maternal and Child Health
CI	-	Confidence interval
CRP	-	C-reactive protein
EWS	-	Early warning system
GCS	-	The Glasgow Coma Scale
HB	-	Haemoglobin
HELLP	-	Hemolysis, Elevated Liver enzymes, Low Platelets
HLA	-	human leukocyte antigen
HTN	-	Hypertension
ICU	-	Intensive care unit
IUGR	-	Intrauterine growth retardation
LBW	-	Low birth weight
LSCS	-	Lower segment caesarean section
MEOWS	-	Modified Early Obstetrics warning system
MET	-	The medical emergency team
MMR	-	Maternal mortality ratio
NRS	-	Numeric Rating Scale
OEWS	-	The Obstetric Early Warning System
OR	-	Odds Ratio
PAS	-	Placenta accreta spectrum
PE	-	Preeclampsia
PIH	-	Pregnancy induced hypertension
PPH	-	Postpartum haemorrhage

TBG	-	Thyroxine-binding globulin
TSH	-	Thyroid stimulating hormones
UTI	-	Urinary tract infection
WHO	-	World Health Organisation

ABSTRACT

Background: A trigger is defined as a single markedly abnormal observation or a combination of mildly abnormal observations. When a trigger is observed, it is expected that actions by the care team using a predefined protocol/algorithm will significantly reduce the risk of an adverse outcome. Physiological clinical observations such as vital signs are different in pregnant women compared to non-pregnant women as are abnormal thresholds. Modified early warning systems for the obstetric population have been advocated because they enable early detection of clinical deterioration, presenting an opportunity for timely actions to improve clinical outcome.

Objective: To compare the adverse maternal outcome between Modified Early Obstetrics warning system (MEOWS) and Standard of care groups among the High-risk pregnant women

Methodology: The present study was carried out in Department of OBGY at KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi involving all high-risk pregnant women admitted i.e. 78 subjects in each group.

Results: Implementing MEOWS does not lead to any notable improvement in maternal outcomes as compared to the standard care. Distribution according to mode of delivery showed that 66.7% women from Group A and 66.7% from Group B underwent LSCS with statistically no significant difference between two groups ($p>0.05$). Distribution according to maternal outcome showed that 9% women from Group A and 5.1% from Group B had perineal injury liquor with statistically no significant difference between two groups ($p>0.05$). Distribution according to maternal outcome showed that 9% women from Group A and 5.1% from Group B

had cervical tear liquor with statistically no significant difference between two groups ($p>0.05$). Distribution according to maternal outcome showed that 25.6% women from Group A and 29.5% from Group B had morbidity with statistically no significant difference between two groups ($p>0.05$). Distribution according to maternal outcome showed that 2.6% women from Group A and 1.3% from Group B had mortality with statistically no significant difference between two groups ($p>0.05$).

Conclusion: With respect to risk factors, we observed statistically no significant difference between two groups ($p>0.05$). Major trigger was seen in MEOWs group with respect to blood pressure, colour of the liquor criteria and neural response.

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INTRODUCTION

"One of the main global issues is the high rates of maternal morbidity and mortality. Maternal mortality has been compared to the tip of an iceberg, with the overall morbidity of pregnancy and the postpartum period serving as the base."[1] "Clinical severity ranges from mild to severe, with healthy pregnancies at one end and maternal death at the other. Across this continuum, there lies a degree of severe morbidity that corresponds to the concept of maternal near miss."[2] "The World Health Organization (WHO) suggests using the phrase "maternal near miss" which more accurately portrays a woman who almost died but survived."[2]

"The World Health Organization (WHO) estimated 303, 000 maternal deaths globally in 2015 at the end of the Millennium Development Goals era.[3] Over 99% of these deaths occurred in low-income settings."[3] "It is also estimated that there were 27 million episodes of direct obstetric complications annually that contribute to long-term pregnancy and childbirth com plications."[4] "Good quality care including timely identification and management of obstetric complications can contribute to reducing the burden of maternal deaths and associated long term complications."[4]

"Early Warning Systems comprise clinical observation charts and algorithms for triggering corrective action to improve clinical outcomes. Early warning systems have been used in non-obstetric specialties since 1997. EWS combine clinical observations such as vital signs, clinical examination findings and laboratory tests to identify a pattern that is consistent with an increased risk of clinical deterioration."[5]

A trigger is defined as "a single markedly abnormal observation or a combination of mildly abnormal observations. When a trigger is observed, it is

expected that actions by the care team using a predefined protocol/algorithm will significantly reduce the risk of an adverse outcome."[6] "Physiological clinical observations such as vital signs are different in pregnant women compared to non-pregnant women as are abnormal thresholds.[7] Modified early warning systems for the obstetric population have been advocated because they enable early detection of clinical deterioration, presenting an opportunity for timely actions to improve clinical outcome."[8]

The Saving Mothers' Lives report of the United Kingdom's Confidential Enquiry into Maternal Deaths (CEMDs) 2005 strongly recommended, "the adoption of EWS modified for the obstetric population."[8]

"Since then, EWS has been widely adopted for use in hospital maternities internationally. A survey of 130 UK hospital anaesthetists in 2014 identified different versions of obstetric EWS (varying number of clinical observations and pathophysiological thresholds to trigger clinical action); however, none of these was considered as the gold standard."[9]

"It is often observed that there was a period of slow and constant physiological decline in patients who had major ill ness or who passed away that went unrecognized and/or was handled improperly."[5] Therefore, the first early warning system (EWS) launched in 1997 for the adult non-obstetric population in the UK with the goal of recognizing patients at risk as early as possible.

An EWS consists of three parts:

1. "An early warning score: A technique helping in identification of pregnant woman whose condition is deteriorating." [6]
2. "Tracking: The regular monitoring and documentation of physiological parameters on an observation chart."[6]
3. "Trigger: The call for assistance will be made when a predetermined cut-off score is reached."[6]

"For the adult non-pregnant population, several types of early warning charts are available for decades, but those cannot be used in pregnant patients as the normal physiological changes in pregnancy were not taken into consideration in construction of those charts. The physiological change of pregnancy contributes to difficulty in recognizing clinical decompensating women at an early stage." [7] "Thus, there stands a need of modified scoring system for the obstetric population. Modified scoring charts for the evaluation of pregnant mothers in the antenatal and postnatal period have become available in the last few years. They are used to record physiological parameters throughout pregnancy and up to 6 weeks of the postnatal period. A comprehensive scoring system like saving mother score (SMS) segregate the pregnant women into low, moderate, and high risk. It helps in triage and differs from MEOWS which is a "track and trigger" system." [7]

"Surveillance data on maternal death from various countries show that 40–50% of the deaths could have been avoided."[8]

"Recording of physiological parameters is an integral part of the care of pregnant mothers as it helps in the early identification of problem and hence early referrals. Tracking patients' clinical responses may indicate potential deterioration

and later trigger for escalation of clinical care. In addition, it also guides patients' recovery and return to stability thus facilitating better obstetric outcomes." [8]

"The global estimates for the year 2017 indicate that there were 295 000 maternal deaths; 35% lower than in 2000 when there were an estimated 451 000 maternal deaths. The global MMR in 2017 is estimated at 211 maternal deaths per 100 000 live births, representing a 38% reduction since 2000, when it was estimated at 342. The average annual rate of reduction (ARR) in global MMR during the 2000–2017 period was 2.9%; this means that, on average, the global MMR declined by 2.9% every year between 2000 and 2017." [10]

"The National Health Policy (NHP) 2017 lay down the target to bring the MMR in India below 100/lakh live births by 2020. Owing to ceaseless efforts by the Government, India has successfully achieved the major milestone of bringing down its MMR to 97/lakh live births in 2018-20." [11]

"Analyses of maternal deaths have consistently revealed that delays in the recognition of pregnancy complications are associated with higher mortality. Therefore, Early warning system was proposed to reduce maternal mortality and morbidity." [12]

"MEOWS involve the routine monitoring and recording of vital signs or clinical observations on specifically designed charts with linked escalation protocols. They list criteria for abnormal physiological parameters that trigger a color-coded or weighted scoring system aimed to guide the frequency of monitoring, need for, and urgency of clinical review." [13]

The study aims at evaluating the use of MEOWS score as a simple bedside tool and establish its use in predicting maternal morbidity and mortality.

It highlights the significance of swiftly identifying the decline in the condition of seemingly ill patients, fosters improved communication among the members of the multidisciplinary team, and ensures timely care for the unwell woman.

AIMS AND OBJECTIVES

- **Primary objective:**

To compare the adverse maternal outcome between Modified Early Obstetrics warning system (MEOWS) and Standard of care groups among the High-risk pregnant women.

- **Secondary objectives:**

To estimate the prevalence of high-risk pregnant women in this facility.

REVIEW OF LITERATURE

1. Physiology of pregnancy[14]

"Pregnancy is a state of having implanted products of conception located either in the uterus or elsewhere in the body. It ends through either spontaneous or elective abortion or delivery. During this time, the mother's body goes through immense changes involving all organ systems to sustain the growing fetus. All medical providers must be aware of these alterations present in pregnancy to be able to provide the best possible care for both mother and fetus."[14]

Cellular

"The fertilization of an egg with a sperm starts the process of embryogenesis. The fertilized egg goes through several divisions to form a blastocyst. This blastocyst then initiates implantation with the maternal endometrium. Implantation triggers the uterine stroma to undergo decidualization to accommodate the embryo. This decidua supports embryo survival and appears to act as a barrier against immunologic responses. Additionally, upon implantation, human chorionic gonadotropin (hCG) begins to be secreted, allowing the sustenance of pregnancy. The blastocyst then begins the process of forming three distinct germ layers, including the ectoderm, mesoderm, and endoderm. At this stage, the blastocyst then becomes an embryo. The embryo goes through a process known as organogenesis, in which the majority of the major organ systems develop. After 8 weeks from implantation, or 10 weeks gestational age, the embryo is then termed a fetus until birth."[14]

Development

"The duration of pregnancy, from implantation of a fertilized ovum to birth, is taken as 266 days. However, as pregnancy dating is typically from the first day of the last menstrual period, the duration of pregnancy is considered to be 280 days on average. This duration is the amount of time by which approximately half of all women will deliver their babies. Babies born from 37 0/7 weeks gestation to 38 6/7 weeks are considered early term. Those born between 39 0/7 weeks and 40 6/7 weeks are labelled full term. Babies born 41 0/7 weeks through 41 6/7 weeks are titled late-term. Any baby born at 42 0/7 weeks gestation and beyond is deemed post-term."[14]

Organ Systems Involved

"Pregnancy induces a coordinated response of multiple organ systems to support both mother and fetus."[14]

Female Reproductive System

"To accommodate a growing fetus, the uterus must undergo extreme structural changes and cellular hypertrophy. During this time, the uterus must maintain a passive noncontractile state; this occurs through elevated levels of progesterone, which act to relax smooth muscle—growth of the placenta results in uterine tissue and vascular remodelling. Hormonal signals, primarily estrogen, are responsible for initiating the uterine growth process during early pregnancy. The uterus increases from 70 g to 1100 g, with its volume capacity increasing from 10 mL to 5 L. Between weeks 12 and 16, the lower uterine corpus unfolds, allowing the uterus to become more spherical and giving room for amniotic sac expansion with minimal stretching of the uterus. When fetal growth rate begins to accelerate at 20 weeks, the uterus rapidly

elongates, and the walls thin. The longitudinal diameter grows more rapidly than the left-right and anterior-posterior diameters, with the maximum rate of elongation happening between weeks 20 and 32. By 28 weeks, the maximum fetal growth rate has occurred, and the uterine tissue growth slows while continuing to stretch rapidly and become thin. Within several weeks of delivery, the uterus then returns to its pre-pregnancy structure." [14]

Cardiovascular

"In pregnancy, the cardiac output increases 30 to 60%, with the majority of the increase occurring during the first trimester. The maximum output is reached between 20 and 24 weeks and is maintained until delivery. Initially, the increase in cardiac output is due to an increase in stroke volume. As the stroke volume decreases towards the end of the third trimester, an increase in heart rate acts to maintain the increased cardiac output."[14]

"Systemic vascular resistance decreases, resulting in decreased arterial blood pressure. Systolic blood pressure decreases approximately 5 to 10 mm Hg, and diastolic blood pressure decreases 10 to 15 mm Hg. This decrease reaches its lowest point at 24 weeks, at which point it slowly returns to pre-pregnancy levels. This decrease in arterial blood pressure is due to the elevated progesterone levels present during pregnancy. Progesterone leads to smooth muscle relaxation, thus decreasing vascular resistance."[14]

"Due to these physiological changes, bounding or collapsing pulses, as well as ejection systolic murmurs, are present in the majority of pregnant women. A third heart sound may be present, and ectopic beats and peripheral edema are also common. The changes in the position of the heart that occur as pregnancy progress lead to ECG

changes that are considered normal findings in pregnancy. These include: atrial and ventricular ectopic beats, small Q waves and inverted T waves in lead III, ST-segment depression and T wave inversion in inferior and lateral leads, left axis shift."[14]

Pulmonary

"During pregnancy, the diaphragm elevates, resulting in a 5% decrease in total lung capacity (TLC). However, the tidal volume (TV) increases by 30 to 40%, thereby decreasing the expiratory reserve volume by 20%. Minute ventilation is similarly increased by 30 to 40%, owing to the fact that TV becomes increased while a constant respiratory rate is maintained. The increase in minute ventilation that occurs during pregnancy allows for an increase in alveolar (PAO2) and arterial (PaO2) PO2 levels, and a decrease in PACO2 and PaCO2. PaCO2 decreases from a pre-pregnancy level of 40 mm Hg to 30 mm Hg by 20 weeks. This decrease in PaCO2 creates an increased CO2 gradient among the fetus and mother, thus enhancing oxygen delivery and carbon dioxide removal in the fetus. This gradient is created by elevated progesterone levels, which appear to act to either increase the responsiveness of the respiratory system to CO2 or to be a primary stimulant. These changes are needed to accommodate the 15% increase in metabolic rate and the 20% increase in oxygen consumption that occurs during pregnancy."[14]

"Decreased PaCO2 levels, increased tidal volume, and decreased total lung capacity combine to result in dyspnoea of pregnancy in approximately 60% to 70% of pregnant patients. This feeling is a subjective sensation of breathlessness with no hypoxia present. It is most common during the third trimester but can start at any time." [14]

Gastrointestinal

"Elevated levels of estrogen, progesterone, and human chorionic gonadotropin (hCG) combine to bring about nausea and vomiting, commonly termed morning sickness. Hypoglycaemia can be an additional cause of nausea. Morning sickness develops in over 70% of pregnancies and can occur at any time of day. It typically resolves by weeks 14 to 16 but persists beyond week 20 in about 10-20% of pregnant patients. If nausea and vomiting are severe enough to lead to ketosis and weight loss greater than or equal to 5% of pre-pregnancy weight, the term for this is hyperemesis gravidarum. In these patients, intravenous fluid and vitamin substitution may be necessary."[14]

"Elevated progesterone levels induce smooth muscle relaxation, leading to prolonged gastric emptying time. When combined with decreased gastroesophageal sphincter tone and upwards displacement of the stomach, reflux often occurs. Progesterone-mediated smooth muscle relaxation also leads to decreased motility in the large bowel, resulting in increased water absorption and constipation." [14]

Renal

"The renin-angiotensin-aldosterone system is activated in early pregnancy, consequently increasing sodium reabsorption. However, an increased glomerular filtration rate (GFR) acts to maintain sodium plasma levels. Additionally, elevated progesterone and prostacyclin, along with angiotensin I receptor modification in pregnancy, leads to a relative resistance to angiotensin II. This state acts to balance the vasoconstrictive effect of angiotensin and allow for vasodilation of the renal arteries mediated by relaxin stimulation of endothelin to synthesize nitric oxide."[14]

"Due to renal vasodilation, both the GFR and renal plasma flow increase. The GFR increases 50% starting in early pregnancy, and this increase remains until delivery. The decrease in systemic vascular resistance results in both afferent and efferent arterioles experiencing decreased vascular resistance, thus maintaining glomerular hydrostatic pressure—the resulting increased renal blood flow results in an increase in kidney size. Progesterone acts to reduce ureteral tone, peristalsis, and contraction pressure, thereby dilating the ureters."[14]

"The elevation in GFR acts to decrease blood urea nitrogen and creatinine by 25%. The elevated GFR, combined with increased glomerular capillary permeability to albumin, results in an increase of fractional excretion of protein to as much as 300 mg/day. Less effective tubular reabsorption of both glucose and urea results in increased excretion rates."[14]

Hematology

"In pregnancy, the RBC volume increases by 20% to 30%, while the plasma volume increases 45 to 55%. This disproportionate volume increase leads to dilutional anemia with decreased hematocrit. WBC count increases to 6 to 16 million/mL and can be as high as 20 million/mL during and shortly after labour. Platelet concentration decreases slightly due to the increased plasma volume but typically stays within normal limits. A small proportion of women (5 to 10%) will have platelet levels between 100 and 150 billion/L without any pathology present. Fibrinogen and factors VII – X levels increase, but the clotting and bleeding times remain unchanged. However, increased venous stasis and damaged vessel endothelium result in higher rates of thromboembolic events during pregnancy. The increase in the risk of thromboembolic events starts in the first trimester and continues at least 12 weeks postpartum."[14]

Endocrine

"The increased levels of estrogen in pregnancy result in a stimulation of thyroid-binding globulin, which then increases levels of thyroxine (T4) and tri-iodothyronine (T3). Free T3 and T4 levels are slightly altered, but remain relatively constant, with a slight decrease in the second and third trimesters. TSH levels decrease somewhat in the first trimester due to the weakly stimulating effect of hCG on the thyroid but increase again by the end of the first trimester. Despite the changes, pregnancy is considered to be a euthyroid state."[14]

"During pregnancy, there is an increase in hormone production by the adrenal glands. The reduced vascular resistance and blood pressure stimulates the RAA system, resulting in a three-fold increase in aldosterone by the end of the first trimester and a ten-fold increase by the end of the third trimester. There is also an increase in the production of cortisol, adrenocorticotropic hormone (ACTH), corticosteroid-binding globulin (CGB), and deoxycorticosterone, resulting in a hyper cortisol state. By the end of the third trimester, total cortisol levels are three times higher than in non-pregnant women. By the end of pregnancy, the placenta contributes to the increased cortisol state due to its production of corticotropin-releasing hormone, thus helping to trigger labour."[14]

"The increased levels of estradiol in pregnancy result in an increase in prolactin, with serum prolactin levels increasing ten-fold by the end of pregnancy. This increased production induces growth in the pituitary gland caused by the proliferation of cells in the anterior lobe. Oxytocin levels, produced by the posterior pituitary, increase throughout pregnancy and peak at term. Elevated estrogen,

progesterone, and inhibin act to inhibit the production of follicle-stimulating hormone (FSH) and luteinizing hormone (LH), making these levels undetectable."[14]

Musculoskeletal and Dermatologic

"The shift in the center of gravity that occurs with pregnancy results in increased lordosis of the lower back and flexion in the neck. This shift in posture that can cause lower back strain that worsens as the pregnancy progresses. Increased mobility and widening of the sacroiliac joints and pubic symphysis occur, as well as joint laxity in the lumbar spine. Carpal tunnel syndrome is a common occurrence in pregnancy due to compression of the median nerve."[14]

"Increased estrogen levels result in spider angiomata and palmar erythema. Elevated melanocyte-stimulating hormones and steroid hormones lead to hyperpigmentation of the face, nipples, perineum, abdominal line, and umbilicus." [14]

Metabolism

"The placenta produces human placental lactogen (hPL), which acts to supply nutrition to the fetus. It induces lipolysis to increase free fatty acids, which are preferentially used by the pregnant mother for fuel. It also acts as an insulin antagonist to induce a diabetogenic state. This activity prompts hyperplasia of pancreatic beta-cells to create increased insulin levels and protein synthesis. In early pregnancy, maternal insulin sensitivity increases, followed by resistance in the second and third trimesters."[14]

"Total serum cholesterol and triglyceride levels increase during pregnancy due to increased synthesis in the liver and decreased activity of lipoprotein lipase. LDL cholesterol increases throughout pregnancy, with a 50% increase by term. HDL

cholesterol increases during the first half of pregnancy and then falls in the third trimester while still staying above non-pregnant levels. The increase in triglycerides is essential for supplying the mother's energy while sparing glucose for the fetus. The increased LDL levels are crucial for placental steroidogenesis."[14]

"There are increased caloric and nutritional requirements during pregnancy, including increased requirements for protein, iron, calcium, folate, and other vitamins and minerals. The protein requirement in pregnancy increases from 60 g/day to 70 to 75 g/day, as the amino acids are transported to the developing fetus. The calcium requirement increases to 1.5 g/day, due to the fetus requirement of 30 g of calcium. Maternal serum levels of calcium are maintained in pregnancy, with fetal needs being met by increased intestinal absorption starting at week 12."[14]

Function

"The primary function of pregnancy is to allow for the growth and development of the fetus. All changes that occur within the mother's body are intended to allow for this growth, as well as for the development of the placenta to nourish the fetus and sustain the pregnancy."[14]

Mechanism

"The menstrual cycle ranges from 26 to 35 days, with 28 days being the average duration. Menstrual bleeding begins on the first day of the menstrual cycle, and the heaviest flow occurs, on average, on day 2. The beginning of the menstrual cycle comprises the follicular phase, during which FSH from the pituitary gland stimulates the development of a primary ovarian follicle. This follicle induces estrogen production, allowing the uterine lining to proliferate. A spike in LH,

triggered by the estrogen surge, stimulates ovulation and begins the luteal phase. The greatest probability for conception occurs in the follicular phase, one day before ovulation. However, the fertile phase spans the time between 5 days before and the day of ovulation. After ovulation, the corpus luteum secretes progesterone, maintaining the endometrial lining for a fertilized ovum. If fertilization does not occur or the fertilized ovum does not implant into the endometrial lining, then the corpus luteum degenerates, progesterone levels fall, and the endometrial lining sloughs off to begin the menstrual cycle again."[14]

"If a fertilized ovum successfully implants into the endometrium, the trophoblast cells proliferate into syncytiotrophoblast cells and begin to produce hCG. This sustains the corpus luteum to maintain secretion of progesterone and estrogen, allowing the pregnancy to develop. The syncytiotrophoblast, along with the cytotrophoblast and extraembryonic mesoderm, goes on to form the placenta. The primary purpose of the placenta is to sustain the pregnancy and meet the demands of the fetus. The placental membrane allows for the exchange of nutrients and gases between the fetus and the mother's body, acting as the fetal respiratory, gastrointestinal, endocrine, renal, hepatic, and immune systems."[14]

"Pregnancy ends with the delivery of the fetus. There are several theories as to how labor initiates. Some studies show that labor becomes triggered by the withdrawal of progesterone and mechanical stretch experienced by the uterine wall."[14]

"Other studies suggest that inflammatory mediators, such as prostaglandins, are vital in initiating uterine contractions. Oxytocin then goes on to sustain contractions during labor and delivery."[14]

Term and post term pregnancy

"Gestation in singleton pregnancies lasts an average of 40 weeks (280 days) from the first day of the last menstrual period to the estimated date of delivery. In the past, the period from 3 weeks before until 2 weeks after the estimated date of delivery was considered "term" with the expectation that neonatal outcomes from deliveries in this interval were uniform and good. Increasingly, however, research has identified that neonatal outcomes, especially respiratory morbidity, vary depending on the timing of delivery even within this 5-week gestational age range. The frequency of adverse neonatal outcomes is lowest among uncomplicated pregnancies delivered between 39 0/7 weeks of gestation and 40 6/7 weeks of gestation. For this reason, quality improvement projects have focused, for example, on eliminating nonmedically indicated deliveries at less than 39 0/7 weeks of gestation." [15]

"In order to facilitate data reporting, delivery of quality health care, and clinical research, it is important that all clinicians, researchers, and public health officials use both uniform labels when describing deliveries in this period and a uniform approach to determining gestational age. To address the lack of uniformity in neonatal outcomes between 37 0/7 weeks of gestation and 42 0/7 weeks of gestation, a work group was convened in late 2012 to determine whether term pregnancy should be redefined. The work group included representatives from the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, the American College of Obstetricians and Gynaecologists (the College), the Society for Maternal-Fetal Medicine (SMFM), and other professional societies and stakeholder organizations. The work group recommended that the label "term" be replaced by the designations e*arly term, full term, late term,* and *post term* to more accurately describe deliveries occurring at or beyond 37 0/7 weeks of gestation. The group recommended

that the use of the label "term" to describe all deliveries between 37 0/7 weeks of gestation and 41 6/7 weeks of gestation should be discouraged. Details of the evidence and rationale that are the foundation of these recommendations can be found in published summaries of this conference." [15]

"The College and SMFM endorse and encourage the uniform use of the work group's recommended new gestational age designations by all clinicians, researchers, and public health officials to facilitate data reporting, delivery of quality health care, and clinical research." [15,16]

Problem Statement: Situation of Reproductive, Maternal and Child Health in India

"A good place to start addressing the maternal and child health issues is to understand the magnitude of the problem that requires to be addressed. Globally, an estimated 287,000 maternal deaths occurred in 2010, when the global maternal mortality ratio was 210 maternal deaths per 100,000 live births. Sub-Saharan Africa (56%) and Southern Asia (29%) accounted for 85% (or 245,000 in numbers) of the global burden of maternal deaths in 2010. At the country level, India accounted for 19% (56,000 in numbers) of all global maternal deaths. In terms of child mortality, globally 76 lakh children died in 2010 before reaching their fifth birthday." [17]

"Five countries – India, Nigeria, Democratic Republic of the Congo, Pakistan and China – collectively accounted for half or nearly 37.5 lakh of all global deaths in children younger than five years. India presently accounts for nearly 20% of the world's child deaths. In terms of numbers, it is the largest number of child deaths (approximately 15.8 lakh) under the age of five years in any country. The reasons for this are a large birth cohort (2.6 crore) and child population (15.8 crore in the age

group 0–6 years) and a relatively high child mortality rate (59 per 1,000 live births). Despite India being amongst the top five countries in terms of absolute numbers of maternal and child deaths, encouraging progress has been made in terms of reducing maternal and child mortality rates." [17]

"In 1990, when the global under five mortality rate was 88 per 1,000 live births, India carried a much higher burden of child mortality at 115 per 1,000 live births. In 2010, India's child mortality rate (59 per 1,000 live births) almost equals the global average of 57. As per the report of Maternal Mortality Estimation Inter-Agency Group, maternal mortality has shown an annual decline of 5.7% between the years 2005 and 2010. At the national level, maternal mortality ratio (MMR) declined from 254 (SRS 2005) to 212 (SRS 2007–09) – a decline of about 14 points per year on an 'All India' basis. In terms of numbers, there are still 56,000 maternal deaths each year. About two-thirds of maternal deaths occur in just a few states – Assam, Uttar Pradesh (including Uttarakhand), Rajasthan, Madhya Pradesh (including Chhattisgarh), Bihar (including Jharkhand) and Odisha. However, these states have also shown the most notable drop in MMR (between Sample Registration System (SRS) 2004–06 and SRS 2007– 09) during the initial years of NRHM: Assam (90 points), Uttar Pradesh including Uttarakhand (81 points), Rajasthan (70 points), Madhya Pradesh and Chhattisgarh (66 points). It is likely that more of this success will be evident as and when data from the current period becomes available. The mortality rate in children below five years is 59 per 1,000 live births (SRS 2010), which translates into 15.8 lakhs deaths in the country per year. Of these, 8.8 lakh (56%) children die in the first month of life; 12.5 lakh (79%) children die in the first year, including the neonatal period. The neonatal mortality rate has remained

stagnant, constituting an even larger proportion of the total child deaths (0–5 years) in 2010."[17]

"A rural-urban differential in under-five mortality is evident and stands at 28 points; however, the encouraging trend is that the decline in rural child mortality has been faster than the urban. There is also a gender differential of 9 points in the under-five category (female: 64; male: 55), underlining the need to address social determinants of health, including the status of women and the girl child, female literacy, and women's economic and social empowerment." [17]

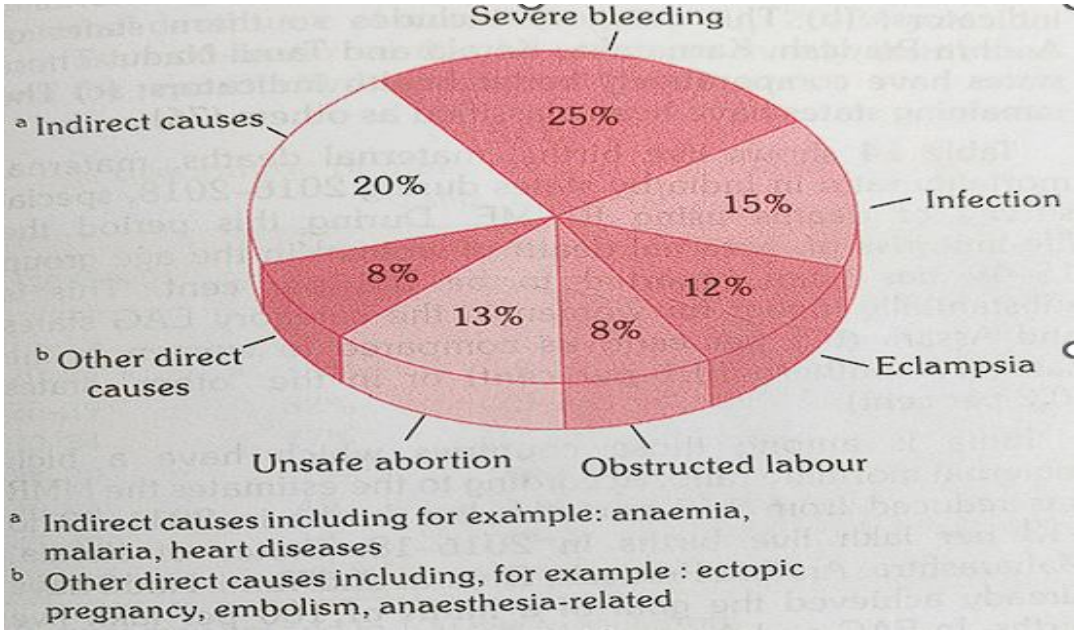
Problem Analysis: "Causes for Maternal and Child Deaths in India"[17]

"Considering the large number of maternal and child deaths taking place in the country, it is important to understand why these deaths occur. This chapter provides a brief overview of the most common causes for maternal and child mortality in India. The analysis forms the basis for planning and identification of thrust areas for intervention. Maternal mortality is a key indicator for maternal health and reveals inequalities between and also within states that cannot be attributed to biological differences alone. Maternal mortality results from multiple reasons, which can broadly be classified as medical, socio-economic and health system-related factors. The medical causes can be direct or indirect."[17]

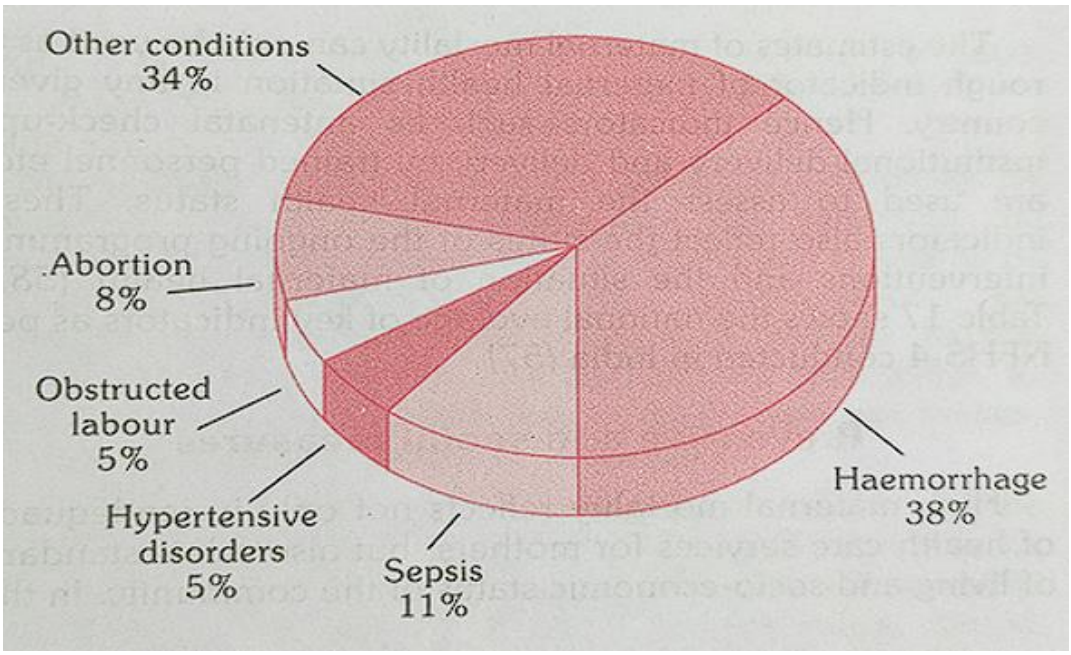
"The most common direct medical causes of maternal death as per SRS (2001–03) are haemorrhage, mainly postpartum (37%), sepsis because of infection during pregnancy, labour and postpartum period (11%), unsafe abortions (8%), hypertensive disorders (5%) and obstructed labour (5%). These conditions are largely preventable and once detected, they are treatable. A significant proportion of maternal deaths are also attributed to 'indirect causes', the most common of which are anaemia

and malaria. Among children who die before their fifth birthday, almost one third of them die of infectious causes, nearly all of which are preventable."[17]

"As per WHO-CHERG 2012 estimates, the causes of child mortality in the age group 0–5 years in India are (a) neonatal causes (52%), (b) pneumonia (15%), (c) diarrhoeal disease (11%), (d) measles (3%), (e) injuries (4%) and (f) others (15%). The major causes of neonatal deaths are prematurity (18%), that is, birth of a child before 37 weeks of gestation, infections (16%) such as pneumonia and septicaemia and asphyxia (10%), that is, inability to establish breathing immediately after birth and congenital causes (5%). Preterm birth has emerged as the leading cause of neonatal death, underlying the need for rapid scale-up of maternal health interventions in order to improve neonatal health outcomes."[17]



"Status and causes of maternal mortality: world scenario"[18]



"Status and causes of maternal mortality: Indian scenario"[18]

"A large number of maternal and child deaths are attributable to the 'three delays': (1) the delay in deciding to seek care, (2) the delay in reaching the appropriate health facility, and (3) the delay in receiving quality care once inside an institution. The delay in deciding to seek care can occur due to inadequate resources, poor access to high-quality health care and lack of awareness of the importance of maternal and newborn health care at the household level. The unavailability of basic reproductive health services, including contraceptives, pre- and postnatal care and emergency obstetric and neonatal care, as well as delays in seeking institutional care and the poor quality of care provided in the health facility can potentially contribute to maternal and child deaths. The interventions included in the RMNCH+A approach document essentially look to address the major causes of death as well as the three delays in accessing and utilising healthcare services. These interventions are described in the later sections of this document. The reproductive, maternal, neonatal and child health packages that are currently being implemented under the NRHM address the most common causes of maternal and child deaths. However, the coverage

of key interventions, such as antenatal care, deliveries by skilled birth attendants, and use of oral rehydration solution (ORS) for the management of childhood diarrhoea during the NRHM period has been slow and of variable quality across states." [17]

High risk pregnancy

Epidemiology of preeclampsia and eclampsia

"Hypertension in pregnancy complicates approximately 7-10% of pregnancies and remains a major cause of maternal and perinatal morbidity and mortality. Severe pre-eclampsia/eclampsia (generalized convulsions with pre-eclampsia) which occurs in approximately 1-3 in 1000 women is thought to be a terminal progression of pre-eclampsia1. He maternal mortality rate for eclampsia is 2-3 cases per 10,000 births in Europe and North America and 16-69 cases per 10,000 births in developing countries. 10-15% of direct maternal deaths are associated with preeclampsia annually."[18]

"Pre-eclampsia is a multisystem disorder that complicates 3%–8% of pregnancies in Western countries and constitutes a major source of morbidity and mortality worldwide." [19,20]

"Overall, 10%–15% of maternal deaths are directly associated with pre-eclampsia and eclampsia. Some epidemiological findings support the hypothesis of a genetic and immunological etiology. The risk of pre-eclampsia is 2-fold to 5-fold higher in pregnant women with a maternal history of this disorder. Depending on ethnicity, the incidence of pre-eclampsia ranges from 3% to 7% in healthy nulliparas and 1% to 3% in multiparas. Moreover, nulliparity and a new partner have been shown to be important risk factors." [21]

Pathophysiology preeclampsia and eclampsia

"During normal pregnancy, the villous cytotrophoblast invades into the inner third of the myometrium, and spiral arteries lose their endothelium and most of their muscle fibers. These structural modifications are associated with functional alterations, such that spiral arteries become low-resistance vessels, and thus less sensitive, or even insensitive, to vasoconstrictive substances." [22]

"Pre-eclampsia has a complex pathophysiology, the primary cause being abnormal placentation. Defective invasion of the spiral arteries by cytotrophoblast cells is observed during pre-eclampsia. Recent studies have shown that cytotrophoblast invasion of the uterus is actually a unique differentiation pathway in which the fetal cells adopt certain attributes of the maternal endothelium they normally replace. In pre-eclampsia, this differentiation process goes awry. The abnormalities may be related to the nitric oxide pathway, which contributes substantially to the control of vascular tone. Moreover, inhibition of maternal synthesis of nitric oxide prevents embryo implantation." [23]

"Increased uterine arterial resistance induces higher sensitivity to vasoconstriction and thus chronic placental ischemia and oxidative stress. This chronic placental ischemia causes fetal complications, including intrauterine growth retardation and intrauterine death. In parallel, oxidative stress induces release into the maternal circulation of substances such as free radicals, oxidized lipids, cytokines, and serum soluble vascular endothelial growth factor 1. These abnormalities are responsible for endothelial dysfunction20 with vascular hyperpermeability, thrombophilia, and hypertension, so as to compensate for the decreased flow in the uterine arteries due to peripheral vasoconstriction."[23]

"Endothelial dysfunction is responsible for the clinical signs observed in the mother, ie, impairment of the hepatic endothelium contributing to onset of the HELLP (Hemolysis, Elevated Liver enzymes and Low Platelet count) syndrome, impairment of the cerebral endothelium inducing refractory neurological disorders, or even eclampsia. Depletion of vascular endothelial growth factor in the podocytes makes the endotheliosis more able to block the slit diaphragms in the basement membrane, adding to decreased glomerular filtration and causing proteinuria. Finally, endothelial dysfunction promotes microangiopathic hemolytic anemia, and vascular hyperpermeability associated with low serum albumin causes edema, particularly in the lower limbs or lungs."[23]

"The crucial issue to understand is that the prime mover of pre-eclampsia is abnormal placentation. Two common theories appear to be interlinked, ie, a genetic theory and an immunological theory. Several susceptibility genes may exist for pre-eclampsia. These genes probably interact in the haemostatic and cardiovascular systems, as well as in the inflammatory response. Some have been identified, and in candidate gene studies they have provided evidence of linkage to several genes, including angiotensinogen on 1-q42–43 and eNOS on 7q36; other main important loci are 2p12, 2p25, 9p13, and 10q22.1." [24]

"Pre-eclampsia can be perceived as an impairment of the maternal immune system that prevents it from recognizing the fetoplacental unit. Excessive production of immune cells causes secretion of tumor necrosis factor alpha which induces apoptosis of the extravillous cytotrophoblast." [25]

"The human leukocyte antigen (HLA) system also appears to play a role in the defective invasion of the spiral arteries, in that women with pre-eclampsia show reduced levels of HLA-G and HLA-E." [26]

"During normal pregnancies, the interaction between these cells and the trophoblast is due to secretion of vascular endothelial growth factor and placental growth factor by natural killer cells. High levels of soluble fms-like tyrosine kinase 1 (sFlt-1), an antagonist of vascular endothelial growth factor and placental growth factor, have been found in women with pre-eclampsia."[27]

"Accordingly, assays of sFlt-1, placental growth factor, endoglin, and vascular endothelial growth factor, all of which increase 4–8 weeks before onset of the disease, may be useful predictors of pre-eclampsia. Recent data show the protective role of heme oxygenase 1 and its metabolite, carbon monoxide, in pregnancy, and identify this as a potential target in the treatment of pre-eclampsia" [28]

"Two hypotheses exist regarding the vascular changes associated with eclampsia. Vasospasm causing local ischemia will result in arterial necrosis and disruption of the blood-brain barrier, which leads to cerebral edema. Angiographic studies have demonstrated both cerebral edema and vasospasm. Conversely, however, vasoconstriction may be a protective rather than a pathological response to extremes of arterial pressure. It may prevent an uncontrolled increase in arterial perfusion and damage to the distal microcirculation. At high arterial pressures, the vascular smooth muscle may reach the limits of its strength and then dilate. Short segments vasodilate first, but they extend until the length of the vessel is compromised. HLs sequence can be shown during experimental hypertension. HLe dilation is associated with damage to the vessel wall, focal edema, and a passive increase in cerebral blood floZ. Which

of these mechanisms is responsible for the changes in eclampsia is unknown. Both vasogenic and cytotoxic edema have been shown in eclampsia." [18]

Pathophysiology and burden of HELLP syndrome

"The HELLP syndrome is a serious complication in pregnancy characterized by haemolysis, elevated liver enzymes and low platelet count occurring in 0.5 to 0.9% of all pregnancies and in 10–20% of cases with severe preeclampsia. The present review highlights occurrence, diagnosis, complications, surveillance, corticosteroid treatment, mode of delivery and risk of recurrence. It has been known for a long time that preeclampsia may be associated with haemolysis, elevated liver enzymes and thrombocytopenia. Weinstein regarded signs and symptoms to constitute an entity separated from severe preeclampsia and in 1982 named the condition HELLP (H = Haemolysis, EL = Elevated Liver enzymes, LP = Low Platelets) syndrome. The HELLP is currently regarded as a variant of severe preeclampsia or a complication. Diagnosis of the complete form of the HELLP syndrome requires the presence of all 3 major components, while partial or incomplete HELLP syndrome consists of only 1 or 2 elements of the triad (H or EL or LP)."[18]

"The HELLP syndrome, a serious condition in its complete form, is associated with substantial risk for the mother and her foetus. A wide range of complications may arise and the condition represents diagnostic and therapeutic problems; timing and method of delivery are important."[29]

Pathophysiology of HELLP syndrome

"HELLP (haemolysis, elevated liver enzymes, and low platelet count) syndrome is serious for the mother and the offspring. HELLP occurs in 0.2-0.8% of

pregnancies and in 70-80% of cases it coexists with preeclampsia (PE). This review concerns the pathogenetic mechanisms of HELLP syndrome with an emphasis on differences between HELLP and early onset PE. The syndromes show a familial tendency. A previous HELLP pregnancy is associated with an increased risk of HELLP as well as PE in subsequent pregnancies, indicating related etiologies. No single world-wide genetic cause for excessive risk of HELLP or PE has been identified. Combinations of multiple gene variants, each with a moderate risk, with contributing effects of maternal and environmental factors, are probable etiological mechanisms. Immunological maladaptation is the most probable trigger of the insult to the invading trophoblast. This insult occurs early in the first trimester, as indicated by marker molecules in maternal blood. The levels of fetal messenger RNAs in maternal blood at gestational weeks 15-20 are significantly more abnormal in HELLP than in PE, suggesting that the insult is more extensive in HELLP. High levels of HLA-DR in maternal blood in women with HELLP may suggest a similarity to the rejection reaction. In third trimester placentas, gene derangement is more extensive in HELLP. Anti-angiogenic factors released into maternal blood induce the maternal syndromes. Maternal blood levels of anti-angiogenic sFlt1 are similar, but endoglin and Fas Ligand levels are possibly higher in HELLP than in PE. These factors trigger the vascular endothelium, resulting in an enhanced inflammatory response which is stronger in HELLP. Activated coagulation and complement, with high levels of activated leucocytes, inflammatory cytokines, TNF-α, and active von Willebrand factor, induce thrombotic microangiopathy with platelet-fibrin thrombi in micro vessels. The angiopathy results in consumption of circulating platelets, causes haemolysis in affected micro vessels and reduces portal blood flow in the liver. Placental Fas Ligand damages hepatocytes, resulting in periportal necrosis. In about one half of women with HELLP, activation of coagulation factors and platelets

precipitates disseminated intravascular coagulation, which in a minority becomes uncompensated and contributes to life-threatening multiorgan failure." [29]

Modified Early Obstetrics warning system (MEOWS)

"In the UK overall there has been a small but welcome decline in maternal death rates against a backdrop of increasing birth rates and an older and less healthy population of mothers. However, for every death, nine women develop major obstetric complications including haemorrhage, infection, hypertensive disorders and thromboembolism. A recent confidential enquiry into maternal deaths in the UK identified substandard care in a number of the cases."[30]

"Many of the avoid able factors such as lack of routine observations and failure to recognise the significance of deteriorating vital signs remained the same as those identified in previous enquiries. To reduce delay, there have been calls for a modified early obstetric warning system (MEOWS) for routine use on all pregnant or postpartum women who have been admitted to hospital and require obstetric or gynaecology services in addition to those who have already been identified as critically ill." [31,32]

"Use of the MEOWS is now included in the maternity risk management standards set by the National Health System (NHS) Litigation Authority." [33]

"Early warning systems (EWS) use a set of predetermined 'calling criteria' (based on periodic charting of vital signs) as indicators of the need to escalate monitoring or call for assistance." [34]

"In acute care, while EWS have been found to legitimise calling for help across hierarchical boundaries" [35,36] "the heterogeneity of tools has undermined staff confidence in their validity and made it difficult to identify the optimal system." [37,38]

"An EWS modified for the obstetric population needs to have predictive ability for conditions such as sepsis, haemorrhage and pre-eclampsia, and to reflect the physiological changes associated with pregnancy and the early postnatal period." [39] "While several studies concluded that the MEOWS may be a useful tool for predicting obstetric morbidity," [40-42] "there is a lack of robust evidence linking implementation of MEOWS with improved outcomes, which raises questions about its effectiveness and generalisability."[43] "While some obstetric anaesthetists have demonstrated support for a national MEOWS tool, poor compliance with guidelines has also been docu mented[44] and concerns have been expressed about its relevance for the healthy pregnant population."[45,46]

"Modified Early Obstetrics warning system (MEOWS)" [47]

Aims of MEOWS chart: [47]

- "To facilitate timely recognition of the patients with established or impending critical illness."
- "To empower midwives and medical staff to escalate appropriately through the operation of a trigger threshold which, if reached, requires mandatory attendance by a more experienced member of staff."

"Although most patients will benefit from utilisation of MEOW/WOW charts the clinician's own clinical judgement dictates whether he or she requires the patient to be regularly scored."

However, MEOWS/WOW chart is not:

- A predictor of outcome
- A replacement for clinical judgement

When to use MEOWS chart?

"MEOWS charts rely on the routine recording and charting of the physiological status of the patient. These are simple observations that can be performed by a midwife, doctor or other trained staff."

"MEOWS charts should be used for all obstetric admissions in all clinical settings where observations are required based on clinical presentations. For antenatal and intrapartum women, the MEOWS observations should be recorded in Badgernet."

- "All Triage/Antenatal admissions."
- "Intrapartum period: Routine observations in labour will be recorded in a partogram in the badgernet record. If a woman requires enhanced care in labour, the enhanced care MEOWS/WOW chart should be used."
- "All women requiring enhanced care in delivery suite (antenatal/intrapartum or postnatal) should have their observations recorded on enhanced care WOW chart.
- All postnatal admissions/ maternal readmissions."
- "It may also be necessary to assess a patient using the MEOWS chart prior to transferring them to another ward within the hospital or to an external healthcare provider." [47]

What is a MEOWS chart?

"MEOWS is a way to record maternal observations and it includes following parameters."

- Respiratory Rate
- Oxygen Saturation
- Temperature
- Heart rate
- Systolic blood pressure
- Diastolic blood Pressure
- Proteinuria
- Colour of liquor
- Neural response
- Lochia
- General condition

"MEOWS score is calculated from the data inputted and will allocate a red, yellow and white zone. It is the yellow and red score in addition to the overall clinical situation that will dictate the need to seek help/ advice of more experienced medical staff."[47]

Frequency of scoring MEOWS in hospitalised patients:

"Every time a set of observation is performed in either ante or postnatal women, MEOWS should be calculated and recorded in the observation chart. All high-risk women presenting to labour room and wards who are having baseline observations carried out should have a MEOWS calculated and documented in the

records every 12th hourly. In order to empirically derive an early warning score to predict maternal death, physiologic data from obstetric patients were used."[47]

Antenatal:

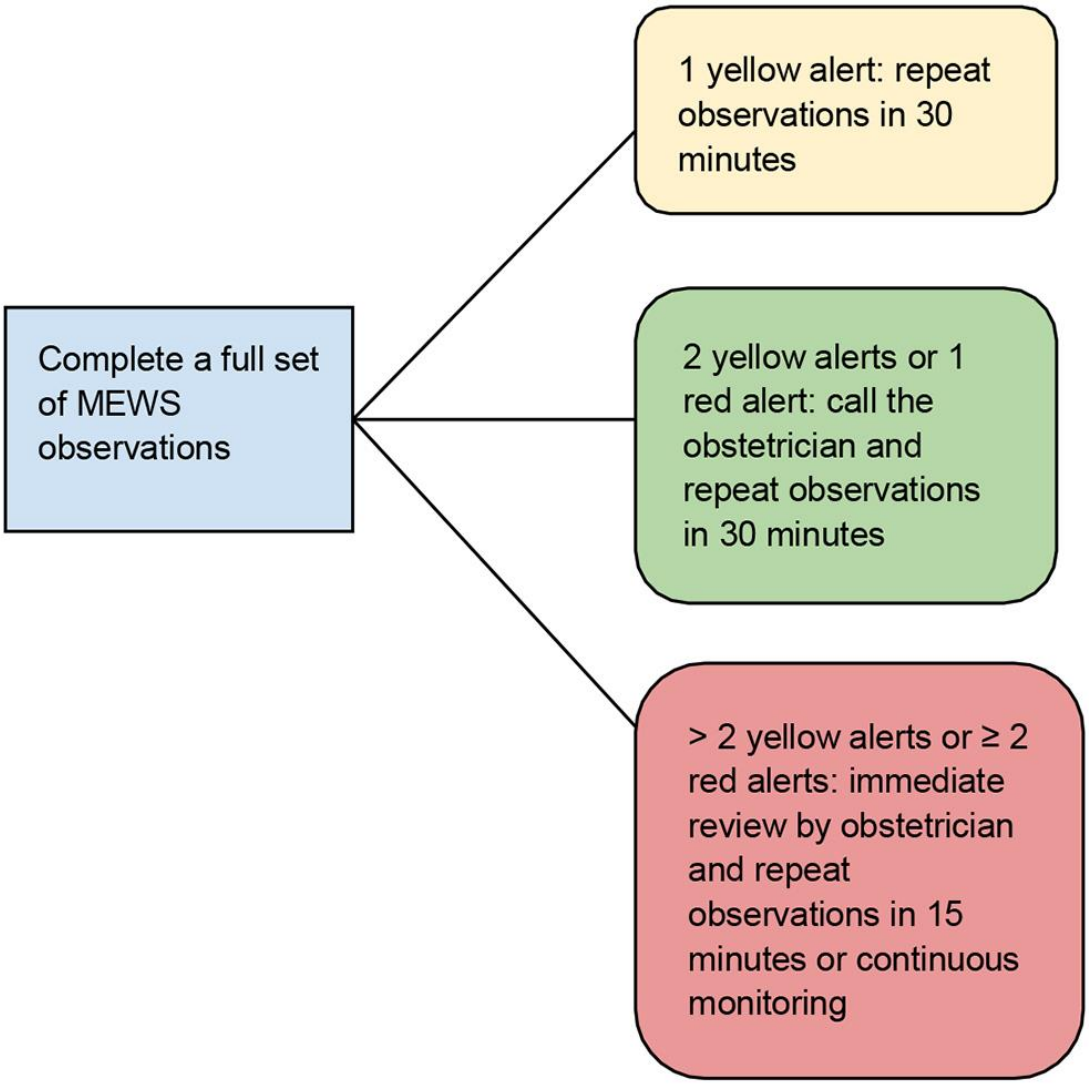
"Frequency of observations will depend on the nature of the admission or as indicated by the lead clinician. Full set of observations should be carried out twice daily at least 12 hours apart minimum."

Delivery room:

"All women should have a set of MEOWS observations documented in the records on admission in delivery room. Currently women who are in labour need not have MEOWS repeated. Regular observations should still be documented on the partogram as usual. However a score attributable to the baseline observations on admission and recorded in the records. High risk women receiving care in delivery room should have the MEOWS score documented on the mega chart. Normal MEOWS observation chart should be started once the mega chart is no longer used."[47]

Postnatal ward:

"All women should have a full set of observations on admission to the postnasal ward and should have this repeated a minimum of 12 hours apart. A MEOWS score should be attributed to every set of observations. The frequency of observations will depend on the nature of the admission or as indicated by the lead practitioner."[47]


Complete a full set of MEWS observations
1 yellow alert: repeat observations in 30 minutes
2 yellow alerts or 1 red alert: call the obstetrician and repeat observations in 30 minutes
> 2 yellow alerts or ≥ 2 red alerts: immediate review by obstetrician and repeat observations in 15 minutes or continuous monitoring

Triggering on MEOWS:

"A trigger is defined as a single markedly abnormal observation (red trigger), or the combination of two simultaneous mildly abnormal observations (two amber triggers)."[47]

"It is important to remember that when the women triggers she requires referral to appropriate level doctor, monitoring, review or repeat of investigations and a plan of care. Recognition of deterioration in condition does not necessarily mean diagnosis, but does mean investigation and appropriate level referral involving a multidisciplinary approach."[47]

MEOWS Scorecard[47] –

Parameter	White zone	Yellow zone	Red zone
Respiratory rate (breaths/min)	10-20	21-30	<10 or>30
Oxygen saturation (%)	95-100%	-	<95%
Temperature (degree Celsius)	36-38 °C	35-<36 °C	>38 °C or<35 °C
Heart rate (beats/min)	50-100	>100-120 or 40-<50	<40 or>120
Systolic Blood Pressure (mmHg)	100-140	90-<100 or >140-160	<90 or>160
Diastolic Blood Pressure (mmHg)	<90	90-100	>100
Proteinuria	nil-trace	1+to 2+	>2+
Colour of liquor	Clear	-	Green
Neural response	Alert	Responds to verbal stimuli	Unresponsive, responds to pain
Lochia	Healthy	Heavy/foul smell	-
General condition	Looks well	Looks unwell	-

Physiological parameters included in our MEOWS chart [48]

"The physiological parameters included in the MEOWS chart have been carefully selected to encompass all the standard observations required in a NEWS chart with the addition of those parameters specifically relevant to pregnant and postnatal women. The physiological parameters recorded on a NEWS chart are respiratory rate, oxygen saturation, temperature, systolic blood pressure, heart rate and conscious level. These form the minimum standard for routine monitoring of physiological observations set by the NICE (2007b). Blood sugar can be recorded on the chart. The value is not mandatory and does not form part of the formal assessment; however, the result may be valuable to clinicians in some circumstances. Hyperglycaemia is one of the parameters included in the diagnostic criteria for sepsis (Dellinger et al, 2012). Specific maternal observations that are recorded on the MEOWS chart are diastolic blood pressure, severity of pain, antenatal discharge and/or postnatal lochia and proteinurea."[48]

Respiratory rate

"Respiratory rate is the most sensitive indicator of deteriorating physiology and must be recorded in all women every time a full set of observation is made. Respiratory rate is a mandatory observation as it is the best marker of a sick woman and is the first observation that will indicate a problem or deterioration in condition."

Oxygen saturation

"Hand held pulse oxymeter is an easy and invaluable method of monitoring blood oxygen levels, particularly in patients with respiratory distress or abnormal

respiratory rates and pattern. If a patient is receiving oxygen, then the rate of administered oxygen should be documented underneath the saturations."

Temperature

"Temperature change may not necessarily be an effective measure of deterioration. A fall or rise in temperature may indicate sepsis, and a sepsis screen and appropriate antibiotic therapy should be considered. Septicaemic shock can be particularly difficult to recognise. A collapsed septic patient may exhibit all the signs and symptoms of hypovolemia, but if there is no positive response from fluid resuscitation after 10 minutes, then septicaemic shock should be considered and a full sepsis screen ordered urgently."

Pulse rate

"Tachycardia is the key parameter for early detection of critical illness in maternal obstetric patients. Pulse should be measured manually to asses rate, volume and regularity. Pulse rate can be monitored via a saturation probe on the finger. But if the women is peripherally shut down, as in cases of hemorrhage, the pulse oxymetry probe will not detect the pulse rate accurately. Moreover, pulse oxymeter does not give an idea regarding regularity and pulse volume. Nail paints commonly used by women also affects waveform and accuracy. Tachycardia is often an early sign of deterioration and can indicate an impending collapse and 24 hemodynamic abnormality. A tachycardic women should be considered hypovolemic until proven otherwise. Hence reading of pulse should be done manually and with utmost care not to miss an early sign of deterioration."

Blood pressure

"Blood pressure should be recorded using correct cuff size, especially in obese women. All pregnant women with a systolic blood pressure of 160mm of Hg or more require antihypertensive treatment. Also a reading of 160mm of Hg triggers a red score. Pregnant women can lose upto 30-40% of total circulating blood volume before any change in blood pressure can be appreciated while recording. Hence falling BP should be regarded as a late sign of deterioration. BP recording should preferably be done manually using an aneroid BP apparatus as electronic recordings can underestimate BP readings to the tune of 5%. If electronic recording of BP is found to be raised, it should be rechecked manually at least once using an aneroid BP machine."

Proteinurea

"Urinalysis assessment of protein is included, the expectation being that urinalysis is performed as a minimum once daily when appropriate. The rationale is that midwives will consider pre-eclampsia."

Lochia

"The vaginal discharge in puerperium which lasts for 4 to 6 weeks is an important marker of sepsis in postnatal period and is also noted while examining a postnatal period and is also noted while examining a postnatal woman. MEOWS chart in some countries do not have lochia as a parameter."

Guidelines for the use of MEOWS:

"Effective warning systems include clear expectations for observation, predefined criteria for an abnormality, and a protocol to trigger a response if any

abnormality is detected. The MEOWS is calculated by scoring a full set of observations carried out routinely by staff which includes all the above-described variables. Of all the variables the heart rate, BP and respiratory rate are the sensitive indicator in the same order."[48]

Similar studies conducted in the past

Mackintosh N et al[49] in 2014 "conducted the study with the objective to explore implementation of the modified early obstetric warning system (MEOWS) in practice to further understanding about the influence of contextual factors. Methods An ethnographic study using observations (>120 h), semi-structured interviews (n=45) and documentary review was performed in the maternity services in two UK hospitals over a 7-month period. Doctors, midwives and managers participated in the study and data were analysed thematically. Results For women admitted to hospital in the antenatal and postnatal period with an established risk of morbidity, the MEOWS enabled communication about vital signs from junior to senior midwives and obstetricians. The trigger prompts helped shape shared understandings of maternal complications. However, midwifery and obstetric staff questioned the added value of an extra chart in the postnatal period given the low incidence of maternal complications and the resulting increase in workload. In an effort to prioritise workload demands and respond to the immediate needs of both women and their babies, midwives exercised professional discretion regarding its use. However, discretionary use of MEOWS meant the loss of a potential universal safety net for detection of deterioration. Conclusions Despite a decade of use in acute settings, research into the effectiveness of early warning systems still yields conflicting results. Widespread policy support for the MEOWS is based on its intuitive appeal and no validated system for use in the maternity population currently exists. Our findings

suggest that, while the MEOWS has value in structuring the surveillance of hospitalised women with an established risk of morbidity, the complexities of managing risk and safety within the maternity pathway, the associated opportunity costs of MEOWS and variation in implementation currently call into question its role for routine use."[49]

Singh A. et al[50] in 2016 "conducted the study with the objective to evaluate MEOWS chart as a bedside screening tool for predicting obstetric morbidity and to correlate each physiological parameter individually with obstetric morbidity. It was a prospective observational study conducted in labour wards of Guru Teg Bahadur Hospital, Delhi, India from October 2012 to April 2014. Physiological parameters of 1065 study subjects (including pregnant women in labour >28 weeks of gestation and postpartum women up to 6 weeks after delivery) were recorded on MEOWS chart. A *trigger* was defined as a single markedly abnormal observation (red trigger) or the combination of two simultaneously mildly abnormal observation (two yellow triggers). Based on outcome at time of discharge, Category 1 (normal and recovered without morbidity) and Category 2 (recovered with morbidity or mortality) were defined. Chi-square and Fischer's exact test were used for comparison between two groups. Performance of MEOWS chart was evaluated using Exact's method. Relative risk of morbidity (odd's ratio) and 95% confidence interval was calculated for individual parameter. $p < 0.05$ was considered as significant. Two-hundred and eighty-four (26.6%) women triggered to abnormal zones on these charts. One-hundred and seventy-seven (16.61%) fulfilled the criteria for obstetric morbidity. MEOWS chart was 86.4% sensitive, 85.2% specific with a positive and negative predictive value of 53.8% and 96.9% respectively for prediction of obstetric morbidity. Individual parameters of MEOWS chart also had a significant correlation ($p < 0.05$)

with obstetric morbidity. MEOWS chart emerged as a useful bedside screening tool for prediction of obstetric morbidity and should be used routinely in every obstetric unit. Strict monitoring and documentation of all the vital parameters should be fundamental part of any patient's assessment to pick up acute illness at very early stage and to make a difference in final outcome."[50]

Uma A. et al[51] in 2019 "conducted the study with the objective to conducted a systematic literature review of published obstetric early warning systems, define their predictive accuracy for morbidity and mortality, and their effectiveness in triggering corrective actions and improving health outcomes. We systematically searched for primary research articles on obstetric EWS published in peer-reviewed journals between January 1997 and March 2018 in Medline, CINAHL, SCO PUS, Science Direct, and Science Citation Index. We also searched reference lists of relevant articles and websites of professional societies. We included studies that assessed the predictive accuracy of EWS to detect clinical deterioration, or/and their effectiveness in improving clinical outcomes in obstetric inpatients. We excluded studies with a paediatric or non-obstetric adult population. Cross-sectional and qualitative studies were also excluded. We performed a narrative synthesis since the outcomes reported were heterogeneous. Results A total of 381 papers were identified, 17 of which met the inclusion criteria. Eleven of the included studies evaluated the predictive accuracy of EWS for obstetric morbidity and mortality, 5 studies assessed the effectiveness of EWS in improving clinical outcomes, while one study addressed both. Sixteen published EWS versions were reviewed, 14 of which included five basic clinical observations (pulse rate, respiratory rate, temperature, blood pressure, and consciousness level). The obstetric EWS identified had very high median (inter-quartile range) sensitivity—89% (72% to 97%) and specificity—85% (67% to 98%)

but low median (inter-quartile range) positive predictive values—41% (25% to 74%) for predicting morbidity or ICU admission. Obstetric EWS had a very high accuracy in predicting death (AUROC>0.80) among critically ill obstetric patients. Obstetric EWS improves the frequency of routine vital sign observation, reduces the interval between the recording of specifically defined abnormal clinical observations and corrective clinical actions, and can potentially reduce the severity of obstetric morbidity. Obstetric EWS are effective in predicting severe morbidity (in general obstetric population) and mortality (in critically ill obstetric patients). EWS can contribute to improved quality of care, prevent progressive obstetric morbidity and improve health outcomes. There is limited evidence of the effectiveness of EWS in reducing maternal death across all settings. Clinical parameters in most obstetric EWS versions are routinely collected in resource-limited settings, therefore implementing EWS may be feasible in such settings."[51]

Hannola A. et al[52] in 2021 "conducted the study with the objective to detect deterioration of the patient and to enable timely intervention to prevent possible severe illness. The most common causes of maternal morbidity and mortality after birth are worsening pre-eclampsia, postpartum haemorrhage and puerperal infection. Our aim was to validate the accuracy of the obstetric early warning system and different physiological triggers to predict morbidity on the postnatal ward in high-risk women. A tertiary referral hospital in Finland. High-risk women (n=828) (body mass index > 35 kg/m^2, postpartum haemorrhage > 1,500 g, pre-eclampsia, chorioamnionitis during birth, type 1 diabetes or anxiety over the maternal condition based on clinical judgement) were studied on the postnatal ward in the first 24 hours after giving birth. In this study population the women without any morbidity served as a control group. The study was conducted between 1.11.2016 – 30.4. 2018 covering a

period of 18 months. The accuracy of the obstetric early warning system and its five physiological parameters—respiratory rate, oxygen saturation, blood pressure, heart rate and body temperature—and a pain score to predict worsening pre-eclampsia, complications related to postpartum haemorrhage and puerperal infection were determined. A red trigger is as a single, markedly abnormal observation, and a yellow trigger is a combination of two mildly abnormal observations. The sensitivity of obstetric early warning system at its best was 72% for pre-eclampsia, 52% for infection and 25% for postpartum haemorrhage. The red triggers were significantly associated with morbidity in each outcome studied. The red triggers of systolic blood pressure (OR 25.7, 95% CI 13.2-50.1) and diastolic blood pressure (OR 22.1, 95% CI 11.3-43.0) were independently associated with pre-eclampsia, systolic blood pressure (OR 2.7, 95% CI 1.4-5.6) and heart rate (OR 3.6, 95% CI 1.7-7.6) with postpartum haemorrhage and heart rate (OR 3.3, 1.0-10.3) with infection. The sensitivity of obstetric early warning system varied depending on the type of morbidity. The highest sensitivity and positive predictive value were in pre-eclampsia. Systolic and diastolic blood pressure and heart rate were the strongest physiological parameters to predict morbidity."[52]

Ibáñez-Lorente C et al[53] in 2021 "conducted the study with the objective to evaluate the implementation of a maternal early warning system (MEWS) for monitoring patients during the first two hours after delivery in a tertiary level hospital. Implementation of the criteria between 15 March and 15 September 2018 was evaluated in 1166 patients. The parameters collected were systolic and diastolic blood pressure, heart rate, oxygen saturation, urine output, uterine involution, and bleeding. Out-of-range values of any of these parameters triggered a warning, and an obstetrician was called to examine the patient. The obstetrician then decided whether

to call the anaesthesiologist. We carried out a sensitivity-specificity study of triggers and a multivariate analysis of the factors involved in developing potentially fatal disorders (PFD), reintervention, critical care admission and stay. Results TheMEWSwastriggeredin75patients (6.43%). Leading trigger was altered systolic blood pressure in 32 patients (42.7%), and 11 patients had a PFD. Twenty-eight triggers were false-negatives. Sensitivity and specificity of the system was 0.28 (0.15, 0.45) and 0.94 (0.93, 0.96), respectively. The multivariate analysis showed a correlation between trigger activation and PFD. Our MEWS presented low sensitivity and high specificity, with a significant number of false negatives."[53]

Radha R. et al[54] in 2021 "conducted the study with the objective to formulate and identify the high-risk groups with the usually used bedside and routine blood parameters. Materials and Methods: This was a prospective study. After obtaining proper informed consent, those women who got admitted as inpatients to the maternity unit with gestation period between 20 weeks to term and followed postpartum up to the period of discharge were included in the study. MEOWS was used as a tool to monitor their well-being. Our study results revealed that using MEOWS for monitoring pregnant women led to a statistically significant improvement in maternal health care. Our study has clearly brought out the significance and correlation of various parameters in relation to maternal morbidities. In a developing country like India, identification of high-risk cases with parameters such as blood pressure, heart rate, respiratory rate, temperature, and renal parameters would go a long way in preventing maternal mortality."[54]

Yonghui X. et al[55] in 2022 "conducted the study with the objective to determine whether severe maternal morbidity is effectively predicted by a newly proposed Modified Obstetric Early Warning Score (MOEWS) in the setting of an obstetric

intensive care unit (ICU). Methods: A retrospective study of pregnant women admitted in the ICU from August 2019 to August 2020 was con ducted. MOEWS was calculated 24 h before and 24 h after admission in the ICU, and the highest score was taken as the final value. For women directly admitted from the emergency department, the worst value before admission was collected. The aggregate performance of MOEWS in predicting critical illness in pregnant women was evaluated and finally compared with that of the Acute Physiology and Chronic Health Evaluation II (APACHE II) score. Results: A total of 352 pregnant women were enrolled; 290 women (82.4%) with severe maternal morbidity were identified and two of them died (0.6%). The MOEWSs of women with serious obstetric complications were significantly higher than those of women without serious obstetric complications [8(6, 10) vs. 4(2, 4.25), z = -10.347, P < 0.001]. MOEWSs of 24 h after ICU admission had higher sensitivity, specificity and AUROC than MOEWSs of 24 h before ICU admission. When combining the two MOEWSs, sensitivity of MOEWS was 99.3% (95% CI: 98–100), specificity 75.8% (95% CI: 63–86), positive predictive value (PPV) 95.1% (95% CI: 92–97) and negative predictive value (NPV) 95.9% (95% CI: 86–100). The areas under the receiver operator characteristic (ROC) curves of MOEWS were 0.92 (95% CI: 0.88–0.96) and 0.70 (95% CI: 0.63–0.76) of the APACHE II score. Conclusion: The newly proposed MOEWS has an excellent ability to identify critically ill women early and is more effective than APACHE II. It will be a valuable tool for discriminating severe maternal morbidity and ultimately improve maternal health."[55]

Yadav P. et al[56] in 2023 "conducted the study with the objective to evaluate and validate the performance of the modified early obstetric warning system (MEOWS) as a screening tool for early prediction of severe obstetric morbidity. This prospective

observational study was conducted at obstetrics and gynaecology department, Tata Main Hospital, Jamshedpur, Jharkhand, India. A total of 1800 patients were included over a period of 10 month, from December 2021 to September 2022. Study population included all pregnant women admitted in labour room with > 28 weeks of gestation till 6 weeks postpartum. MEOWS charts were plotted for each patient, score calculated and documented at admission. Patients were categorized based on this score for further management, and follow-up was made till discharge. Outcome assessment was done in terms of ICU admission, length of hospital stays, obstetric morbidity, and maternal mortality. Correlation of each outcome with scoring was evaluated. Results The sensitivity of MEOWS in predicting maternal morbidity was 72.91%, specificity 91.87%, positive predictive value 85.96%, and negative predictive value 83.24%. The area under receiver operator characteristic of MEOWS for prediction of maternal mortality was 0.79 (95% CI 0.75–0.82). MEOWS helps in early recognition of obstetric morbidity even before signs, and symptoms become clinically evident. It is a useful tool for predicting adverse maternal outcome in pregnant women."[56]

MATERIALS AND METHODS

Study setting: Department of OBGY at KLES DR. PRABHAKAR KORE HOSPITAL AND MEDICAL RESEARCH CENTRE, BELAGAVI

Study population: All high-risk pregnant women admitted in KLES DR. PRABHAKAR KORE HOSPITAL AND MEDICAL RESEARCH CENTRE, BELAGAVI.

Study period: One year

Study design: Prospective observational study

- Study group: Modified Early Obstetrics Warning System (MEOWS)
- Comparator group: Standard of care

Formula used for sample size calculation:

(Source: Lwanga SK, Lameshaw S. Sample size determination in health studies WHO, Geneva, 1991)

$$N = \frac{Z_{1-\alpha/2}{}^2 * P * (1 - P)}{d^2}$$

Ref article: Kuppusamy P, Prusty RK, Kale DP. High-risk pregnancy in India: Prevalence and contributing risk factors – a national survey-based analysis. J Glob Health 2023; 13:04116.[57]

With reference to above stated article, the prevalence of high-risk pregnancy (49.4%) is considered here for sample size calculation.

P	Your guess of Population P (any value<1)	0.494
1-α	Confidence level set by you	0.95
Z	Z value associated with confidence	1.96
d	Absolute precision (Value less than P)	0.123
n	Minimum sample size	64

By using above formula and putting the values in it, minimum sample size came to 64.

Sampling technique: All the eligible women will be selected consecutively by convenient sampling method.

Inclusion Criteria:

1. High risk pregnant women admitted in labour room
2. Antepartum women after 28 weeks of Gestational age
3. High risk Postpartum women up to 42 days.

Exclusion Criteria:

1. Women in active labour
2. Women who had uncomplicated normal delivery and caesarean section.
3. Women who will be admitted directly to ICU.
4. Non consenting women.

Methods of data collection:

All high risk antenatal and postnatal women visiting KLE Prabhakar kore hospital and medical research centre was recruited in this study. They were asked to enter the study only after they accept and sign the informed consent. The patients who satisfy the inclusion criteria and do not fall under exclusion criteria are recruited in the study. In MEOWS implemented group, MOEWS was calculated at the time of admission based on values of the following variables: systolic blood pressure, diastolic blood pressure, respiratory rate, heart rate, oxygen saturation, temperature, and the level of consciousness. All the above parameters were calculated and categorized according to scores and was documented in colour coded MEOWS chart. This will guide the frequency of monitoring, need for, and urgency of clinical review.

A "TRIGGER" was defined as a single markedly abnormal (1 red trigger) or 2 simultaneously mildly abnormal observations (2 amber triggers).

Data collection procedure: Data was collected using a structured proforma containing the following parameters.

- Demographic details of the mother
- Past obstetric and medical history
- Present obstetric history

OEWS was calculated based on values of the following variables: Systolic blood pressure, diastolic blood pressure, respiratory rate, heart rate, oxygen saturation, temperature, and the level of consciousness.

Blood pressure was taken from manual sphygmomanometer, temperature with digital thermometer, oxygen saturation by Oximeter and with the help of Glasgow

Coma Scale, level of consciousness was evaluated. All these parameters were documented on MEOWS chart and this will guide the frequency of monitoring, need for, and urgency of clinical review.

Statistical analysis:

Data was collected by using a structure proforma. Data entered in MS excel sheet and analysed by using SPSS 24.0 version IBM USA. Qualitative data was expressed in terms of proportions. Quantitative data was expressed in terms of Mean and Standard deviation. Association between two qualitative variables was seen by using Chi square/ Fischer's exact test. Comparison of mean and SD between two groups was done by using unpaired t test to assess whether the mean difference between groups is significant or not.

A p value of <0.05 was considered as statistically significant whereas a p value <0.01 was considered as highly significant.

RESULTS

Table 1: Distribution according to groups

		Frequency	Percent
Groups	Group A	78	50.0
	Group B	78	50.0
	Total	156	100.0

We high high-risk pregnant women admitted in OBGY department and divided in two groups and included 78 patients in each group as follows: Study group (Group A): Modified Early Obstetrics Warning System (MEOWS). Comparator group (Group B): Standard of care.

Figure 1: Bar diagram showing Distribution according to groups

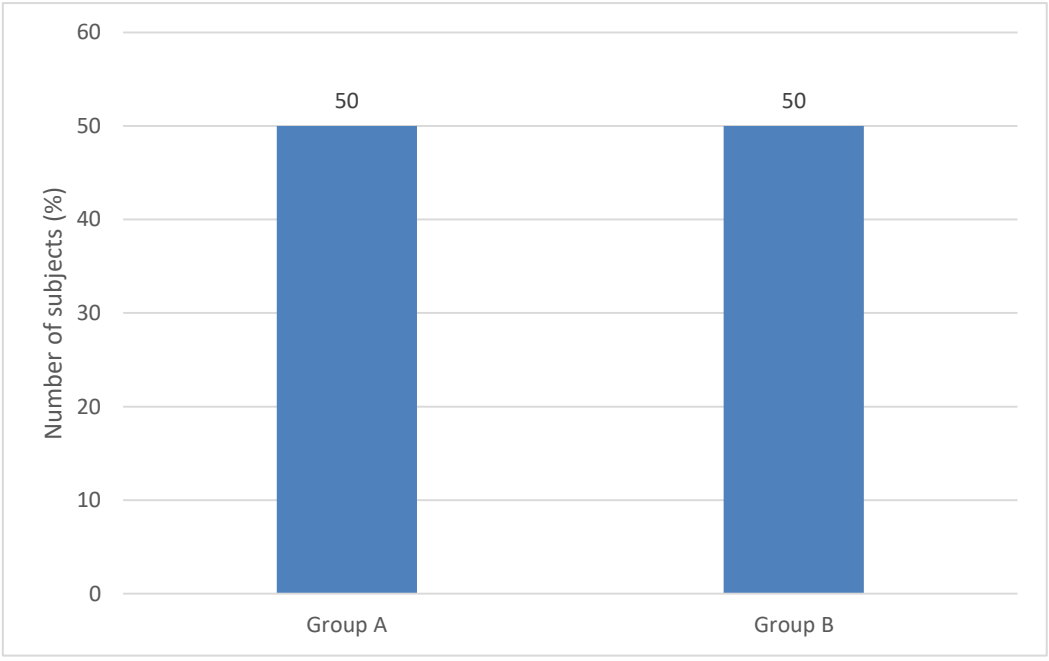


Table 2: Distribution according to age groups

		Group A		Group B		Total	p
		No	%	No	%		
Age group	<20	3	3.8	6	7.7	9	0.55
	21-30	59	75.6	56	71.8	115	
	31-40	15	19.2	16	20.5	31	
	>40	1	1.3	0	0.0	1	
Total		78	100.0	78	100.0	156	

Out of 78 cases from Group A, majority were from 21-30 years i.e. 75.6% followed by 19.2% from 31-40 years, 3.8% from less than 20 years and 1.3% from above 40 years age group. Out of 78 cases from Group B, majority were from 21-30 years i.e. 71.8% followed by 20.5% from 31-40 years, 7.7% from less than 20 years and 0% from above 40 years age group.

Figure 2: Bar diagram showing Distribution according to age groups

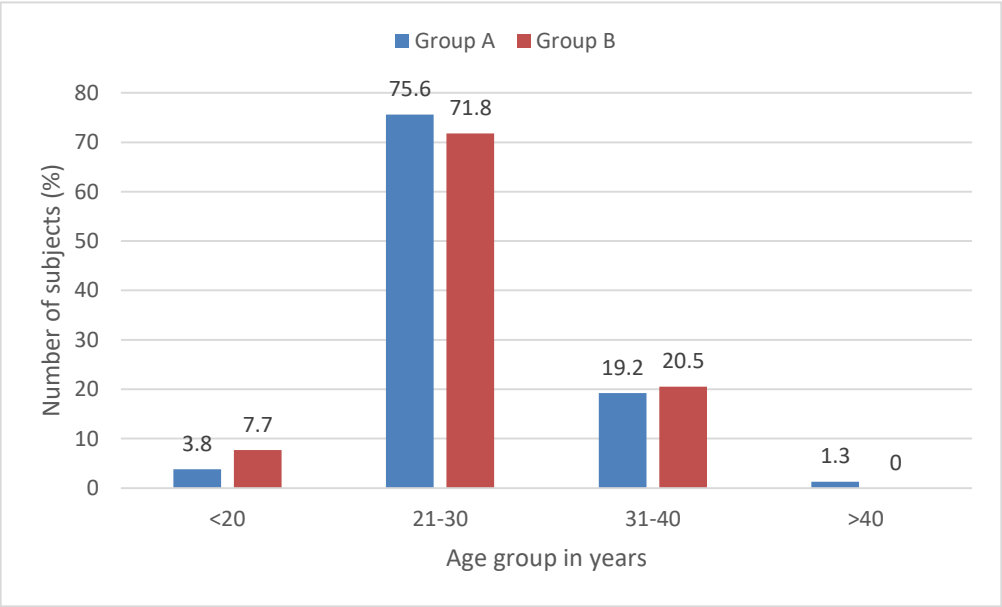


Table 3: Distribution according to socioeconomic status

		Group A		Group B		Total	p
		No	**%**	**No**	**%**		
Socioeconomic status	Lower	24	30.8	19	24.4	43	0.85
	Lower middle	12	15.4	13	16.7	25	
	Middle	27	34.6	26	33.3	53	
	Upper	6	7.7	8	10.3	14	
	Upper middle	9	11.5	12	15.4	21	
Total		78	100.0	78	100.0	156	

Distribution according to socioeconomic status revealed that from Group A, majority were from middle SES i.e. 34.6% followed by 30.8% from lower SES, 15.4% from lower middle, 11.5% from upper middle and 7.7% from upper SES. Group B, majority were from middle SES i.e. 33.3% followed by 24.6% from lower SES, 16.7% from lower middle, 15.4% from upper middle and 10.3% from upper SES. We observed statistically no significant difference in the number of women from each category of SES.

Figure 3: Bar diagram showing Distribution according to socioeconomic status

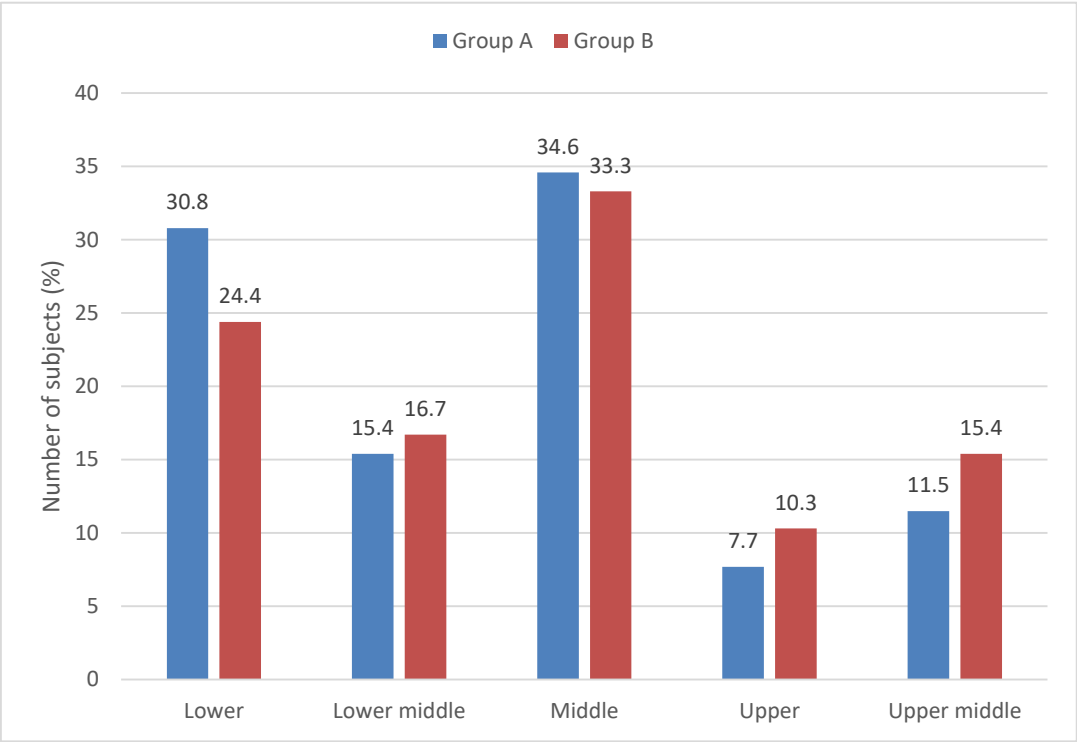


Table 4: Distribution according to parity

		Group A		Group B		Total	p
		No	%	No	%		
Parity	Multigravida	33	42.3	42	53.8	75	0.26
	Postnatal	6	7.7	7	9.0	13	
	Primigravida	39	50.0	29	37.2	68	
Total		78	100.0	78	100.0	156	

Distribution according to parity revealed that 42.3% and 53.8% from Group A and Group B respectively were multigravida. 50% and 37.2% from Group A and Group B respectively were primigravida. 7.7% and 9% from Group A and Group B respectively were postnatal cases. We observed statistically no significant difference in the number of women from each group of parity.

Figure 4: Bar diagram showing Distribution according to parity

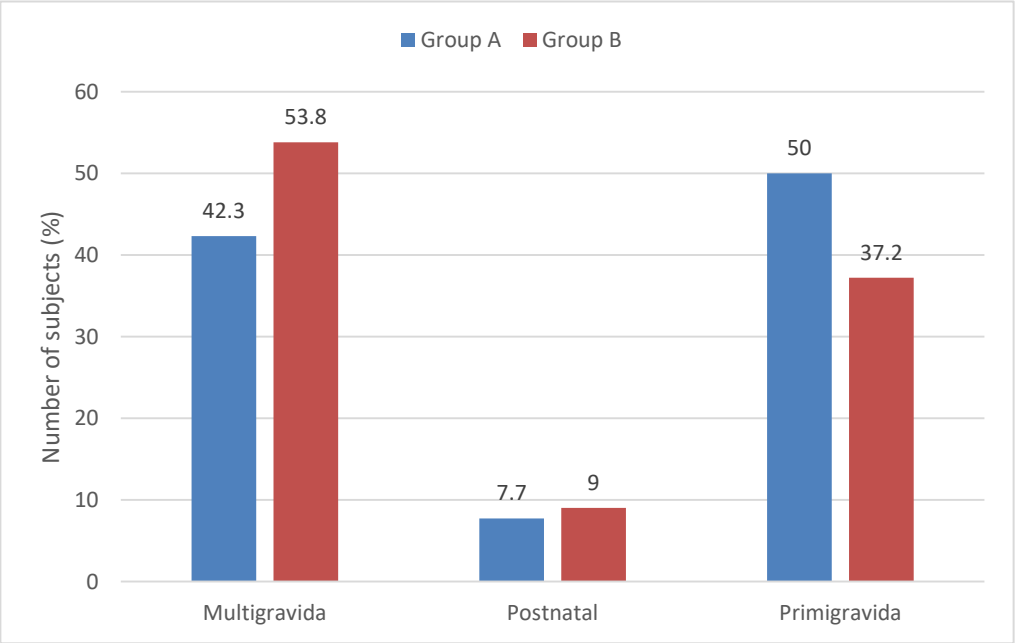


Table 5: Distribution according to maternal risk factors

Maternal risk factors	Group A		Group B		Total	p
	No	%	No	%		
Preeclampsia	28	35.9	26	33.3	54	0.35
Eclampsia	5	6.4	3	3.8	8	0.73
HELLP Syndrome	5	6.4	5	6.4	10	1.0
Placenta previa	6	7.7	8	10.3	14	0.64
PAS	1	1.3	0	0.0	1	0.31
Abruption	5	6.4	2	2.6	7	0.24
Sepsis	1	1.3	3	3.8	4	0.31
Ruptured uterus	0	0.0	1	1.3	1	0.31
Cardiac disorder	7	9.0	8	10.3	15	0.78
Shock	2	2.6	1	1.3	3	0.56
PPH	13	16.7	11	14.1	24	0.89
Others	4	5.1	11	14.1	15	0.057

Distribution according to maternal risk factors showed that 35.9% women from Group A and 33.3% from Group B had preeclampsia with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 6.4% women from Group A and 3.8% from Group B had eclampsia with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 6.4% women from Group A and 6.4% from Group B had HELLP syndrome with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 7.7% women from Group A and 10.3% from Group B had placenta previa with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 1.3% women from Group A and 0% from Group B had PAS with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 16.7% women from Group A and 14.1% from Group B had PPH with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 6.4% women from Group A and 2.6% from Group B had abruption with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 1.3% women from Group A and 3.8% from Group B had sepsis with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 0% women from Group A and 1.3% from Group B had ruptured uterus with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 9% women from Group A and 10.3% from Group B had cardiac disorders with statistically non-significant difference between two (p>0.05).

Distribution according to maternal risk factors showed that 2.6% women from Group A and 1.3% from Group B had shock with statistically non-significant difference between two (p>0.05).

Distribution according to maternal risk factors showed that 5.1% women from Group A and 14.1% from Group B had other maternal risk factors with statistically non-significant difference between two (p>0.05).

Figure 5: Bar diagram showing Distribution according to maternal risk factors

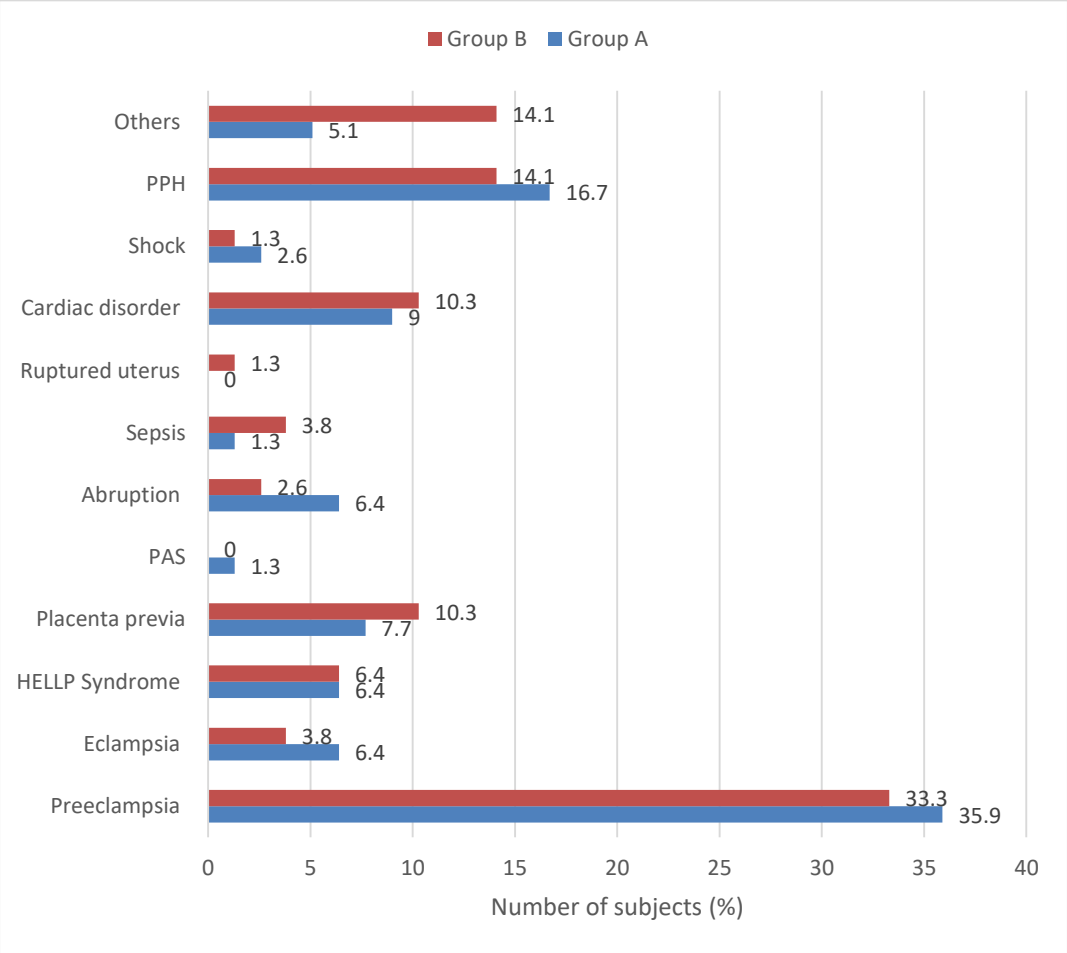


Table 6: Comparison of respiratory rate between Group A and Group B

Group		N	Mean	Std. Deviation	t	p	Inference
RR	Group A	78	18.36	2.11	0.685	0.494	Not significant
	Group B	78	18.13	2.1		(>0.05)	

Mean respiratory rate of the women from Group A and Group B was 18.36±2.11 and 18.13±2.1 minutes with statistically non-significant difference between two (p>0.05).

Figure 6: Bar diagram showing Comparison of respiratory rate between Group A and Group B

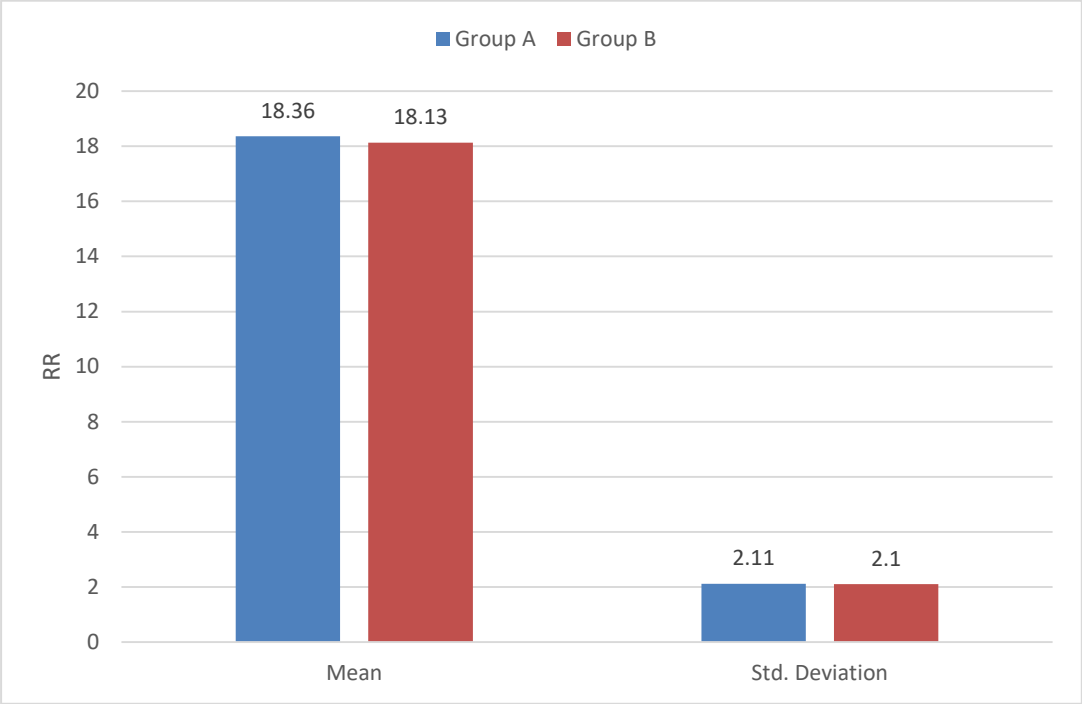


Table 7: Comparison of SPO2 between Group A and Group B

Group		N	Mean	Std. Deviation	t	p	Inference
SPO2	Group A	78	98.54	1.7	-1.814	0.072	Not significant
	Group B	78	98.95	1.06		(>0.05)	

Mean SPO2 of the women from Group A and Group B was 98.54±1.7 and 98.95±1.06% with statistically non-significant difference between two (p>0.05).

Figure 7: Bar diagram showing Comparison of SPO2 between Group A and Group B

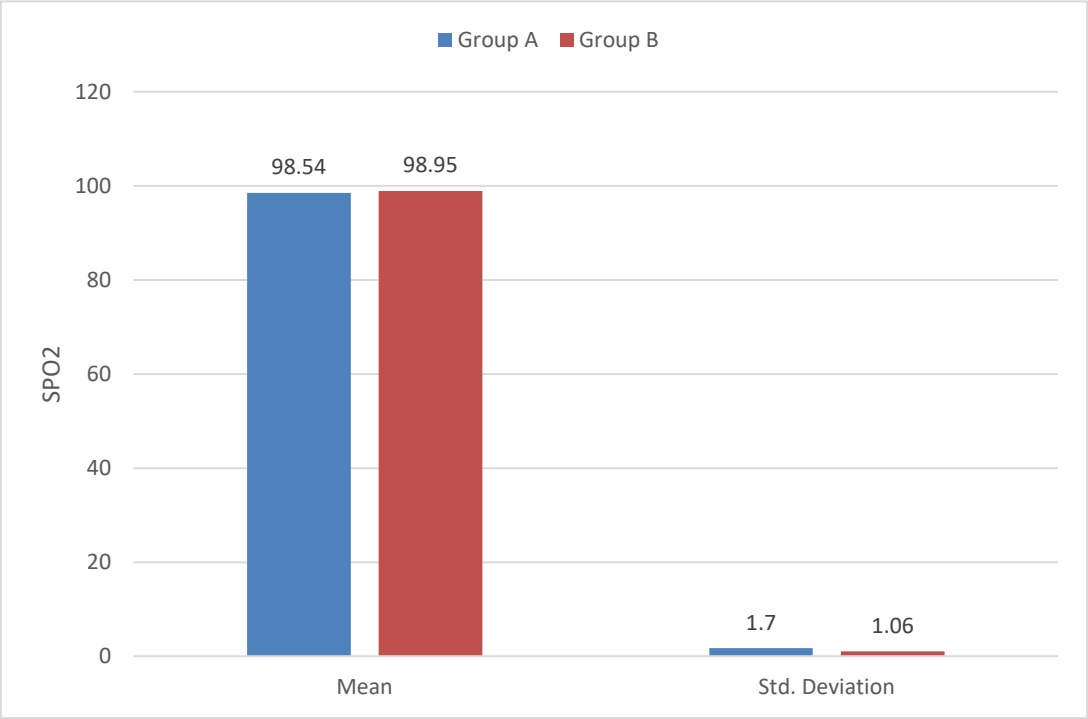


Table 8: Comparison of temperature between Group A and Group B

Group		N	Mean	Std. Deviation	t	p	Inference
Temperature	Group A	78	97.88	0.93	-0.395	0.694	Not significant
	Group B	78	97.94	0.85		(>0.05)	

Mean temperature of the women from Group A and Group B was 97.88±0.93 and 97.94±0.85 degree with statistically non-significant difference between two (p>0.05).

Figure 8: Bar diagram showing Comparison of temperature between Group A and Group B

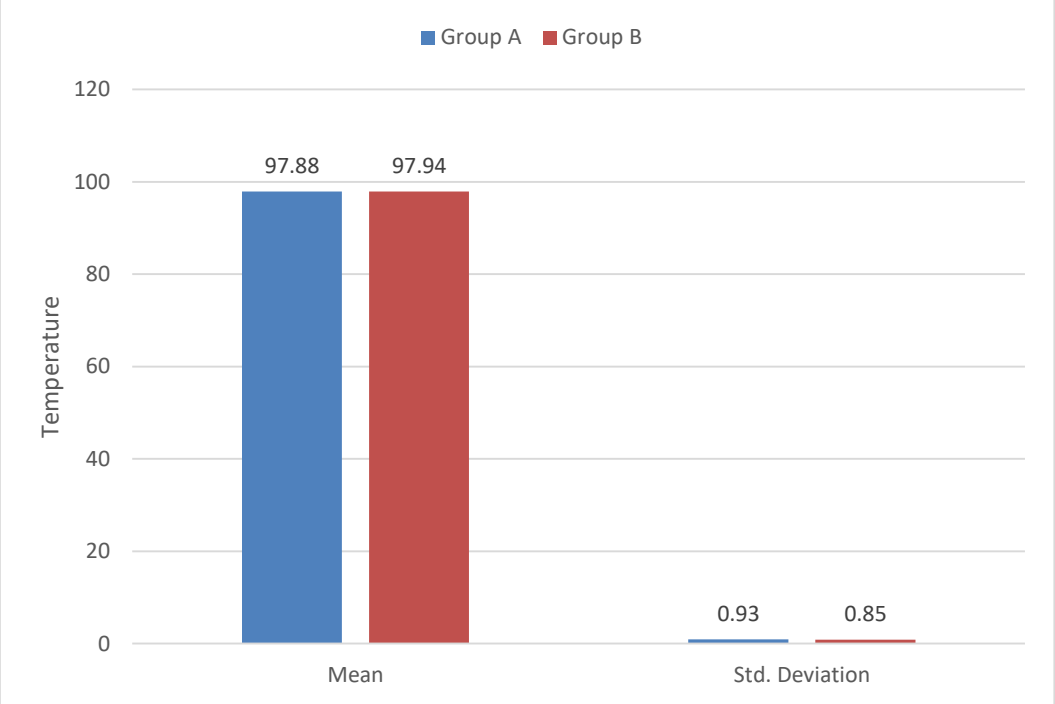


Table 9: Comparison of HR between Group A and Group B

Group		N	Mean	Std. Deviation	t	p	Inference
HR	Group A	78	91.88	12.44	-0.216	0.829	Not significant
	Group B	78	92.35	14.22		(>0.05)	

Mean heart rate of the women from Group A and Group B was 91.88±12.44 and 92.35±14.22 minutes with statistically non-significant difference between two (p>0.05).

Figure 9: Bar diagram showing Comparison of HR between Group A and Group B

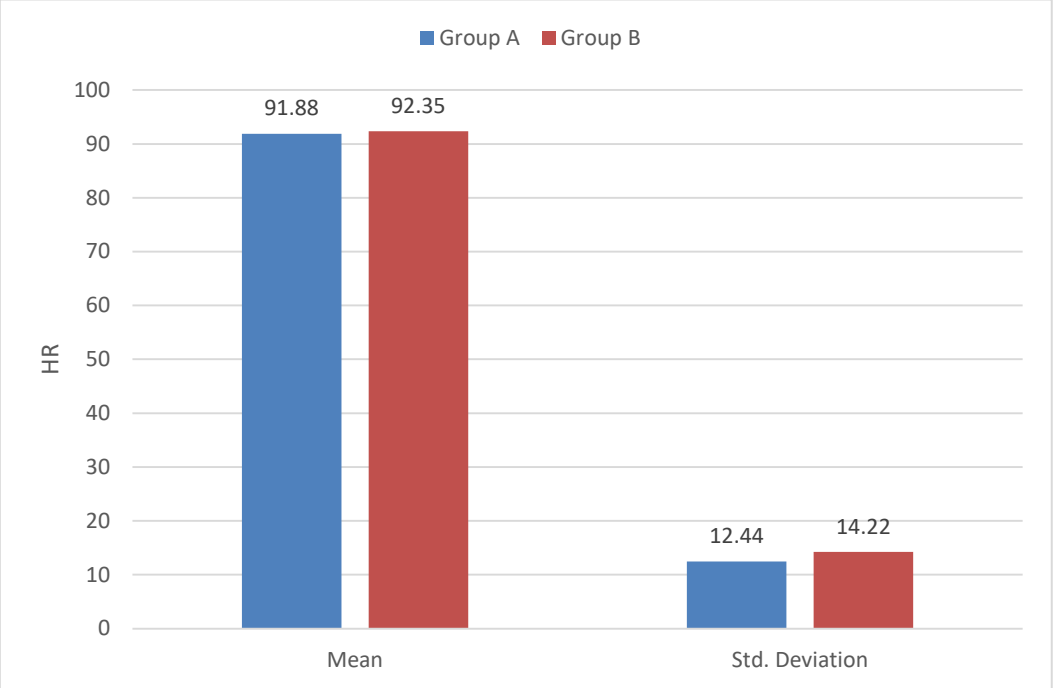


Table 10: Comparison of SBP between Group A and Group B

Group		N	Mean	Std. Deviation	t	p	Inference
SBP	Group A	78	137.59	21.57	2.103	0.037	Significant
	Group B	78	130.44	20.91		(<0.05)	

Mean SBP of the women from Group A and Group B was 137.59±21.57 and 130.44±20.91 mmHg with statistically significant difference between two groups ($p<0.05$).

Figure 10: Bar diagram showing Comparison of SBP between Group A and Group B

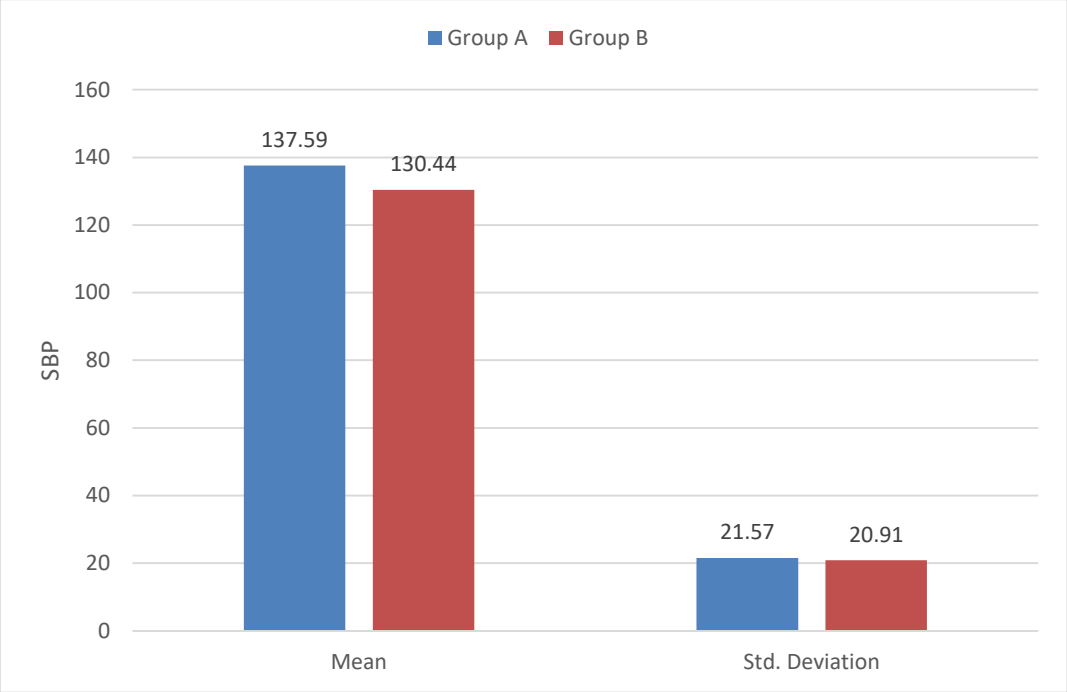


Table 11: Comparison of DBP between Group A and Group B

Group		N	Mean	Std. Deviation	t	p	Inference
DBP	Group A	78	89.62	15.55	2.192	0.03	Significant
	Group B	78	84.28	14.84		(<0.05)	

Mean DBP of the women from Group A and Group B was 89.62±15.55 and 84.28±14.84 mmHg with statistically significant difference between two groups ($p<0.05$).

Figure 11: Bar diagram showing Comparison of DBP between Group A and Group B

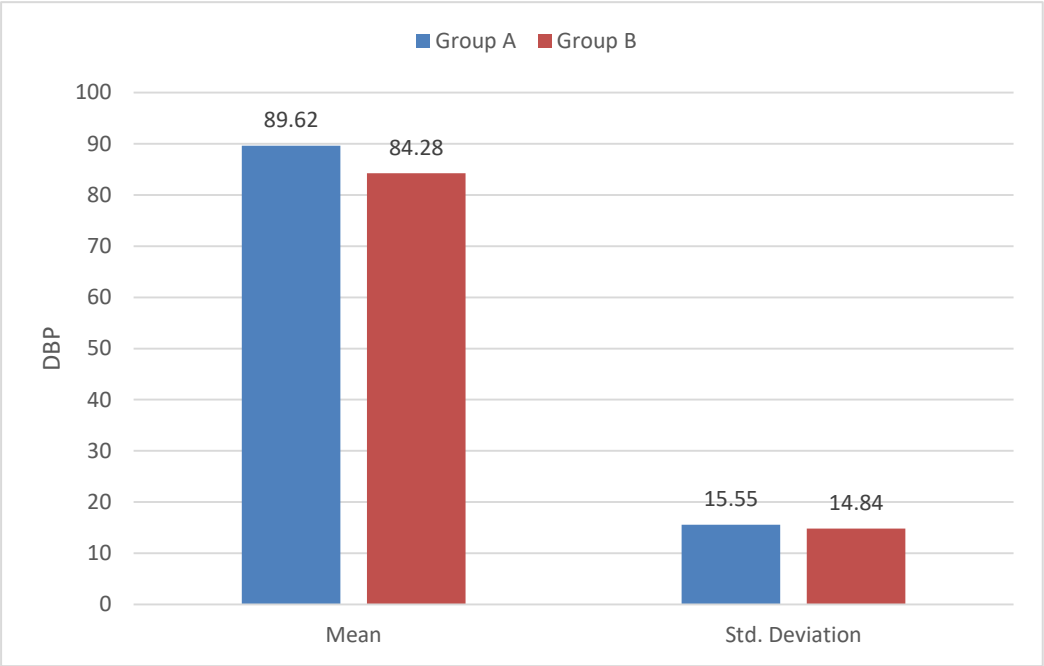


Table 12: Distribution according to proteinuria

		Group A		Group B		Total	p
		No	**%**	**No**	**%**		
Proteinuria	>3+	4	5.1	0	0.0	4	0.06
	1+	14	17.9	20	25.6	34	
	2+	12	15.4	5	6.4	17	
	3+	2	2.6	0	0.0	2	
	Nil	35	44.9	42	53.8	77	
	Trace	11	14.1	11	14.1	22	
Total		78	100.0	78	100.0	156	

Distribution according to proteinuria showed that 5.1% women from Group A and 0% from Group B had proteinuria more than 3+, 17.9% from Group A and 25.6% from Group B had proteinuria more than 1+, 15.4% from Group A and 6.4% from Group B had proteinuria more than 2+, 2.6% from Group A and 0% from Group B had proteinuria more than 3+. We observed statistically no significant difference in the number of women from each category of protein levels.

Figure 12: Bar diagram showing Distribution according to proteinuria

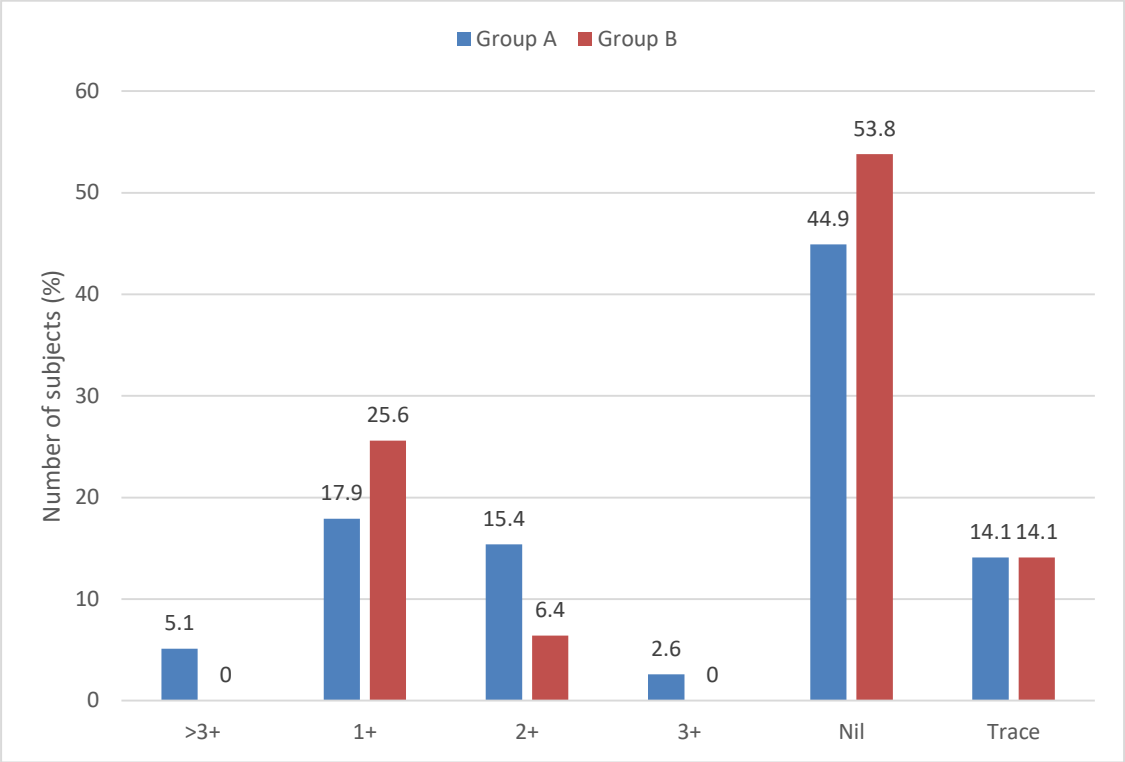


Table 13: Distribution according to colour liquor

		Group A		Group B		Total	p
		No	%	No	%		
Colour of liquor	Clear	66	84.6	74	94.9	140	0.035
	Green	12	15.4	4	5.1	16	
Total		78	100.0	78	100.0	156	

Distribution according to liquor colour showed that 15.4% women from Group A and 5.1% from Group B had green colour with statistically significant difference between two groups ($p<0.05$) showing more number of cases with green liquor from Group A.

Figure 13: Bar diagram showing Distribution according to colour liquor

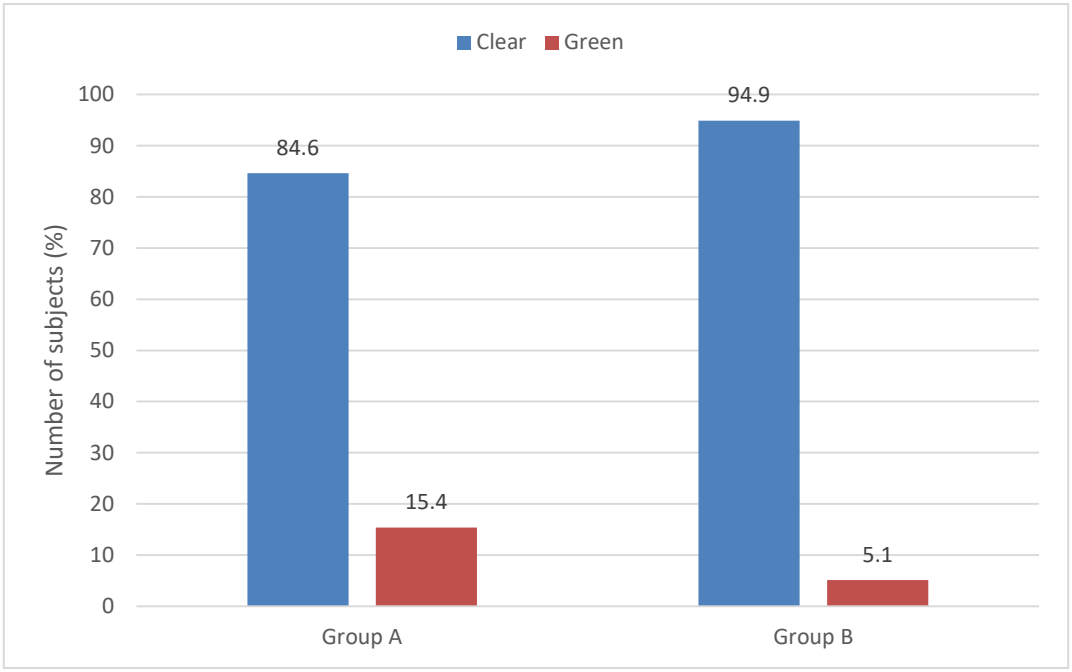


Table 14: Distribution according to neural response

		Group A		Group B		Total	p
		No	%	No	%		
Neural response	Alert	74	94.9	77	98.7	151	0.08
	Responds to verbal stimuli	4	5.1	0	0.0	4	
	Unresponsive	0	0.0	1	1.3	1	
Total		78	100.0	78	100.0	156	

Distribution according to neural response showed that 94.9% women from Group A and 98.7% from Group B were alert, 5.1% women from Group A and 0% from Group B responded to verbal stimuli, 0% women from Group A and 1.3% from Group B were unresponsive to response with statistically non-significant difference between two (p>0.05).

Figure 14: Bar diagram showing Distribution according to neural response

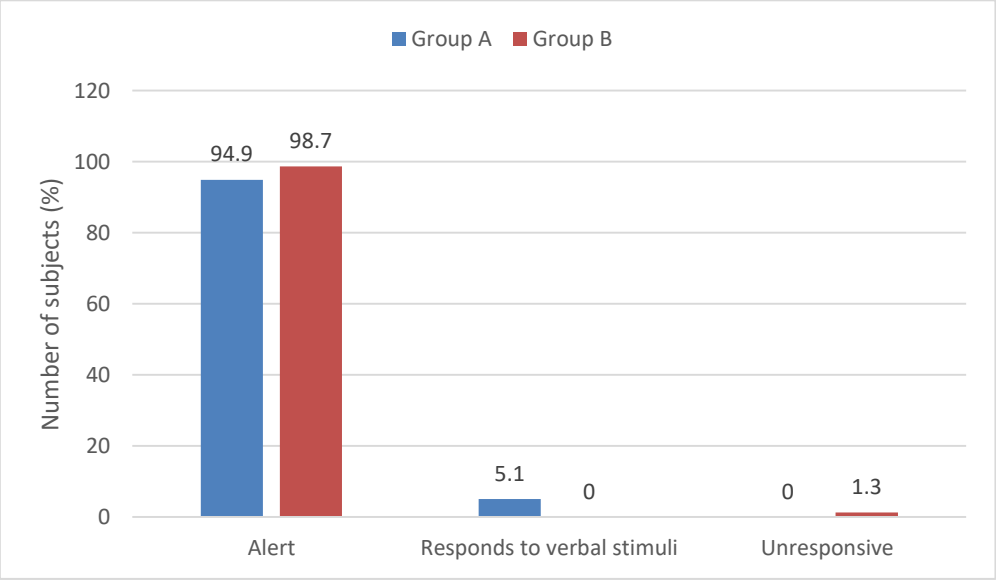


Table 15: Distribution according to lochia

		Group A		Group B		Total	p
		No	**%**	**No**	**%**		
Lochia	Healthy	64	82.1	68	87.2	132	0.37
	Heavy/Foul smelling	14	17.9	10	12.8	24	
Total		78	100.0	78	100.0	156	

Distribution according to lochia pattern showed that 17.9% women from Group A and 12.8% from Group B had heavy lochia with statistically non-significant difference between two (p>0.05).

Figure 15: Bar diagram showing Distribution according to lochia

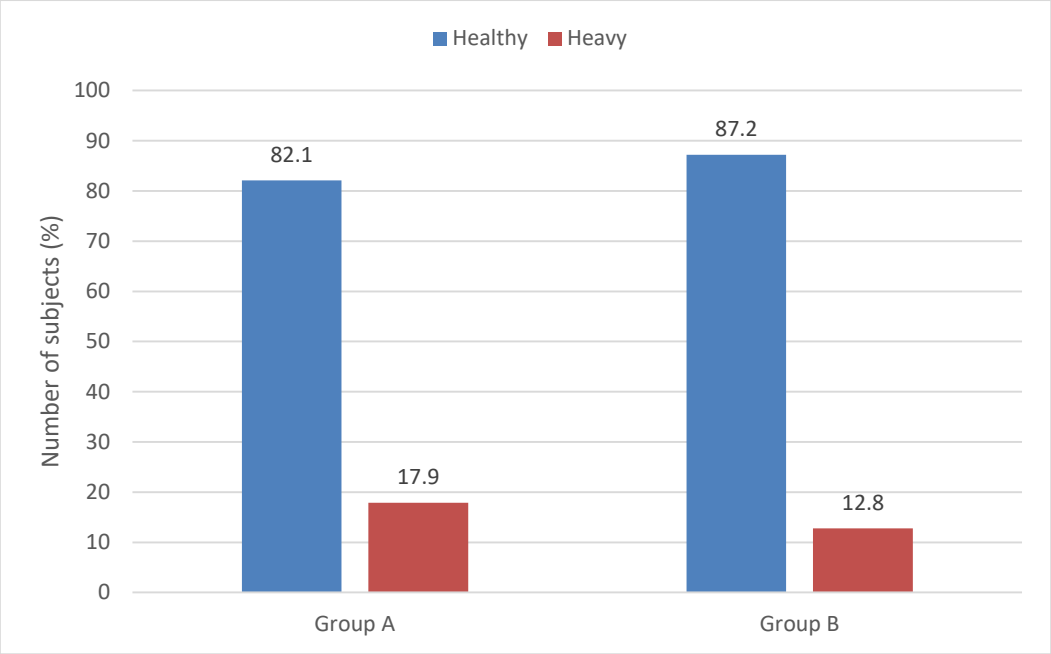


Table 16: Distribution according to general condition

		Group A		Group B		Total	p
		No	%	No	%		
General condition	Looks unwell	11	14.1	8	10.3	19	0.00001
	looks well	67	85.9	70	89.7	7	
Total		78	100.0	78	100.0	156	

Distribution according to general condition showed that 14.1% women from Group A and 10.3% from Group B were unwell with statistically significant difference between two groups ($p<0.05$).

Figure 16: Bar diagram showing Distribution according to general condition

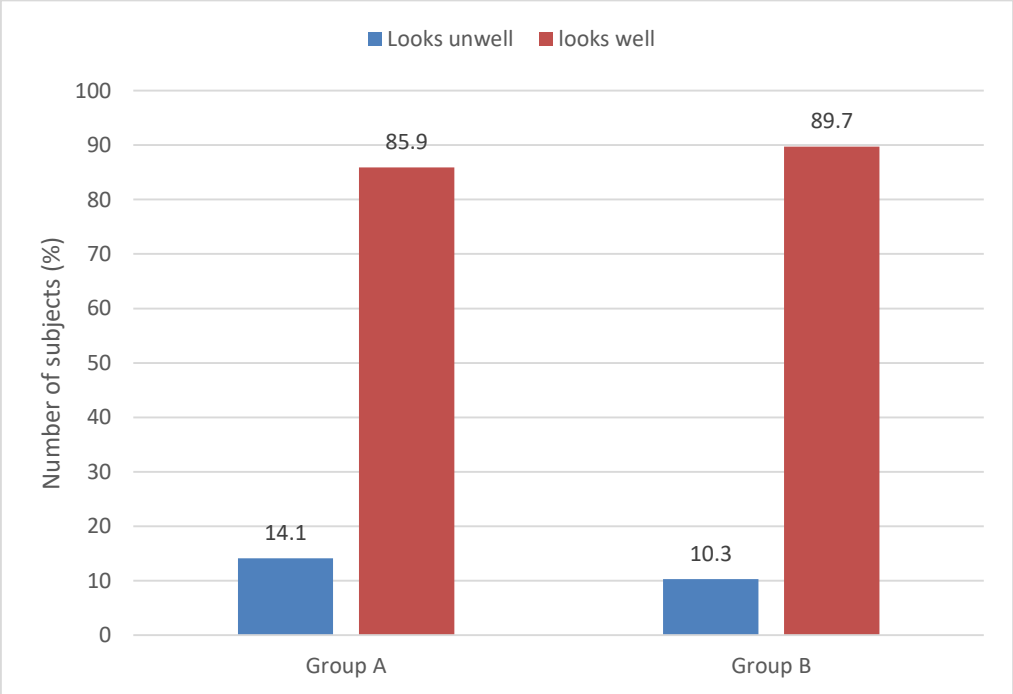


Table 17: Distribution according to mode of delivery

		Group A		Group B		Total	p
		No	**%**	**No**	**%**		
Mode of delivery	LSCS	52	66.7	52	66.7	104	1.0
	Vaginal	26	33.3	26	33.3	52	
Total		78	100.0	78	100.0	156	

Distribution according to mode of delivery showed that 66.7% women from Group A and 66.7% from Group B underwent LSCS with statistically non-significant difference between two (p>0.05).

Figure 17: Bar diagram showing Distribution according to mode of delivery

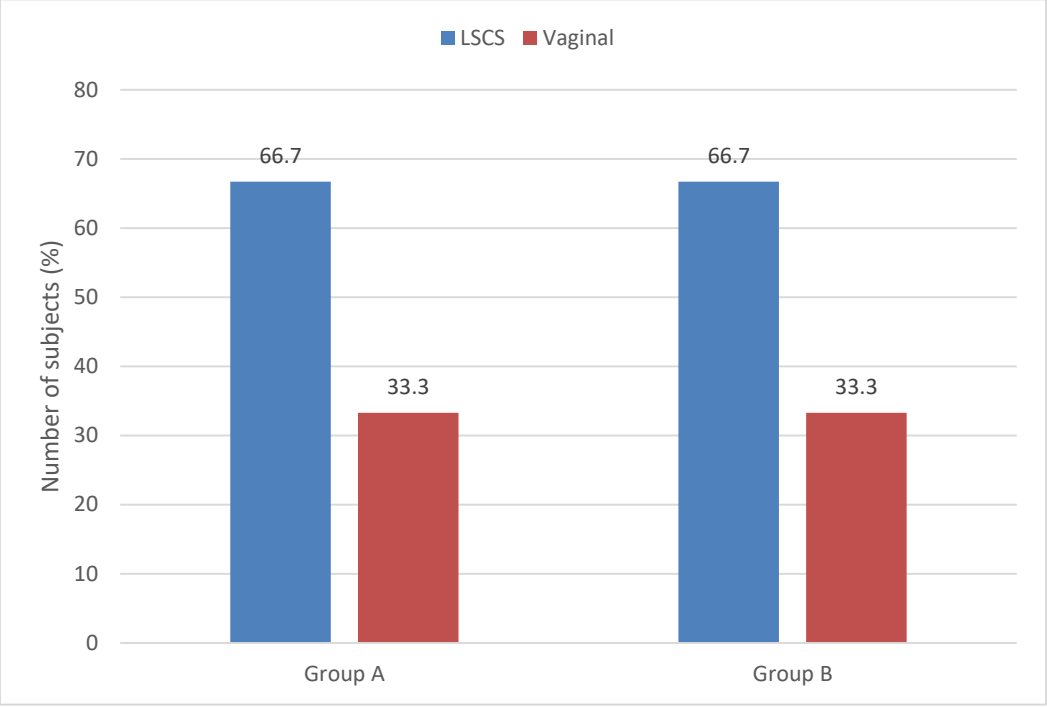


Table 18: Distribution according to maternal outcome

Maternal outcome	Group A		Group B		Total	p
	No	%	No	%		
Perineal injury	7	9.0	4	5.1	11	0.34
Cervical tear	7	9.0	4	5.1	11	0.34
Morbidity	20	25.6	23	29.5	43	0.51
Mortality	2	2.6	1	1.3	3	0.56

Distribution according to maternal outcome showed that 9% women from Group A and 5.1% from Group B had perineal injury liquor with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal outcome showed that 9% women from Group A and 5.1% from Group B had cervical tear liquor with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal outcome showed that 25.6% women from Group A and 29.5% from Group B had morbidity with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal outcome showed that 2.6% women from Group A and 1.3% from Group B had mortality with statistically non-significant difference between two ($p>0.05$).

Figure 18: Bar diagram showing Distribution according to maternal outcome

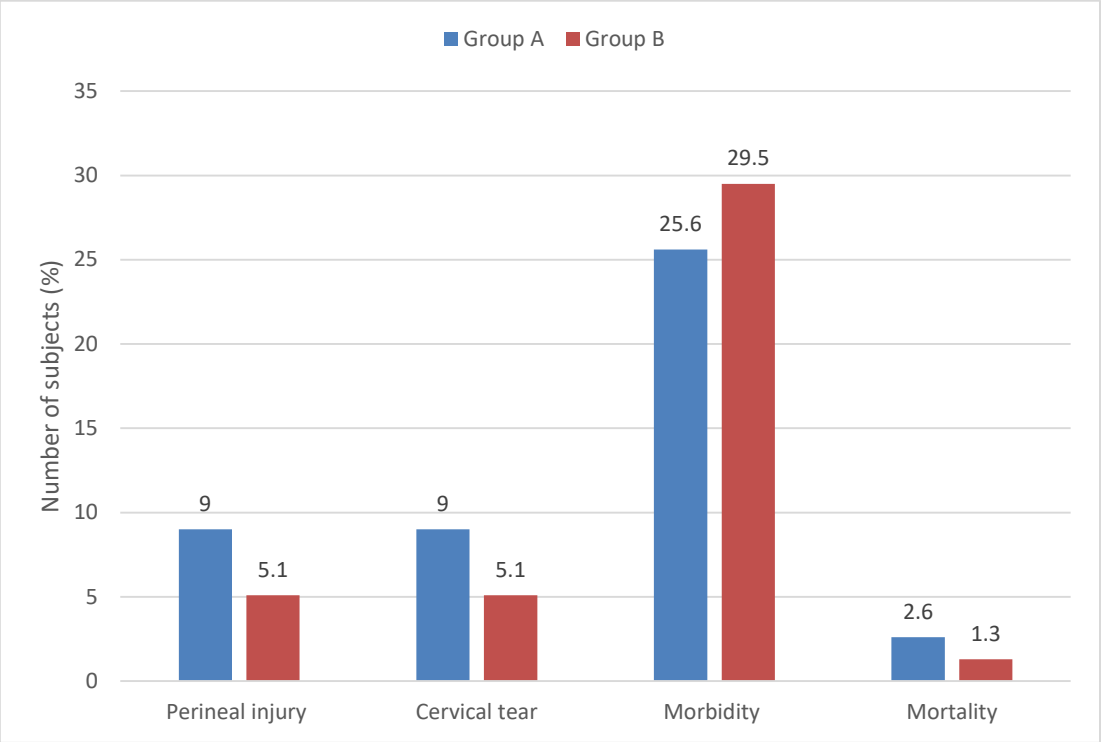


Table 19: Distribution according to neonatal outcome

Neonatal outcome	Group A		Group B		Total	p
	No	%	No	%		
Instrumentation required	11	14.1	9	11.5	20	0.22
MSL	12	15.4	7	9.0	19	0.51
Shoulder dystocia	6	7.7	4	5.1	10	0.34

Distribution according to neonatal outcome showed that 14.1% women from Group A and 11.5% from Group B required instrumentation with statistically non-significant difference between two ($p>0.05$).

Distribution according to neonatal outcome showed that 15.4% women from Group A and 9.0% from Group B had meconium-stained liquor with statistically non-significant difference between two ($p>0.05$).

Distribution according to neonatal outcome showed that 7.7% women from Group A and 5.1% from Group B had shoulder dystocia liquor with statistically non-significant difference between two ($p>0.05$).

Figure 19: Bar diagram showing Distribution according to neonatal outcome

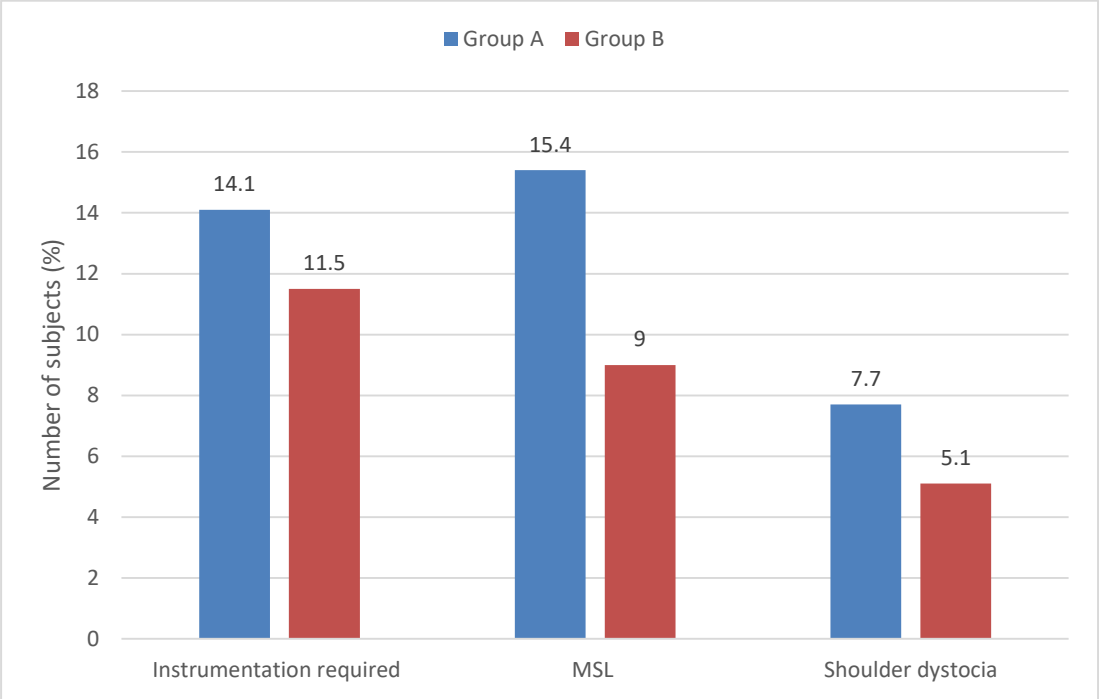


Table 20: Distribution of the cases according to hospital stay

		Frequency	Percent
Duration of hospital stay	1 to 10	128	82.1
	11 to 20	26	16.7
	21 to 30	2	1.3
	Total	156	100.0

82.1% patients had hospital stay of less than 10 days, 16.7% had it between 11-20 days and 1.3% had between 21-30 days.

Table 20: Bar diagram showing Distribution of the cases according to hospital stay

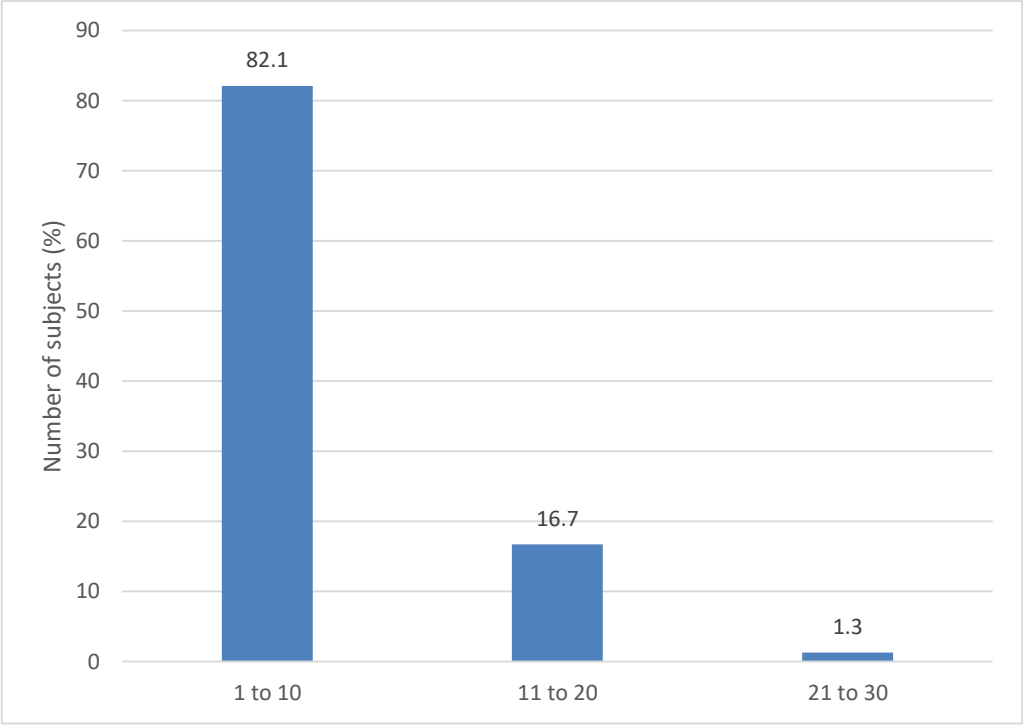


Table 21: Incidence of ICU admission

		Group A		Group B		Total	p
		No	%	No	%		
ICU admission	Yes	5	6.4	6	7.7	11	0.73
	No	73	93.6	71	91.0	144	
Total		78	100.0	77	98.7	155	

Distribution according to maternal ICU admission showed that 6.4% women from Group A and 7.7% from Group B required ICU admission with statistically non-significant difference between two ($p>0.05$).

Figure 21: Bar diagram showing Incidence of ICU admission

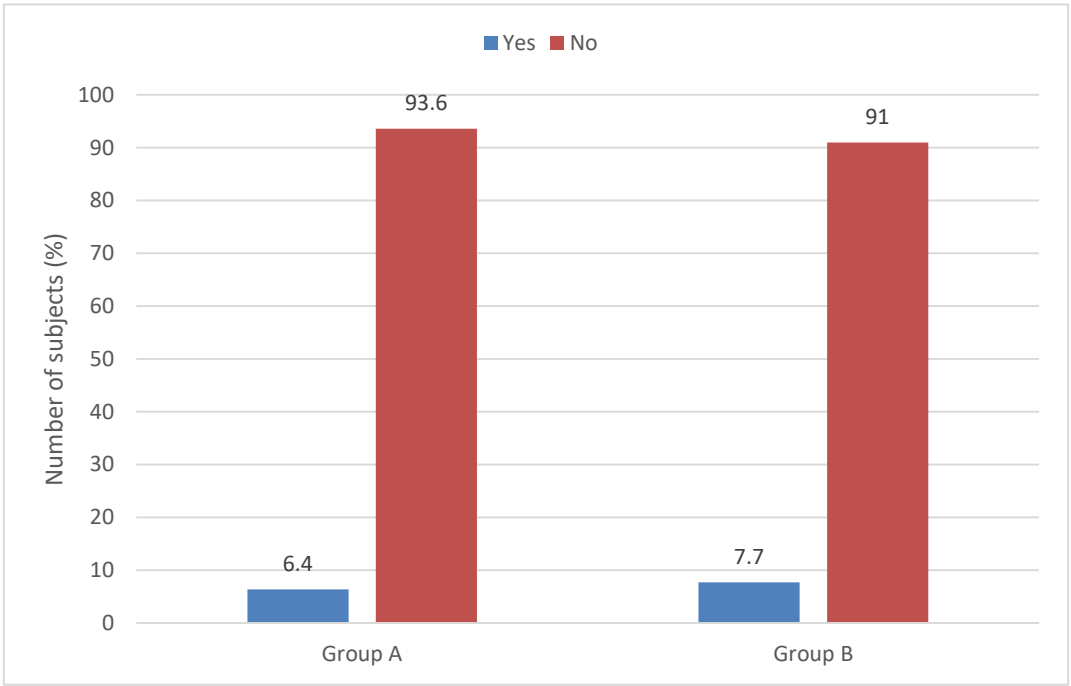


Table 22: Distribution according to primary indication for transfer to ICU

		Group A		Group B		Total	p
		No	**%**	**No**	**%**		
Primary indication for transfer to ICU	DIC with AKI	0	0.0	1	1.3	1	0.43
	Eclampsia with HIE	0	0.0	1	1.3	1	
	Fulminant HELLP	0	0.0	1	1.3	1	
	Hypovolemic shock	1	1.3	0	0.0	1	
	Post-surgery monitoring	3	3.8	1	1.3	4	
	Respiratory distress	0	0.0	1	1.3	1	
	Sepsis with pneumonia	0	0.0	1	1.3	1	
	Septic shock, MODS	1	1.3	0	0.0	1	
Total		78	100.0	78	100.0	156	

Distribution according to maternal ICU transfer indication showed that 3.8% women from Group A and 1.3% from Group B required post-surgery monitoring, 1.3% women from Group A and 0% from Group B each had sepsis with hypovolemia and hypovolemic shock showing statistically non-significant difference between two ($p>0.05$).

Figure 22: Bar diagram showing Distribution according to primary indication for transfer to ICU

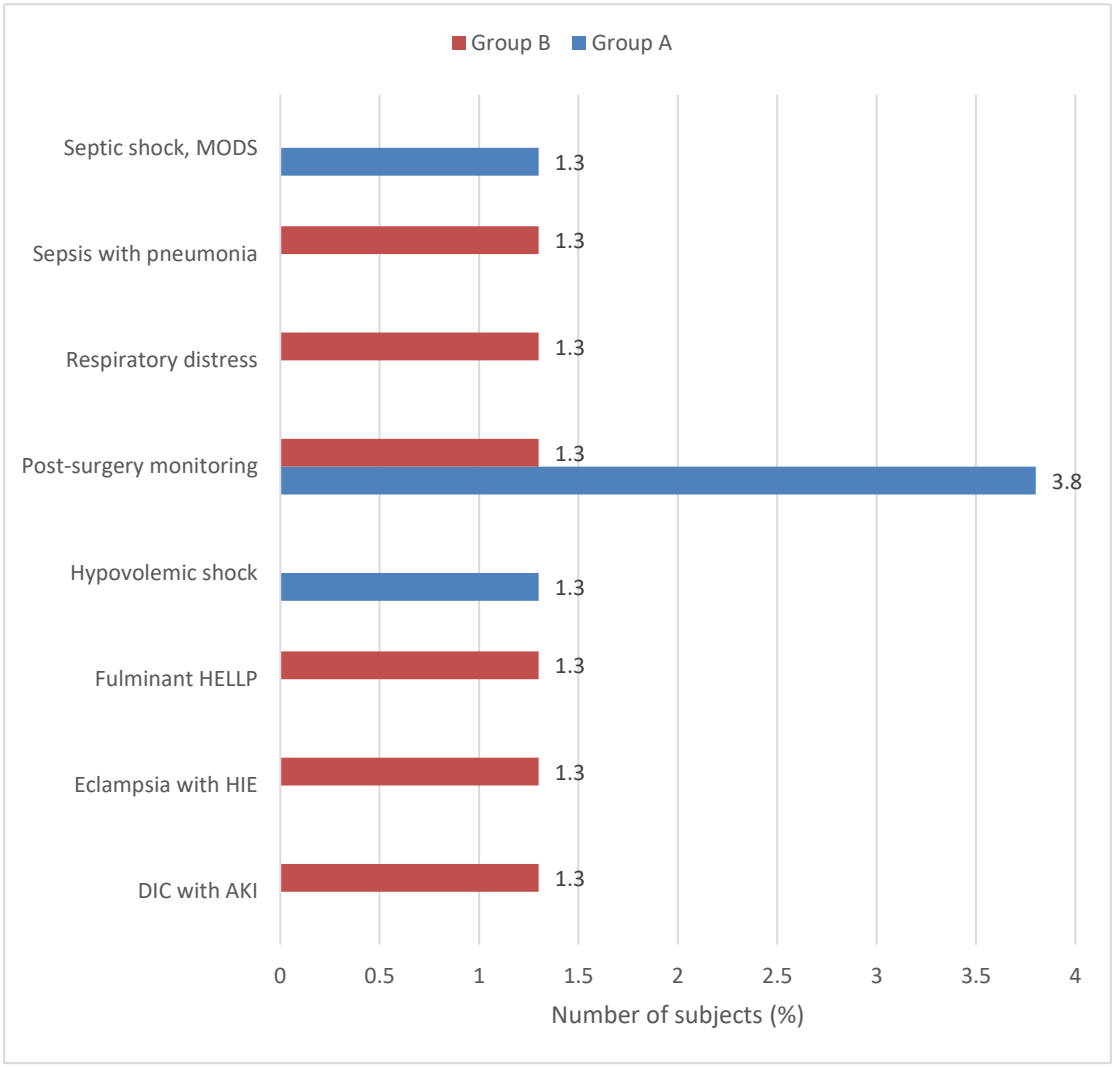


Table 23: Distribution according to final outcome

		Group A		Group B		Total	p
		No	%	No	%		
Final Outcome	DAMA	0	0.0	1	1.3	1	0.6
	Discharged	76	97.4	76	97.4	152	
	Mortality	2	2.6	1	1.3	3	
Total		78	100.0	78	100.0	156	

Distribution according to maternal final outcome showed that 2.6% women from Group A and 1.3% from Group B had mortality showing statistically non-significant difference between two (p>0.05).

Figure 23: Bar diagram showing Distribution according to final outcome

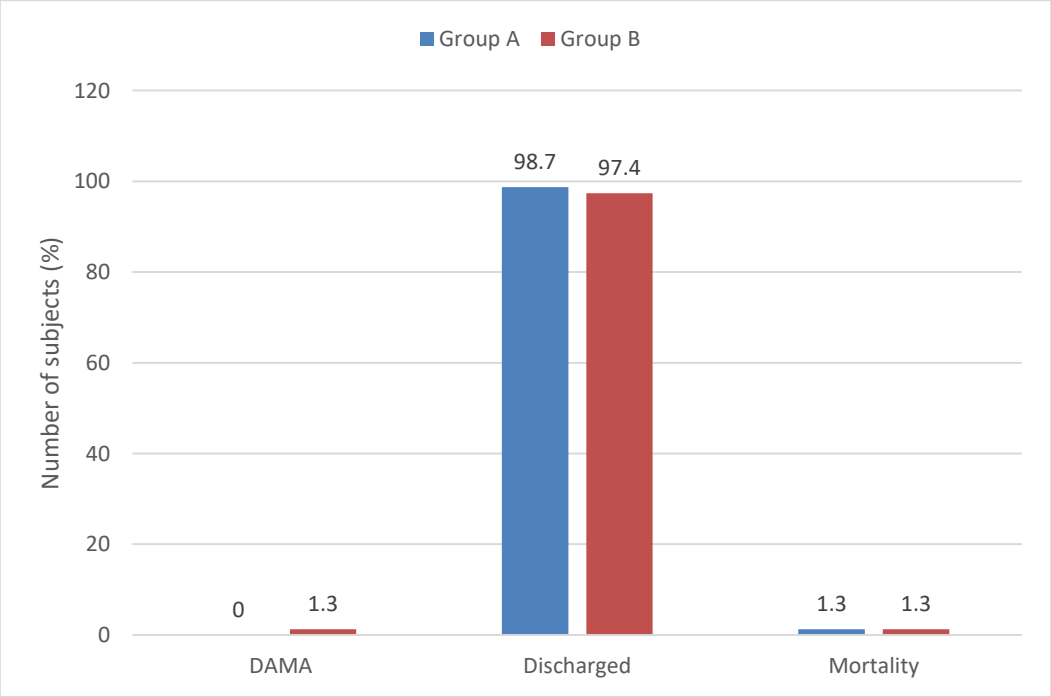


Table 24: Comparison of age between Group A and Group B

Group		N	Mean	Std. Deviation	t	p	Inference
Age	Group A	78	26.58	5.14	-1.053	0.294	Not significant
	Group B	78	27.41	4.74		(>0.05)	

Mean age of the women from Group A and Group B was 26.58±5.14 and 27.41±4.74 years with statistically non-significant difference between two (p>0.05).

Figure 24: Bar diagram showing Comparison of age between Group A and Group B

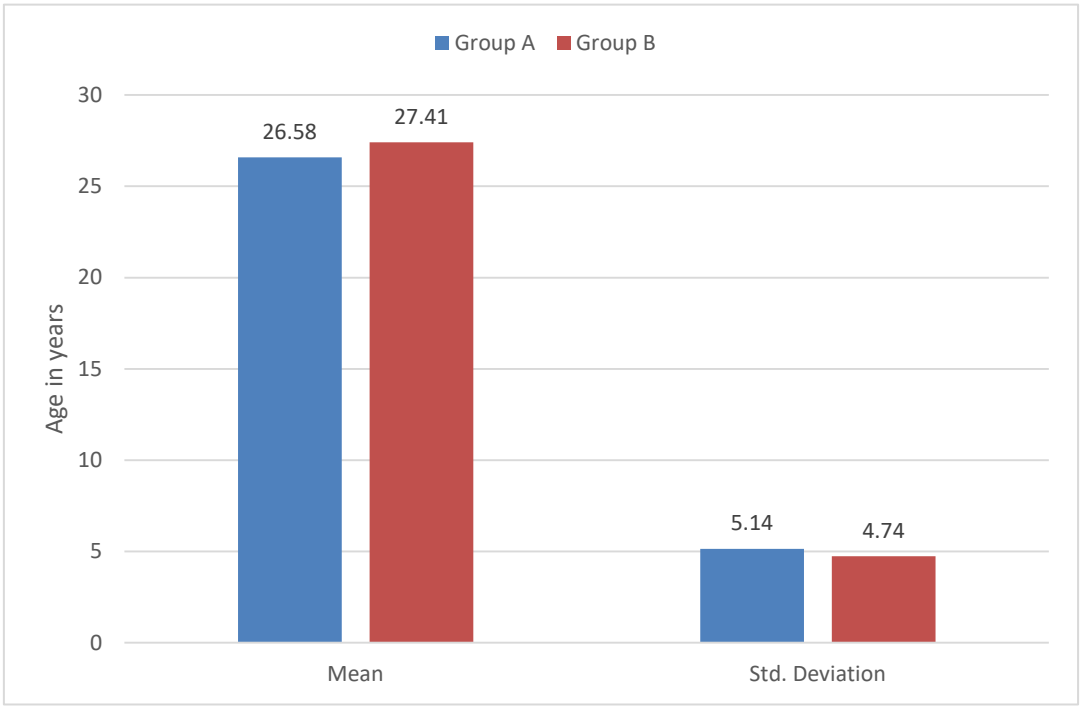


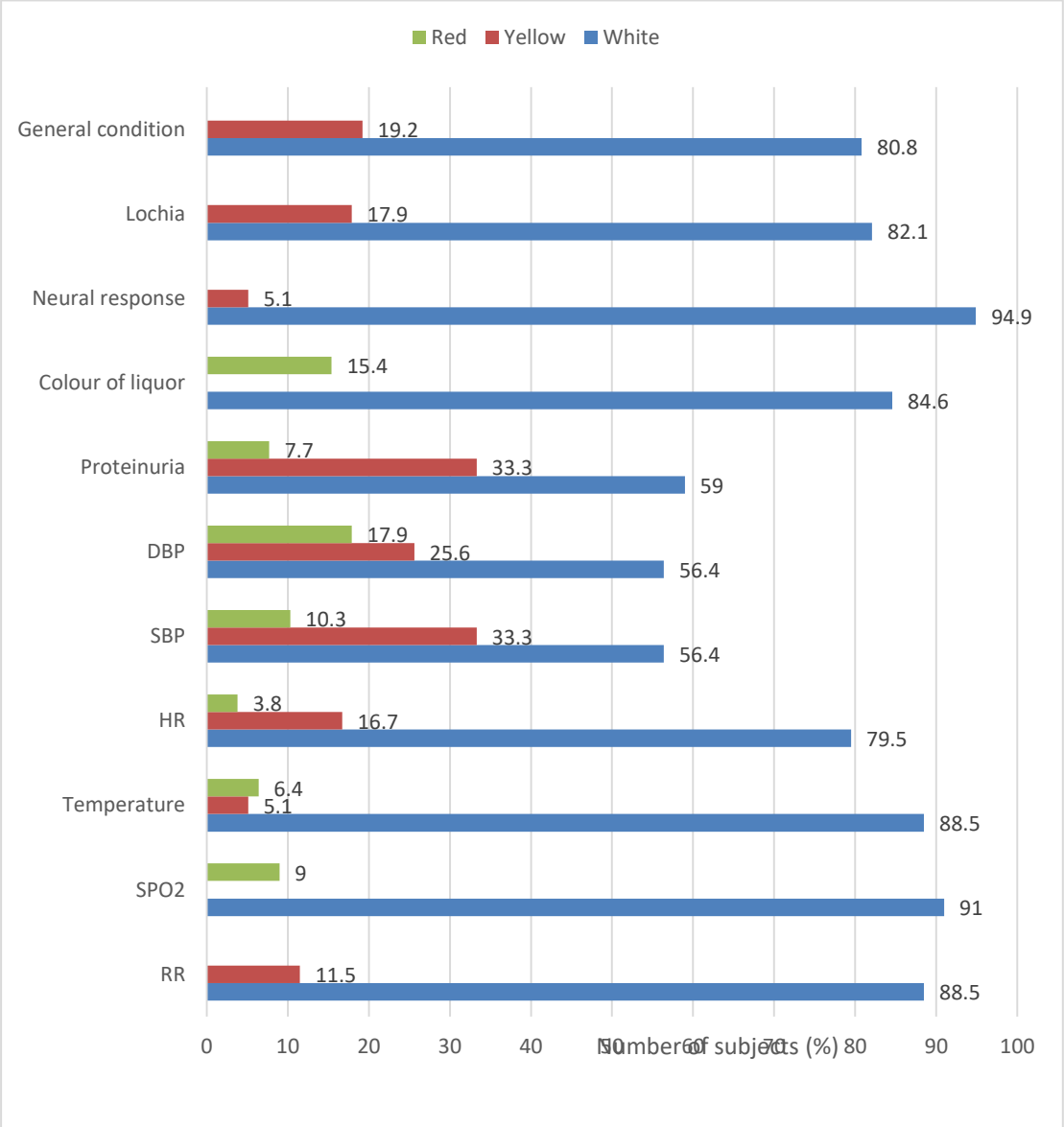
Table 25: Distribution of the cases according to colour coding in Group A

	White		Yellow		Red	
	No.	**%**	**No.**	**%**	**No.**	**%**
RR	69	88.5	9	11.5	0	0
SPO2	71	91.0	0	0	7	9.0
Temperature	69	88.5	4	5.1	5	6.4
HR	62	79.5	13	16.7	3	3.8
SBP	44	56.4	26	33.3	8	10.3
DBP	44	56.4	20	25.6	14	17.9
Proteinuria	46	59.0	26	33.3	6	7.7
Colour of liquor	66	84.6	0	0.0	12	15.4
Neural response	74	94.9	4	5.1	0	0
Lochia	64	82.1	14	17.9	0	0
General condition	63	80.8	15	19.2	0	0

We made cases stratification as per the colour coding as per respiratory rate criteria 11.5% had yellow colour and 0% had red colour grade, SPO2 criteria 0% had yellow colour and 9% had red colour grade, temperature criteria 5.1% had yellow colour and 6.4% had red colour grade, heart rate criteria 16.7% had yellow colour and 3.8% had red colour grade, SBP criteria 33.3% had yellow colour and 10.3% had red colour grade, DBP criteria 25.6% had yellow colour and 17.9% had red colour grade,

proteinuria criteria showing 33.3% with yellow and 7.7% with red grade, colour of the liquor criteria showing 84.6% with white and 15.4% with red grade, neural response showing 94.9% with white and 5.1% with yellow grade, as per lochia criteria showing 17.9% with yellow and 0% with red grade, as per general condition criteria showing 19.2% with yellow and 0% with red grade.

Figure 25: Bar diagram showing Distribution of the cases according to colour coding in Group A



DISCUSSION

Sociodemographic profile of the study population

We high high-risk pregnant women admitted in OBGY department and divided in two groups and included 78 patients in each group as follows: Study group (Group A): Modified Early Obstetrics Warning System (MEOWS). Comparator group (Group B): Standard of care.

Out of 78 cases from Group A, majority were from 21-30 years i.e. 75.6% followed by 19.2% from 31-40 years, 3.8% from less than 20 years and 1.3% from above 40 years age group. Out of 78 cases from Group B, majority were from 21-30 years i.e. 71.8% followed by 20.5% from 31-40 years, 7.7% from less than 20 years and 0% from above 40 years age group. Mean age of the women from Group A and Group B was 26.58±5.14 and 27.41±4.74 years with statistically non-significant difference between two ($p>0.05$).

Singh A. et al[50] "in their study reported that the they included completed MEOWS chart of 1065 study subjects was analysed. Study population was largely comprised of antenatal (98%), young females between 20–30 years of age belonging to either lower or middle socio-economic status. About two-third of the women had regular antenatal visits and 85% of the admissions were direct."[50]

Distribution according to socioeconomic status revealed that from Group A, majority were from middle SES i.e. 34.6% followed by 30.8% from lower SES, 15.4% from lower middle, 11.5% from upper middle and 7.7% from upper SES. Group B, majority were from middle SES i.e. 33.3% followed by 24.6% from lower SES, 16.7% from lower middle, 15.4% from upper middle and 10.3% from upper SES. We

observed statistically no significant difference in the number of women from each category of SES.

Singh A. et al[50] "in their study reported that 14.43% women from triggered group and 9.21% from non-triggered group belonged from lower SES, 36.26% women from triggered group and 37.77% from non-triggered group belonged from upper lower SES, 37.67% women from triggered group and 39.43% from non-triggered group belonged from lower middle SES, 11.61% women from triggered group and 13.57% from non-triggered group belonged from upper middle SES."[50]

Ibáñez-Lorente C et al[53] stated that, "median age was 34 (31–37) years."[53]

Ibáñez-Lorente C et al[53] stated that, "there rate of caesarean delivery and instrumental delivery of 23.2% and 15.1%, respectively. "[53]

Obstetric score

Distribution according to parity revealed that 42.3% and 53.8% from Group A and Group B respectively were multigravida. 50% and 37.2% from Group A and Group B respectively were primigravida. 7.7% and 9% from Group A and Group B respectively were postnatal cases. We observed statistically no significant difference in the number of women from each group of parity.

Singh A. et al[50] "in their study reported that 45.77% women from triggered group and 41.24% from non-triggered group were nullipara, 53.52% women from triggered group and 58.51% from non-triggered group belonged from parity 1-4, 0.70% women from triggered group and 0.25% from non-triggered group belonged from parity of more than 4."[50]

Radha R. et al[54] observed that, "51.4% were primigravida and 48.6% were multigravida."[54]

Distribution according to maternal risk factors

Distribution according to maternal risk factors showed that 35.9% women from Group A and 33.3% from Group B had preeclampsia with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 6.4% women from Group A and 3.8% from Group B had eclampsia with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 6.4% women from Group A and 6.4% from Group B had HELLP syndrome with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 7.7% women from Group A and 10.3% from Group B had placenta previa with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 1.3% women from Group A and 0% from Group B had PAS with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 16.7% women from Group A and 14.1% from Group B had PPH with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 6.4% women from Group A and 2.6% from Group B had abruption with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 1.3% women from Group A and 3.8% from Group B had sepsis with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 0% women from Group A and 1.3% from Group B had ruptured uterus with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 9% women from Group A and 10.3% from Group B had cardiac disorders with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 2.6% women from Group A and 1.3% from Group B had shock with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 5.1% women from Group A and 14.1% from Group B had other maternal risk factors with statistically non-significant difference between two ($p>0.05$).

Singh A. et al[50] "in their study reported that associated obstetric condition was present in 22% of cases with hypertensive disorders (9.8%) being commonest followed closely by previous caesarean section (7.7%). Associated medical condition was present in 5% of cases; severe anaemia (2.4%) being the commonest. "[50]

Radha R. et al[54] observed that, "96 cases were preeclamptic, 45 cases had PPH, 19 cases had PPH with preeclampsia, 15 cases were found to have eclampsia, and 2 of these cases with eclampsia developed cortical venous thrombosis (CVT). Wound infection was found in nine cases, three cases had pulmonary edema, and pulmonary thromboembolism was found in one case. "[54]

Ibáñez-Lorente C et al[53] stated that, "the protocol was triggered in 75 patients (6.43%). Patients who triggered the protocol had a higher rate of caesarean delivery (37.3% vs 22.3%, $p = 0.005$), preeclampsia (17.3% vs 4.8%, $p < 0.001$), and multiple birth (6.7% vs 1.5%). The PFD rate was also higher (14.7% vs 2.6%, $p < 0.001$), as was the CCU admission rate (12% vs 0.8%, $p < 0.001$) and length of stay [median: 2.9 (2.3–3.6) vs 2.5 (2.1–3.1) days, $p = 0.005$]. Fifteen patients underwent surgery in the first 2 hours after delivery, fourteen of them for uncontrolled vaginal bleeding that required obstetric curettage. One patient had to undergo emergency hysterectomy. "[53]

Distribution according to proteinuria

Distribution according to proteinuria showed that 5.1% women from Group A and 0% from Group B had proteinuria more than 3+, 17.9% from Group A and 25.6% from Group B had proteinuria more than 1+, 15.4% from Group A and 6.4% from Group B had proteinuria more than 2+, 2.6% from Group A and 0% from Group B had proteinuria more than 3+. We observed statistically no significant difference in the number of women from each category of protein levels.

Maternal outcome

Distribution according to liquor colour showed that 15.4% women from Group A and 5.1% from Group B had green colour liquor with statistically significant difference

between two groups ($p<0.05$) showing more number of cases with green liquor from Group A.

Distribution according to neural response showed that 94.9% women from Group A and 98.7% from Group B were alert, 5.1% women from Group A and 0% from Group B responded to verbal stimuli, 0% women from Group A and 1.3% from Group B were unresponsive to response with statistically non-significant difference between two ($p>0.05$).

Radha R. et al[54] observed that, "neurological score of the examined cases. About 98% of cases were neurologically normal and < 2% of cases were found to have neurological instability."[54]

Distribution according to lochia pattern showed that 17.9% women from Group A and 12.8% from Group B had heavy lochia with statistically non-significant difference between two ($p>0.05$).

Distribution according to general condition showed that 14.1% women from Group A and 10.3% from Group B were unwell with statistically significant difference between two groups ($p<0.05$).

Distribution according to mode of delivery

Distribution according to mode of delivery showed that 66.7% women from Group A and 66.7% from Group B underwent LSCS with statistically non-significant difference between two ($p>0.05$).

Singh A. et al[50] "in their study reported that there was significantly higher proportion of interventions i.e. instrumental delivery (3.2% vs 2.0%), caesarean section (28.9%

vs 14.3%) and blood transfusion (20.4% vs 3.8%) was required in the women whose MEOWS charts triggered."[50]

Distribution according to maternal outcome

Distribution according to maternal outcome showed that 9% women from Group A and 5.1% from Group B had perineal injury liquor with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal outcome showed that 9% women from Group A and 5.1% from Group B had cervical tear liquor with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal outcome showed that 25.6% women from Group A and 29.5% from Group B had morbidity with statistically non-significant difference between two ($p>0.05$).

Singh A. et al[50] "in their study reported that one hundred and seventy-seven (16.61%) fitted our criteria for morbidity."[50]

Yadav P. et al[56] reported "40.7% maternal morbidity in their study."**[56]**

Distribution according to maternal ICU admission showed that 6.4% women from Group A and 7.7% from Group B required ICU admission with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal ICU transfer indication showed that 3.8% women from Group A and 1.3% from Group B required post-surgery monitoring, 1.3% women from Group A and 0% from Group B each had sepsis with hypovolemia and

hypovolemic shock showing statistically non-significant difference between two (p>0.05).

Yadav P. et al[56] "reported 21.9% maternal ICU admission in their study."[56]

Distribution according to maternal final outcome showed that 1.3% women from Group A and 1.3% from Group B had mortality showing statistically non-significant difference between two (p>0.05).

Yadav P. et al[56] "reported 0.2% maternal mortality in their study."[56]

Maternal mortality

Distribution according to maternal outcome showed that 2.6% women from Group A and 1.3% from Group B had mortality with statistically non-significant difference between two (p>0.05).

Twelve observational studies[58-69] "assessed effectiveness of EWS in predicting obstetric morbidity and mortality (predictive accuracy); of these, seven investigated accuracy of the tools in predicting adverse outcomes among all obstetric inpatients, of these two were prospective studies and four were retrospective studies. Five were vali dation studies that looked at specific obstetric outcomes associated with chorioamnionitis and pre-eclampsia."[51]

Distribution according to neonatal outcome

Distribution according to neonatal outcome showed that 14.1% women from Group A and 11.5% from Group B required instrumentation with statistically non-significant difference between two (p>0.05).

Distribution according to neonatal outcome showed that 15.4% women from Group A and 9.0% from Group B had meconium-stained liquor with statistically non-significant difference between two ($p>0.05$).

Distribution according to neonatal outcome showed that 7.7% women from Group A and 5.1% from Group B had shoulder dystocia liquor with statistically non-significant difference between two ($p>0.05$).

Singh A. et al[50] "in their study reported that 2.8% neonates from triggered group and 2.6% from non-triggered group died."[50]

Vital parameters of the study population

Mean respiratory rate of the women from Group A and Group B was 18.36±2.11 and 18.13±2.1 minutes with statistically non-significant difference between two ($p>0.05$). Mean SPO2 of the women from Group A and Group B was 98.54±1.7 and 98.95±1.06% with statistically non-significant difference between two ($p>0.05$). Mean temperature of the women from Group A and Group B was 97.88±0.93 and 97.94±0.85 degree with statistically non-significant difference between two ($p>0.05$). Mean heart rate of the women from Group A and Group B was 91.88±12.44 and 92.35±14.22 minutes with statistically non-significant difference between two ($p>0.05$). Mean SBP of the women from Group A and Group B was 137.59±21.57 and 130.44±20.91 mmHg with statistically significant difference between two groups ($p<0.05$). Mean DBP of the women from Group A and Group B was 89.62±15.55 and 84.28±14.84 mmHg with statistically significant difference between two groups ($p<0.05$).

Colour coding

We made cases stratification as per the colour coding as per respiratory rate criteria 11.5% had yellow colour and 0% had red colour grade, SPO2 criteria 0% had yellow colour and 9% had red colour grade, temperature criteria 5.1% had yellow colour and 6.4% had red colour grade, heart rate criteria 16.7% had yellow colour and 3.8% had red colour grade, SBP criteria 33.3% had yellow colour and 10.3% had red colour grade, DBP criteria 25.6% had yellow colour and 17.9% had red colour grade, proteinuria criteria showing 33.3% with yellow and 7.7% with red grade, colour of the liquor criteria showing 84.6% with white and 15.4% with red grade, neural response showing 94.9% with white and 5.1% with yellow grade, as per lochia criteria showing 17.9% with yellow and 0% with red grade, as per general condition criteria showing 19.2% with yellow and 0% with red grade.

Singh A. et al[50] "in their study reported that two hundred and eighty-four (26.60%) women triggered to abnormal zones after admission.**"[50]**

Singh A. et al[50] "in their study reported that among individual physiological parameters, the most frequent trigger was high diastolic blood pressure (33%). This was followed by heart rate (19.3%), abnormal liquor (7.23%), high systolic blood pressure (5.19%) and respiratory rate (2.06%) respectively. Abnormal value in either yellow or red zone leads to significant increase in morbidity."[50]

Radha R. et al[54] observed that, "eighty-two cases showed only elevated blood pressure, 53 cases showed tachycardia, 5% (48) of cases showed elevation of both blood pressure and pulse rate, two cases showed abnormal renal parameters, abnormal blood pressure, abnormal HR, and abnormal RR, two cases showed abnormal renal parameters, abnormal blood pressure, and abnormal HR, two cases showed abnormal

blood pressure and abnormal RR, and two cases showed abnormal blood pressure and abnormal RR. Twelve cases showed elevation of blood pressure, HR, and RR. Only one case showed elevated temperature, abnormal blood pressure, and abnormal HR."[54]

"Literature has enough evidence regarding recognizable changes in vital parameters like heart rate, respiratory rate, blood pressure, level of consciousness etc. prior to any life-threatening event."[54] Swanton et al[70] "have reported that diastolic blood pressure was included in all 9 obstetric specific EWS that they reviewed."[70] Goldhill et al[71] noted, "the most common abnormalities to be tachypnoea and altered level of consciousness in patients admitted to ICU."[71] Kause et al[72] also "revealed hypotension and fall in consciousness level to be most common antecedent to cardiac arrest, death or emergency obstetric admissions."[72]

"For a screening tool to be of value, it should be cost effective, safe to use, easily acceptable by community, accurate and validated. Sensitivity and specificity are two components to determine validity. The accuracy is indicated by positive and negative predictive values which are dependent on prevalence of morbidity in the population. The MEOWS chart as an ideal screening tool should have a sensitivity and specificity close to 100% that means, most if not all of the triggered patients will be correctly identified as having morbidity and number of misleading triggers should be very less. Though in practice, it is rarely the case. So a good balance between sensitivity and specificity is desirable. Since these charts are aimed at detection of maternal morbidity, the number of false positive (sensitivity) would increase burden on resources and create unnecessary anxiety but still is favoured over false negative."[51]

Swanton et al[76] on his survey on UK maternity units in 2007 found that 30 (19%) maternity units were regularly using an EWS in obstetric population yet only 9 (6%) were using a system modified for parturient.

SUMMARY

The present prospective observational study was carried out at Department of Obstetrics and gynaecology at KLES Dr. Prabhakar Kore Hospital and Medical Research centre, Belagavi including all high-risk pregnant women admitted in KLES Dr. Prabhakar Kore Hospital and Medical Research centre, Belagavi. The objective of our study was to compare the adverse maternal outcome between Modified Early Obstetrics warning system (MEOWS) and Standard of care groups among the High-risk pregnant women.

The results of our study are summarised as follows:

High-risk pregnant women admitted in OBGY department are divided in two groups and included 78 patients in each group as follows: Study group (Group A): Modified Early Obstetrics Warning System (MEOWS). Comparator group (Group B): Standard of care.

Out of 78 cases from Group A, majority were from 21-30 years i.e. 75.6% followed by 19.2% from 31-40 years, 3.8% from less than 20 years and 1.3% from above 40 years age group. Out of 78 cases from Group B, majority were from 21-30 years i.e. 71.8% followed by 20.5% from 31-40 years, 7.7% from less than 20 years and 0% from above 40 years age group.

Distribution according to socioeconomic status revealed that from Group A, majority were from middle SES i.e. 34.6% followed by 30.8% from lower SES, 15.4% from lower middle, 11.5% from upper middle and 7.7% from upper SES. Group B, majority were from middle SES i.e. 33.3% followed by 24.6% from lower SES, 16.7% from lower middle, 15.4% from upper middle and 10.3% from upper

SES. We observed statistically no significant difference in the number of women from each category of SES.

Distribution according to parity revealed that 42.3% and 53.8% from Group A and Group B respectively were multigravida. 50% and 37.2% from Group A and Group B respectively were primigravida. 7.7% and 9% from Group A and Group B respectively were postnatal cases. We observed statistically no significant difference in the number of women from each group of parity.

Distribution according to maternal risk factors showed that 35.9% women from Group A and 33.3% from Group B had preeclampsia with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 6.4% women from Group A and 3.8% from Group B had eclampsia with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 6.4% women from Group A and 6.4% from Group B had HELLP syndrome with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 7.7% women from Group A and 10.3% from Group B had placenta previa with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 1.3% women from Group A and 0% from Group B had PAS with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal risk factors showed that 16.7% women from Group A and 14.1% from Group B had PPH with statistically non-significant difference between two (p>0.05).

Distribution according to maternal risk factors showed that 6.4% women from Group A and 2.6% from Group B had abruption with statistically non-significant difference between two (p>0.05).

Distribution according to maternal risk factors showed that 1.3% women from Group A and 3.8% from Group B had sepsis with statistically non-significant difference between two (p>0.05).

and 1.3% from Group B had ruptured uterus with statistically non-significant difference between two (p>0.05).

Distribution according to maternal risk factors showed that 9% women from Group A and 10.3% from Group B had cardiac disorders with statistically non-significant difference between two (p>0.05).

Distribution according to maternal risk factors showed that 2.6% women from Group A and 1.3% from Group B had shock with statistically non-significant difference between two (p>0.05).

Distribution according to maternal risk factors showed that 5.1% women from Group A and 14.1% from Group B had other risk factors with statistically non-significant difference between two (p>0.05).

Distribution according to proteinuria showed that 5.1% women from Group A and 0% from Group B had proteinuria more than 3+, 17.9% from Group A and 25.6% from Group B had proteinuria more than 1+, 15.4% from Group A and 6.4% from

Group B had proteinuria more than 2+, 2.6% from Group A and 0% from Group B had proteinuria more than 3+. We observed statistically no significant difference in the number of women from each category of protein levels.

Distribution according to liquor colour showed that 15.4% women from Group A and 5.1% from Group B had green colour liquor with statistically significant difference between two groups ($p<0.05$) showing more number of cases with green liquor from Group A.

Distribution according to neural response showed that 94.9% women from Group A and 98.7% from Group B were alert, 5.1% women from Group A and 0% from Group B responded to verbal stimuli, 0% women from Group A and 1.3% from Group B were unresponsive to response with statistically non-significant difference between two ($p>0.05$).

Distribution according to lochia pattern showed that 17.9% women from Group A and 12.8% from Group B had heavy lochia with statistically non-significant difference between two ($p>0.05$).

Distribution according to general condition showed that 14.1% women from Group A and 10.3% from Group B were unwell with statistically significant difference between two groups ($p<0.05$).

Distribution according to mode of delivery showed that 66.7% women from Group A and 66.7% from Group B underwent LSCS with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal outcome showed that 9% women from Group A and 5.1% from Group B had perineal injury with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal outcome showed that 9% women from Group A and 5.1% from Group B had cervical tear liquor with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal outcome showed that 25.6% women from Group A and 29.5% from Group B had morbidity with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal outcome showed that 2.6% women from Group A and 1.3% from Group B had mortality with statistically non-significant difference between two ($p>0.05$).

Distribution according to neonatal outcome showed that 14.1% women from Group A and 11.5% from Group B required instrumentation with statistically non-significant difference between two ($p>0.05$).

Distribution according to neonatal outcome showed that 15.4% women from Group A and 9.0% from Group B had meconium-stained liquor with statistically non-significant difference between two ($p>0.05$).

Distribution according to neonatal outcome showed that 7.7% women from Group A and 5.1% from Group B had shoulder dystocia liquor with statistically non-significant difference between two ($p>0.05$).

82.1% patients had hospital stay of less than 10 days, 16.7% had it between 11-20 days and 1.3% had between 21-30 days.

Distribution according to maternal ICU admission showed that 6.4% women from Group A and 7.7% from Group B required ICU admission with statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal ICU transfer indication showed that 3.8% women from Group A and 1.3% from Group B required post-surgery monitoring, 1.3% women from Group A and 0% from Group B each had sepsis with hypovolemia and hypovolemic shock showing statistically non-significant difference between two ($p>0.05$).

Distribution according to maternal final outcome showed that 1.3% women from Group A and 1.3% from Group B had mortality showing statistically non-significant difference between two ($p>0.05$).

Mean age of the women from Group A and Group B was 26.58±5.14 and 27.41±4.74 years with statistically non-significant difference between two ($p>0.05$).

Mean respiratory rate of the women from Group A and Group B was 18.36±2.11 and 18.13±2.1 minutes with statistically non-significant difference between two ($p>0.05$).

Mean SPO2 of the women from Group A and Group B was 98.54±1.7 and 98.95±1.06% with statistically non-significant difference between two ($p>0.05$).

Mean temperature of the women from Group A and Group B was 97.88±0.93 and 97.94±0.85 degree with statistically non-significant difference between two ($p>0.05$).

Mean heart rate of the women from Group A and Group B was 91.88±12.44 and 92.35±14.22 minutes with statistically non-significant difference between two ($p>0.05$).

Mean SBP of the women from Group A and Group B was 137.59±21.57 and 130.44±20.91 mmHg with statistically significant difference between two groups ($p<0.05$).

Mean DBP of the women from Group A and Group B was 89.62±15.55 and 84.28±14.84 mmHg with statistically significant difference between two groups ($p<0.05$).

We made cases stratification as per the colour coding as per respiratory rate criteria 11.5% had yellow colour and 0% had red colour grade, SPO2 criteria 0% had yellow colour and 9% had red colour grade, temperature criteria 5.1% had yellow colour and 6.4% had red colour grade, heart rate criteria 16.7% had yellow colour and 3.8% had red colour grade, SBP criteria 33.3% had yellow colour and 10.3% had red colour grade, DBP criteria 25.6% had yellow colour and 17.9% had red colour grade, proteinuria criteria showing 33.3% with yellow and 7.7% with red grade, colour of the liquor criteria showing 84.6% with white and 15.4% with red grade, neural response showing 94.9% with white and 5.1% with yellow grade, as per lochia criteria showing 17.9% with yellow and 0% with red grade, as per general condition criteria showing 19.2% with yellow and 0% with red grade.

CONCLUSION

- Implementing MEOWS does not lead to any notable improvement in maternal outcomes as compared to the standard care.

- With respect to risk factors, we observed statistically non-significant difference between two groups ($p>0.05$).

- Distribution according to liquor colour showed that 15.4% women from Group A and 5.1% from Group B had green colour liquor with statistically significant difference between two groups ($p<0.05$) showing more number of cases with green liquor from Group A.

- Distribution according to general condition showed that 14.1% women from Group A and 10.3% from Group B were unwell with statistically significant difference between two groups ($p<0.05$).

- Mean SBP of the women from Group A and Group B was 137.59±21.57 and 130.44±20.91 mmHg with statistically significant difference between two groups ($p<0.05$).

- Mean DBP of the women from Group A and Group B was 89.62±15.55 and 84.28±14.84 mmHg with statistically significant difference between two groups ($p<0.05$).

- ―Childbirth is a major life event and the physiological and psychological implications of serious illness on the woman and her family cannot be dismissed. While midwives strive to encourage and support normality for pregnant and postnatal women, equal importance must be assigned to identifying and acting on

physiological changes occurring in women, which may indicate illness that without timely intervention can lead to significant maternal morbidity. A modified early obstetric warning tool provides a useful aid to clinical judgement during the assessment process and a structure to follow which should ensure timely and appropriate intervention when required.[51]

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ANNEXURES

ANNEXURE – I - INFORMED CONSENT FORM

"'A Prospective observational study to compare the maternal outcomes between Modified Early Obstetrics warning system (MEOWS) and Standard of care groups among high risk pregnant women."

Name of Student/Principal Investigator: _____

Name of Guide/Co Investigators: _____

Introduction: Maternal mortality is still a major concern for health systems worldwide.

Analyses of maternal deaths have consistently revealed that delays in the recognition of pregnancy complications are associated with higher mortality.

MEOWS involve the routine monitoring and recording of vital signs or clinical observations on specifically designed charts with linked escalation protocols. They list criteria for abnormal physiological parameters that trigger a color-coded or weighted scoring system aimed to guide the frequency of monitoring, need for, and urgency of clinical review.

Explanation of procedure: (At the time of admission all the high risk pregnant and postpartum women will be identified and MEOWS chart will be filled after recording vital parameters of the patients).

Withdrawal from participation in the study: Participation in this study in voluntary. You will be free to decide whether to participate in this study or continue participation once enrolled. In case you decide to withdraw your participation, you are free to do so. However, please convey the decision to the principal investigator.

Possible benefits from participating in the study: You will/will not get any benefits by participating in this study.The data gathered will help population at large.

Possible risks from participating in the study: There are no risks involved in participating in this study.

Privacy and confidentiality: The information collected from you will be coded, to prevent any person to identify you. Your identity will never be revealed. The data collected from you will be kept confidential and only processed or aggregated data will be used for publication.

Financial incentives: You will not receive any payment for participating in this study.

Authorization for publication of aggregated data: Results obtained after processing of the aggregated data will be published for scientific purpose and or presented to scientific groups.

However, your identity will never be revealed.

Questions: If you have any question or complaints with regard to your right as study participant you may contact Dr Harsha Hegde, Chairperson, Ethical committee of JNMC, 0831-2473777 Extension 4052.

Legal rights: By signing this consent form, we are not waving any of your legal rights

CONSENT STATEMENT

I am making a voluntary decision to participate in the study **"A Prospective observational study to compare the maternal outcomes between Modified Early Obstetrics warning system (MEOWS) and Standard of care groups among high risk pregnant women."** My signature below indicates that I have decided to participate and I have read the information provided above or the information provided above has been read to me in the language that I understand best. I was given the opportunity to ask questions and that they have been answered to my satisfaction.

Name of the participant:

Signature or left thumb impression of the participant:

Name of the witness:

Signature or left thumb impression of the witness:

Name of the investigator:

Signature of the investigator:

ANNEXURE – II – PROFORMA

SCREENING FORM

Screening number:

Date of screening:

1. Is Gestational Age beyond 28 weeks? YES NO

   LMP-

   EDD -

   Gestational Age -

2. Inclusion Criteria -

a) High risk pregnant women of >28 weeks of gestation admitted in labour room.

YES NO

b) High risk postpartum women upto 42 days. YES NO

3. Exclusion Criteria -

   a) Women in active labour YES NO

   b) Women who had uncomplicated normal delivery and caesarean section.

YES NO

   c) Women who will be admitted directly to ICU YES NO

   d) Patient not willing to participate YES NO

4. Is the patient eligible for study YES NO

PROFORMA

1.GENERAL INFORMATION

a. Full Name_____

b. Age _____ (in years)

c. Inpatient No_____

d. Contact No _____

e. Complete address_____

f. Education: Illiterate

Illiterate upto 5th class ☐

6th to 12th class ☐

Beyond 12th class ☐

g. Socioeconomic status _____

h. Date of admission: ______ Time:

i. Date of discharge: ______ Time:

j. Duration of hospital stay: _____ Days

k. Duration of ICU stay: _____ Days

l. Provisional Diagnosis at Admission _____

_____

m. Final Diagnosis at Discharge _____

_____

2. CONDITION AT TIME OF ADMISSION

a. Patient admitted in Hospital in latent labour ☐

b. Admitted in Hospital with illness ☐

c. Admitted for routine checkup ☐

3. STATUS AT ADMISSION

Gravida ___ Parity. ____ Abortion. ____ Living. ____ Death. ____

LMP:

EDD:

POG:

Postnatal ☐

4. POTENTIALLY LIFE THREATENING COMPLICATIONS IN PREGNANCY

A. Post partum haemorrhage. Yes. ☐ No ☐

If yes

Atonic PPH. ☐

Traumatic PPH ☐

Mixed PPH ☐

B. Pre eclampsia. Yes ☐ No. ☐

If yes

Severe uncontrolled hypertension ☐

Deranged LFTs. ☐

HELLP syndrome. ☐

Deranged RFTs. ☐

Abruptio placenta. ☐

DIC. ☐

Eclampsia. ☐

C. Placental disorders. Yes ☐ No ☐

Placenta Previa. ☐

Placenta Accreta ☐

Placenta Increta. ☐

Placenta Percreta ☐

Abruptio placenta. ☐

D. Sepsis. Yes ☐ No ☐

E. Cardiac disorder Yes ☐ No ☐

F. Shock Yes ☐ No ☐

G. Others Yes ☐ No ☐

If present, specify:

5.CATEGORY: GROUP A (MEOWS) ☐ GROUP B (Standard of care) ☐

6. PRESENTING COMPLAINTS (Please tick all the presenting complaints)

	Yes	No		Yes	No
Per vaginal bleeding			Convulsion		
Per vaginal leak			Unconscious state		
High grade fever			Syncope		
Swelling of feet / body			Breathlessness		
Epigastric pain			Palpitations		
Passing of scanty amount of urine			Chest pain		
Severe headache			Orthopnea		
Blurring of vision			Vomiting		
Pain abdomen			Others		

7. VITALS AT TIME OF ADMISSION

Examination	At Admission
Date and time of examination	
Respiratory rate	
Oxygen saturation	
Temperature	
Heart rate	
Systolic BP	
Diastolic BP	
Proteinuria	
Colour of liquor	
Neural response	
Lochia	
General condition	

8. CONDITION AT DISCHARGE

Completely recovered Yes. ☐ No ☐

If no, details of residual morbidity

Duration of ICU stay:

Primary indication for transfer to ICU:

Mortality Yes. ☐ No ☐

Cause of death

Final outcome:

Mortality:

Survived:

ANNEXURE: III – MASTER CHART

Sr No	Group (A- MEOWS/ B-Standard of care)	IP number	Age	Socioeconomic status	Parity (Primipara/Multipara/Postnatal)	GA in weeks	PPH (Present/Absent)	PIH (Present/Absent)	Eclampsia (Present/Absent)	HELLP Syndrome (Present/Absent)	Placenta previa (Present/Absent)	PAS (Present/Absent)	Abruption (Present/Absent)	Sepsis (Present/Absent)	Ruptured uterus (Present/Absent)	Shock (Present/Absent)	Cardiac disorder (Present/Absent)	Others (Present/Absent)	Complicated pregnancy (Present/Absent)	Colour zone (white/Yellow/Red)											High risk pregnancy (Yes/No)	Maternal outcome									Duration of hospital stay (days)	ICU admission	Duration of ICU stay (days)	Primary indication for transfer to ICU	Cause of mortality	Final Outcome
																				RR	SPO2	Temperature	HR	SBP	DBP	Proteinuria	Colour of liquor	Neural response	Lochia	General condition		Mode of delivery	Instrumentation required (Yes/No)	MSL (Yes/No)	Shoulder dystocia (Yes/No)	Perineal injury (Yes/No)	Cervical tear (Yes/No)	PPH (Yes/No)	Morbidity (Yes/No)	Mortality (Yes/No)						
1	A	10089837	28	Upper middle	Primigravida	38 weeks	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	98	88	122	78	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	5	No	Nil	Nil		Discharged
2	A	10087416	21	Lower	Primigravida	38 weeks 4 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present (Obstructed labour)	Present	22	99	98.2	112	118	78	Nil	Green	Alert	Healthy	Looks Well	Yes	LSCS	No	Yes	No	No	No	No	No	No	8	No	Nil	Nil		Discharged
3	A	10087078	32	Middle	Multigravida	37 weeks	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	98.2	90	130	80	Nil		Alert		Looks well	Yes							No	No	5	No	Nil	Nil		Discharged
4	A	10084985	24	Upper	Primigravida	37 weeks	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	98	96.2	80	164	100	Trace	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
5	A	10084545	22	Lower middle	Primigravida	37 weeks 4 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	99	98.1	92	148	100	1+	Clear	Alert	Healthy	Looks well	Yes	Vaginal	No	No	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
6	A	10129124	32	Middle	Multigravida	37 weeks 2 days	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	97	94	130	84	Nil	Clear	Alert	Heavy	looks well	Yes	Vaginal	No	No	No	No	No	Yes	No	No	8	No	Nil	Nil		Discharged
7	A	10129584	21	Lower middle	Multigravida	41 weeks 2 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present (Jaundice)	Present	16	98	97.2	100	130	80	Nil	Clear	Alert	Healthy	Looks unwell	Yes	LSCS	No	No	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
8	A	10055554	24	Upper middle	Multigravida	37 weeks 5 days	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	100	97.6	90	118	72	Nil	Clear	Alert	Heavy	Looks Well	Yes	Vaginal	No	No	No	No	No	Yes	No	No	7	No	Nil	Nil		Discharged
9	A	10058751	22	Middle	Primigravida	37 weeks 5 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	98	98	90	160	110	Trace	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	No	No	6	No	Nil	Nil		Discharged
10	A	10055444	21	Lower	Primigravida	37 weeks 2 days	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	98.5	100	130	98	2+	Clear	Alert	Healthy	Looks unwell	Yes	LSCS	No	No	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
11	A	10036568	30	Lower middle	Postnatal	P1L1	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	96	97.2	116	150	90	1+		Alert		Looks unwell	Yes							Yes	No	8	No	Nil	Nil		Discharged
12	A	10058206	36	Middle	Multigravida	37 weeks 4 days	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	99	98.7	98	156	104	1+	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	Yes	No	7	No	Nil	Nil		Discharged
13	A	10060934	21	Lower	Primigravida	34 weeks 1 day	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Present	18	99	97.4	88	156	100	1+	Clear	Alert	Healthy	looks well	Yes	LSCS	No	No	No	No	No	No	No	No	9	No	Nil	Nil		Discharged
14	A	10055206	20	Lower	Primigravida	33 weeks	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	99	97.4	90	160	120	Trace	Clear	Alert	Healthy	Looks unwell	Yes	LSCS	No	No	No	No	No	No	Yes	No	11	No	Nil	Nil		DAMA
15	A	10061938	29	Middle	Multigravida	31 weeks 6 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	98	98	80	118	78	1+	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	Yes	No	No	9	No	Nil	Nil		Discharged
16	A	10090849	25	Upper middle	Multigravida	40 weeks 2 days	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	98.2	76	112	86	Nil	Clear	Alert	Heavy	Looks Well	Yes	Vaginal	No	No	No	No	No	Yes	Yes	No	7	No	Nil	Nil		Discharged
17	A	10039856	29	Middle	Postnatal	P5L2D3A1	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent	Present	22	97	98	130	106	64	Nil		Alert	Heavy	Looks well	Yes							Yes	No	No	10	No	Nil	Nil		Discharged
18	A	10054613	32	Lower	Multigravida	36 weeks 6 days	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	100	97.6	90	136	88	Nil	Clear	Alert	Heavy	Looks Well	Yes	Vaginal	No	No	No	No	Yes	Yes	Yes	No	5	No	Nil	Nil		Discharged
19	A	10054277	24	Lower middle	Multigravida	37 weeks 5 days	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	100	98.2	88	118	78	Nil	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	No	No	5	No	Nil	Nil		Discharged
20	A	10129181	25	Upper middle	Primigravida	40 weeks	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	100	98	88	124	80	Nil	Clear	Alert	Heavy	Looks Well	Yes	Vaginal	Yes	No	No	No	No	Yes	No	No	4	No	Nil	Nil		Discharged
21	A	10058761	33	Middle	Primigravida	28 weeks 6 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Present	22	99	97.5	110	136	82	Nil	Clear	Alert	Healthy	Looks Well	Yes	Vaginal	Yes	No	No	No	No	No	Yes	No	7	No	Nil	Nil		Discharged
22	A	10059465	20	Upper	Primigravida	37 weeks 5 days	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	99	98.2	96	140	98	Trace	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	Yes	No	11	No	Nil	Nil		Discharged

23	A	10037539	24	Middle	Primigravida	34 weeks 3 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	99	98	68	170	110	2+	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	Yes	No	10	No	Nil	Nil		Discharged
24	A	10084164	30	Lower	Multigravida	34 weeks 1 day	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	98	97.2	86	140	90	1+	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	No	No	8	No	Nil	Nil		Discharged
25	A	10089487	31	Lower	Multigravida	34 weeks 1 day	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	97.2	96	110	72	Nil	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	Yes	No	10	No	Nil	Nil		Discharged
26	A	10086092	24	Lower middle	Multigravida	37 weeks	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present (Jaundice)	Present	20	100	99.7	102	114	80	Trace	Clear	Alert	Healthy	Looks unwell	Yes	LSCS	No	No	No	No	No	No	Yes	Yes	1	Yes	1 day	Septic shock, MODS	Septic shock, MODS	Mortality
27	A	10054476	27	Middle	Multigravida	37 weeks 6 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Present	16	99	98.2	88	136	82	Nil	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	Yes	No	14	Yes	4 days	Postsurgery monitoring		Discharged
28	A	10056441	29	Middle	Primigravida	36 weeks 1 day	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	98	98.6	88	160	92	Trace	Green	Alert	Healthy	Looks Well	Yes	LSCS	No	Yes	No	No	No	No	No	No	9	No	Nil	Nil		Discharged
29	A	10055552	26	Lower middle	Multigravida	34 weeks 2 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	97.2	76	170	130	1+	Green	Alert	Healthy	Looks unwell	Yes	LSCS	No	Yes	No	No	No	No	No	No	10	No	Nil	Nil		Discharged
30	A	10076284	26	Lower	Primigravida	37 weeks 2 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	98	98	76	146	96	1+	Clear	Alert	Healthy	Looks Well	Yes	Vaginal	No	No	No	No	No	Yes	Yes	No	20	No	Nil	Nil		Discharged
31	A	10065575	24	Lower	Primigravida	33 weeks	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Present	24	95	98	98	116	68	Nil	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	No	No	8	Yes	2 days	Postsurgery monitoring		Discharged
32	A	10085684	24	Lower	Multigravida	38 weeks	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Present	20	97	98	82	110	72	Nil	Clear	Alert	Healthy	Looks unwell	Yes	LSCS	No	No	No	No	No	No	No	No	6	No	Nil	Nil		Discharged
33	A	10088877	28	Upper middle	Multigravida	33 weeks 3 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	97.8	92	148	100	1+		Alert		Looks well	Yes								No	No	6	No	Nil	Nil		Discharged
34	A	10085422	30	Lower middle	Primigravida	28 weeks 2 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	99	97.2	70	160	100	1+	Clear	Alert	Healthy	looks well	Yes	Vaginal	No	No	No	No	No	No	Yes	No	7	No	Nil	Nil		DAMA
35	A	10087264	33	Upper	Multigravida	38 weeks 6 days	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Present	18	98	98.2	102	118	66	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	6	No	Nil	Nil		Discharged
36	A	10057752	30	Middle	Multigravida	29 weeks 3 days	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	97.8	86	126	76	Nil		Alert		Looks well	Yes								No	No	3	No	Nil	Nil		Discharged
37	A	10082858	25	Upper	Multigravida	28 weeks 3 days	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Present	22	98	97.6	112	110	82	Trace	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	4	No	Nil	Nil		Discharged
38	A	10056887	39	Lower middle	Primigravida	30 weeks	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	99	97.2	90	160	110	2+		Alert		Looks well	yes								No	No	3	No	Nil	Nil		Discharged
39	A	10130229	26	Middle	Multigravida	37 weeks	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	98	98.2	90	150	100	Trace	Clear	Alert	Healthy	Looks Well	Yes	Vaginal	No	No	No	No	No	No	No	No	8	No	Nil	Nil		Discharged
40	A	10128911	22	Middle	Primigravida	30 weeks 5 days	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	98	97.8	80	140	90	Nil	Clear	Alert	Heavy	Looks Well	Yes	LSCS	No	No	No	No	No	Yes	No	No	9	No	Nil	Nil		Discharged
41	A	10058697	45	Lower	Primigravida	32 weeks 2 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	22	100	98.2	82	138	88	1+	Clear	Alert	Healthy	Looks well	Yes	LSCS	Yes	No	No	No	No	No	No	No	8	No	Nil	Nil		Discharged
42	A	10087979	22	Middle	Primigravida	39 weeks 1 day	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	97.2	88	120	88	Nil	Green	Alert	Heavy	Looks Well	Yes	LSCS	No	Yes	No	No	No	Yes	Yes	No	12	No	Nil	Nil		Discharged
43	A	10087974	27	Lower	Multigravida	32 weeks 3 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Present	22	95	97.2	100	128	88	Nil	Clear	Alert	Healthy	Looks Well	Yes	Vaginal	No	No	No	No	No	No	No	No	14	No	Nil	Nil		Discharged
44	A	10039168	34	Lower middle	Multigravida	35 weeks 4 days	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	100	98	104	140	100	2+	Clear	Alert	Healthy	Looks well	Yes	Vaginal	No	No	No	No	No	No	Yes	No	9	No	Nil	Nil		Discharged
45	A	10131079	23	Middle	Postnatal		Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present (Puerperal pyrexia)	Present	18	100	97.7	84	116	70	Nil		Alert	Healthy	Looks well	Yes								No		7	No	Nil	Nil		Discharged
46	A	10038160	21	Lower	Primigravida	39 weeks 1 day	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	99	98	96	100	60	Nil	Clear	Alert	Heavy	Looks well	Yes	Vaginal	No	No	No	No	No	Yes	No	No	7	No	Nil	Nil		Discharged
47	A	10131090	21	Lower	Postnatal		Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	99	98.9	120	98	60	2+		Alert	Heavy	Looks unwell	Yes							Yes	No	No	9	No	Nil	Nil		Discharged
48	A	10056023	25	Middle	Primigravida	37 weeks 3 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	98	98	160	100	Trace	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	8	No	Nil	Nil		Discharged
49	A	10039300	26	Lower	Primigravida	39 weeks 1 day	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	98.2	86	148	96	1+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
50	A	10037799	29	Middle	Multigravida	36 weeks 2 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	98.2	90	130	90	>2+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	10	No	Nil	Nil		Discharged
51	A	10056683	40	Middle	Multigravida	35 weeks	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	99	98	96	160	110	2+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	10	No	Nil	Nil		Discharged
52	A	10046947	21	Upper middle	Postnatal	P1L1	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent	Present	20	97	97.6	142	90	40	Nil		Alert	Heavy	Looks unwell	Yes						No	No	Yes	Yes	No	8	Yes	3 days	Hypovolemic shock		Discharged
53	A	10037733	29	Middle	Multigravida	37 weeks 2 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	98	98	80	130	76	2+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	8	No	Nil	Nil		Discharged
54	A	10053667	24	Middle	Primigravida	38 weeks 6 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	98.2	90	170	110	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	9	No	Nil	Nil		Discharged
55	A	10038146	24	Lower	Primigravida	35 weeks	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	97.4	86	150	90	2+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	8	No	Nil	Nil		Discharged
56	A	10114543	21	Lower middle	Multigravida	34 weeks 1 day	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	98	102	110	80	Nil	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	No	No	6	No	Nil	Nil		Discharged
57	A	10114105	22	Lower	Primigravida	34 weeks	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	97	88	148	106	Nil	Green	Alert	Healthy	Looks Well	Yes	LSCS	No	Yes	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
58	A	10113704	27	Lower	Primigravida	30 weeks 1 day	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	98	97.6	82	180	110	3+	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	No	No	8	No	Nil	Nil		Discharged

59	A	10114664	32	Middle	Multigravida	34 weeks 6 days	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	98	97.6	86	160	100	2+	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	Yes	No	19	No	Nil	Nil		Discharged
60	A	10047973	30	Upper middle	Multigravida	34 weeks 5 days	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Present	18	100	97	100	136	90	Trace	Clear	Alert	Healthy	looks well	Yes	LSCS	No	No	No	No	No	No	No	No	6	No	Nil	Nil		Discharged
61	A	10046954	25	Middle	Primigravida	35 weeks	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	97.2	80	150	100	>2+	Clear	Alert	Healthy	Looks unwell	Yes	LSCS	No	No	No	No	No	No	No	No	8	No	Nil	Nil		Discharged
62	A	10045701	24	Lower	Primigravida	38 weeks 3 days	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	97	82	128	80	Nil	Clear	Alert	Heavy	Looks Well	Yes	Vaginal	No	No	No	Yes	No	Yes	Yes	No	9	No	Nil	Nil		Discharged
63	A	10048553	19	Lower	Primigravida	40 weeks 2 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Present	16	98	98	84	114	72	Nil	Clear	Alert	Healthy	Looks Well	Yes	Vaginal	Yes	No	No	No	No	No	No	No	6	No	Nil	Nil		Discharged
64	A	10049112	24	Upper middle	Primigravida	36 weeks	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	97.8	108	148	110	1+	Clear	Responds to verbal stimuli	Healthy	Looks unwell	Yes	LSCS	No	No	No	No	No	No	No	No	9	No	Nil	Nil		Discharged
65	A	10116054	24	Lower	Multigravida	36 weeks 4 days	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	98	97	90	132	80	Nil	Clear	Alert	Heavy	Looks Well	Yes	Vaginal	No	No	No	No	No	Yes	No	No	7	No	Nil	Nil		Discharged
66	A	10115524	24	Lower	Multigravida	38 Weeks 5 days	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	97.6	88	140	100	1+	Clear	Alert	Heavy	Looks Well	Yes	LSCS	No	No	No	No	No	Yes	No	No	6	No	Nil	Nil		Discharged
67	A	10047699	25	Middle	Multigravida	36 weeks 4 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	97.6	76	176	106	>2+	Clear	Alert	Healthy	Looks unwell	Yes	LSCS	No	No	No	No	No	No	No	No	17	No	Nil	Nil		Discharged
68	A	10069320	28	Middle	Primigravida	39 weeks 6 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present (Obstructed labour)	Present	20	99	98	86	118	80	Nil	Green	Alert	Healthy	Looks Well	Yes	LSCS	No	Yes	No	No	No	No	No	No	8	No	Nil	Nil		Discharged
69	A	10076440	30	Lower	Primigravida	39 weeks 6 days	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	100	98	90	100	76	Nil	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	Yes	Yes	No	6	No	Nil	Nil		Discharged
70	A	10038142	36	Upper middle	Primigravida	37 weeks 1 day	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Present	18	100	98	86	160	94	Trace	Clear	Alert	Healthy	looks well	Yes	LSCS	No	No	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
71	A	10070315	30	Middle	Multigravida	35 weeks 5 days	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	97	98	86	180	130	2+	Clear	Unresponsive	Healthy	Looks unwell	Yes	LSCS	No	No	No	No	No	No	Yes	Yes	36	Yes	36 days	Eclampsia with HIE	HIE with MODS	Mortality
72	A	10047630	23	Upper	Primigravida	41 weeks 1 day	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	100	97.2	76	160	100	3+	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	No	No	10	No	Nil	Nil		Discharged
73	A	10114091	22	Middle	Primigravida	34 weeks 2 days	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	98	97.8	100	170	110	2+	Clear	Responds to verbal stimuli	Healthy	Looks unwell	Yes	LSCS	No	No	No	No	No	No	No	No	10	No	Nil	Nil		Discharged
74	A	10045757	25	Lower middle	Multigravida	40 weeks 4 days	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	97	82	110	80	Nil	Clear	Alert	Heavy	Looks well	Yes	Vaginal	No	No	No	No	No	Yes	No	No	5	No	Nil	Nil		Discharged
75	A	10056403	19	Lower middle	Postnatal	P1L1	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	22	99	97.6	99	140	80	Nil		Alert	Heavy	Looks unwell	Yes		Yes					Yes	No	No	8	No	Nil	Nil		Discharged
76	A	10048857	32	Middle	Primigravida	35 weeks 3 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	100	97.2	98	160	100	>2+	Clear	Alert	heathy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	9	No	Nil	Nil		Discharged
77	A	10047387	21	Middle	Primigravida	40 weeks	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	98	97.6	90	158	110	2+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
78	A	10045794	32	Upper	Multigravida	36 weeks 5 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	98	86	180	100	2+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	5	No	Nil	Nil		Discharged
79	B	10080966	30	Middle	Multigravida	32 weeks 4 days	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Present	18	100	98.2	88	120	70	Trace	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
80	B	10080015	23	Upper middle	Primigravida	34 weeks 3 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present (Chronic HTN)	Present	18	100	98.2	86	112	72	Nil	Clear	Alert	Healthy	Looks well	Yes	Vaginal	No	No	No	No	No	No	No	No	5	No	Nil	Nil		Discharged
81	B	10082534	20	Lower	Primigravida	36 weeks 4 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Present	22	98	97.2	98	134	86	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	11	No	Nil	Nil		Discharged
82	B	10107780	32	Middle	Postnatal	P3L3A1	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	98	98	120	90	60	Nil		Alert	Heavy	Looks unwell	Yes							Yes	Yes	No	12	Yes	3 days	DIC with AKI		Discharged
83	B	10091957	28	Upper	Multigravida	35 weeks 3 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	97.6	86	130	86	1+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	11	No	Nil	Nil		Discharged
84	B	10094928	25	Middle	Primigravida	39 weeks 3 days	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	99	98.2	82	110	70	Nil	Clear	Alert	Healthy	Looks well	Yes	Vaginal	Yes	No	No	No	No	Yes	Yes	No	9	No	Nil	Nil		Discharged
85	B	10082283	30	Lower	Primigravida	31 weeks 2 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	98.4	94	150	98	1+	Clear	Alert	Healthy	looks well	Yes	Vaginal	No	No	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
86	B	10063083	30	Middle	Multigravida	40 weeks	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	100	98.2	77	124	72	Nil	Clear	Alert	Healthy	Looks well	Yes	Vaginal	No	No	No	No	No	Yes	No	No	5	No	Nil	Nil		Discharged
87	B	10064357	33	Lower middle	Multigravida	36 weeks 6 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	100	97.8	94	148	102	1+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	8	No	Nil	Nil		Discharged
88	B	10063822	39	Upper middle	Primigravida	34 weeks 3 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	99	98.5	92	180	110	1+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	Yes	No	20	No	Nil	Nil		Discharged
89	B	10092971	35	Lower	Multigravida	39 weeks 2 days	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	22	98	101	98	136	78	Nil	Clear	Alert	Healthy	Looks well	Yes	Vaginal	No	No	No	No	No	Yes	Yes	No	9	No	Nil	Nil		DAMA
90	B	10086352	23	Middle	Multigravida	39 weeks 3 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present (Epilepsy)	Present	18	99	97	86	100	70	Nil	Clear	Alert	Healthy	Looks well	Yes	Vaginal	No	No	No	No	No	No	No	No	4	No	Nil	Nil		Discharged
91	B	10094960	39	Middle	Multigravida	36 weeks 5 days	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	96	97.4	90	130	92	Trace	Clear	Alert	Healthy	Looks unwell	Yes	LSCS	No	No	No	No	No	No	Yes	No	3	Yes	3 days	Respiratory distress		DAMA

92	B	10086640	31	Middle	Postnatal	P2L2	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	97	98	78	128	72	Nil		Alert	Heavy	Looks well	Yes							Yes	No	No	8	No	Nil	Nil		Discharged
93	B	10063343	22	Middle	Primigravida	39 weeks 1 day	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	24	98	98	96	116	80	Nil	Clear	Alert	Healthy	Looks well	Yes	Vaginal	No	No	No	No	No	Yes	Yes	No	5	No	Nil	Nil		Discharged
94	B	10090698	32	Lower middle	Postnatal	P2L2	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	97	98.2	140	90	50	Trace		Alert	Heavy	Looks unwell	Yes							Yes	Yes	No	7	No	Nil	Nil		Discharged
95	B	10108982	32	Middle	Postnatal	P3L3	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Present	20	99	100.8	86	112	70	Nil		Alert		Looks unwell	Yes								No	No	6	No	Nil	Nil		Discharged
96	B	10091521	28	Lower middle	Multigravida	29 weeks 6 days	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	98	97.8	96	122	76	Nil		Alert		Looks well	Yes								Yes	No	8	No	Nil	Nil		DAMA
97	B	10084614	25	Upper middle	Postnatal	P1L1	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Present	24	99	99	130	106	60	Nil		Alert	Healthy	Looks unwell	Yes								No	No	6	No	Nil	Nil		DAMA
98	B	10061281	25	Lower	Primigravida	32 weeks 4 days	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	98	84	120	78	Nil		Alert		Looks Well	Yes								No	No	8	No	Nil	Nil		Discharged
99	B	10081565	32	Lower middle	Multigravida	30 weeks 3 days	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	100	97.2	96	126	88	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	Yes	No	14	No	Nil	Nil		Discharged
100	B	10064909	26	Upper middle	Multigravida	34 weeks 2 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	97	86	120	78	Trace	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	Yes	No	No	8	No	Nil	Nil		Discharged
101	B	10083681	29	Middle	Multigravida	38 weeks 6 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	100	98	86	180	100	1+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
102	B	10094282	25	Middle	Multigravida	30 weeks	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	97.4	98	128	88	1+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	8	No	Nil	Nil		Discharged
103	B	10049927	23	Middle	Multigravida	39 weeks 1 day	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	100	97	90	142	80	1+	Clear	Alert	Healthy	Looks unwell	Yes	LSCS	No	No	No	No	No	No	No	No	9	No	Nil	Nil		Discharged
104	B	10051691	26	Upper middle	Multigravida	37 weeks 2 days	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	97.6	90	110	70	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	5	No	Nil	Nil		Discharged
105	B	10085314	26	Lower	Primigravida	39 weeks 3 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present (Epilepsy)	Present	18	100	97.2	80	118	70	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
106	B	10062786	36	Lower middle	Primigravida	39 weeks 6 days	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Present	20	99	97.5	92	120	80	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
107	B	10057562	24	Upper	Multigravida	38 weeks 3 days	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	98	97.8	110	122	70	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	Yes	Yes	No	11	No	Nil	Nil		Discharged
108	B	10094247	24	Middle	Multigravida	30 weeks 2 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	100	98.2	108	136	96	1+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	9	No	Nil	Nil		Discharged
109	B	10081111	32	Middle	Primigravida	31 weeks 5 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	98	84	130	96	2+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	Yes	No	28	No	Nil	Nil		Discharged
110	B	10091461	32	Lower	Multigravida	30 weeks 6 days	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	98	98.2	120	138	102	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	Yes	No	9	No	Nil	Nil		Discharged
111	B	10067803	29	Middle	Multigravida	32 weeks 6 days	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	22	98	98.6	92	142	96	1+	Clear	Alert	Healthy	Looks unwell	Yes	LSCS	No	No	No	No	No	No	Yes	Yes	7	Yes	7 days	Fulminant HELLP	Fulminant HELLP, MODS	Mortality
112	B	10110530	29	Upper middle	Multigravida	38 weeks 4 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	98	97.8	84	140	86	Nil	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	No	No	6	No	Nil	Nil		Discharged
113	B	10111081	22	Upper	Multigravida	36 weeks 5 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Present	16	98	97.2	90	132	72	Nil	Clear	Alert	Healthy	Looks Well	Yes	Vaginal	Yes	No	No	No	No	No	No	No	6	No	Nil	Nil		Discharged
114	B	10111460	20	Middle	Primigravida	32 weeks	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	98.2	90	148	98	2+	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	No	No	8	No	Nil	Nil		Discharged
115	B	10049273	24	Upper	Primigravida	36 weeks 3 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	97.2	86	170	100	Trace	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	18	No	Nil	Nil		Discharged
116	B	10038898	22	Middle	Multigravida	37 weeks 6 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	14	100	98.4	86	136	96	1+	Clear	Alert	Healthy	Looks well	Yes	Vaginal	No	No	No	No	No	No	No	No	5	No	Nil	Nil		Discharged
117	B	10014213	29	Lower	Multigravida	37 weeks 1 day	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Present	18	100	102	112	118	76	Nil	Clear	Alert	Healthy	Looks unwell	Yes	LSCS	No	No	No	No	No	No	Yes	No	14	Yes	6 days	Sepsis with pneumonia		Discharged
118	B	10048505	28	Lower middle	Multigravida	37 weeks	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present (Chronic HTN)	Present	16	98	98.2	98	126	78	Nil	Clear	Alert	Healthy	Looks well	Yes	Vaginal	No	No	No	No	No	No	No	No	8	No	Nil	Nil		Discharged
119	B	10115603	26	Middle	Muitigravida	35 weeks 2 days	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	97.2	90	120	80	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	15	No	Nil	Nil		Discharged
120	B	10085488	23	Upper middle	Multigravida	37 weeks	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	98	97.7	94	100	60	Nil	Clear	Alert	Heavy	Looks well	Yes	Vaginal	No	No	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
121	B	10093709	29	Middle	Primigravida	31 weeks 2 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Present	20	100	98	86	110	76	Nil		Alert		Looks well	Yes								No	No	1	No	Nil	Nil		Discharged
122	B	10052929	36	Lower	Multigravida	30 weeks 1 day	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	97.6	88	148	100	1+		Alert		Looks well	Yes								No	No	4	No	Nil	Nil		Discharged
123	B	10112114	24	Lower	Primigravida	40 Weeks 4 Days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	98	97.8	110	148	110	2+	Clear	Alert	Healthy	Looks Well	Yes	Vaginal	No	No	No	No	No	No	No	No	6	No	Nil	Nil		Discharged
124	B	10112382	25	Lower	Primigravida	40 weeks 2 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Present	20	96	98	86	104	72	Nil	Green	Alert	Healthy	Looks well	Yes	LSCS	No	Yes	No	No	No	No	Yes	No	6	Yes	3 days	Postsurgery monitoring		Discharged
125	B	10112842	34	Lower middle	Primigravida	28 weeks 5 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	98	98.7	82	168	112	Trace	Clear	Alert	Healthy	Looks unwell	Yes	LSCS	No	Yes	No	No	No	No	No	No	10	No	Nil	Nil		Discharged
126	B	10111723	28	Lower	Multigravida	35 weeks 3 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Present	20	98	97.6	104	126	84	Nil	Clear	Alert	Healthy	Looks unwell	Yes	LSCS	No	No	No	No	No	No	Yes	No	17	No	Nil	Nil		Discharged
127	B	10045703	26	Lower middle	Primigravida	38 weeks 1 day	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	100	98	90	140	90	1+	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	No	No	6	No	Nil	Nil		Discharged

128	B	10117344	37	Lower	Multigravida	40 weeks 3 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	98	97.6	84	166	106	Trace	Green	Alert	Healthy	Looks well	Yes	LSCS	No	Yes	No	No	No	No	No	No	17	No	Nil	Nil		Discharged
129	B	10044106	21	Middle	Primigravida	38 weeks 4 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	100	98	88	150	100	1+	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	No	No	8	No	Nil	Nil		Discharged
130	B	10044863	25	Upper	Multigravida	37 weeks 3 days	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	97.6	90	110	70	Nil	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	Yes	No	17	No	Nil	Nil		Discharged
131	B	10117348	35	Lower	Multigravida	37 weeks 3 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present (Chronic HTN)	Present	18	98	97.2	88	160	100	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	13	No	Nil	Nil		Discharged
132	B	10039037	20	Upper middle	Primigravida	38 weeks 4 days	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	99	97.8	86	128	80	Nil	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	Yes	No	11	No	Nil	Nil		Discharged
133	B	10050831	21	Middle	Postnatal	P1L1	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	100	97	130	102	74	Trace		Alert	Heavy	Looks unwell	Yes							Yes	No	No	8	No	Nil	Nil		Discharged
134	B	10115843	26	Upper middle	Postnatal	P2L2	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent	Present	24	99	98.2	150	90	60	Nil		Alert	Heavy	Looks unwell	Yes							Yes	No	No	10	No	Nil	Nil		Discharged
135	B	10112305	34	Upper middle	Primigravida	37 weeks 1 day	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	100	98	80	118	78	Nil	Clear	Alert	Healthy	looks well	Yes	LSCS	No	No	No	No	No	No	Yes	No	17	No	Nil	Nil		Discharged
136	B	10052420	20	Lower middle	Multigravida	34 weeks 4 days	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	98	98	76	144	94	2+	Clear	Alert	Healthy	Looks well	Yes	Vaginal	No	No	No	No	No	No	Yes	No	11	No	Nil	Nil		Discharged
137	B	10044561	25	Lower	Multigravida	38 weeks 6 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Present	18	99	97.2	90	130	80	Nil	Clear	Alert	Healthy	Looks well	Yes	Vaginal	No	No	No	No	No	No	No	No	6	No	Nil	Nil		Discharged
138	B	10044490	33	Middle	Multigravida	33 weeks 1 day	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present (Jaundice)	Present	18	98	97.6	90	124	72	Trace	Clear	Alert	Healthy	Looks well	Yes	Vaginal	No	No	No	No	No	No	No	No	10	No	Nil	Nil		Discharged
139	B	10082321	28	Lower	Primigravida	35 weeks 5 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Present	18	98	97.6	98	130	96	Nil	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	Yes	No	9	Yes	4 days	Postsurgery monitoring		Discharged
140	B	10046790	27	Lower	Multigravida	36 weeks 6 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Present	18	98	98.2	80	96	60	Nil	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	No	No	10	No	Nil	Nil		Discharged
141	B	10050294	32	Lower middle	Multigravida	37 weeks 5 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	98	84	138	96	1+	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	No	No	5	No	Nil	Nil		Discharged
142	B	10094595	27	Lower middle	Primigravida	34 weeks 4 days	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	20	98	99.9	92	140	90	Trace	Clear	Alert	Healthy	looks unwell	Yes	LSCS	No	No	No	No	No	No	Yes	No	8	No	Nil	Nil		Discharged
143	B	10051559	27	Lower	Multigravida	36 weeks	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	98	97.2	90	150	100	Nil	Clear	Alert	Healthy	Looks Well	Yes	LSCS	No	No	No	No	No	No	No	No	5	No	Nil	Nil		Discharged
144	B	10037157	24	Upper	Multigravida	38 weeks 4 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present (Epilepsy)	Present	16	100	98	86	124	80	Nil	Clear	Alert	Healthy	Looks Well	Yes	Vaginal	No	No	No	No	No	No	No	No	4	No	Nil	Nil		Discharged
145	B	10051683	23	Upper middle	Primigravida	37 weeks 6 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present (Obstructed labour)	Present	18	100	97.2	90	144	90	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	6	No	Nil	Nil		Discharged
146	B	10052170	26	Upper middle	Multigravida	34 weeks 6 days	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	100	97.8	90	100	76	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	Yes	No	6	No	Nil	Nil		Discharged
147	B	10102254	25	Middle	Primigravida	40 weeks 3 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	18	99	96.8	86	142	90	1+	Clear	Alert	Healthy	Looks well	Yes	Vaginal	No	No	No	No	No	No	No	No	7	Nil	Nil	Nil		Discharged
148	B	10041424	24	Lower	Primigravida	36 weeks	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	100	97.8	88	160	100	1+	Clear	Alert	Healthy	Looks well	Yes	Vaginal	Yes	No	No	No	No	No	No	No	5	No	Nil	Nil		Discharged
149	B	10047602	25	Lower middle	Primigravida	39 weeks 2 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	99	98	96	142	90	1+	Clear	Alert	Healthy	Looks well	Yes	Vaginal	Yes	No	No	No	No	No	No	No	5	No	Nil	Nil		Discharged
150	B	10039532	32	Lower	Multigravida	40 weeks 2 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present (Epilepsy)	Present	18	100	97.2	62	100	60	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	6	No	Nil	Nil		Discharged
151	B	10051281	25	Upper	Primigravida	36 weeks 1 day	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	99	98.2	88	150	98	1+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
152	B	10040737	28	Lower middle	Primigravida	38 weeks 3 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Present	16	100	98	76	126	76	Nil	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	9	No	Nil	Nil		Discharged
153	B	10039403	29	Lower	Multigravida	39 weeks 4 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Present	18	100	97	76	136	92	Nil	Clear	Alert	Healthy	Looks well	Yes	Vaginal	Yes	No	No	No	No	No	No	No	5	No	Nil	Nil		Discharged
154	B	10040670	19	Upper	Primigravida	38 weeks 1 day	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	98	97.8	86	140	98	1+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	7	No	Nil	Nil		Discharged
155	B	10050497	22	Middle	Primigravida	38 weeks 5 days	Absent	Present	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	16	98	97.6	88	138	86	1+	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	9	No	Nil	Nil		Discharged
156	B	10039050	25	Middle	Multigravida	37 weeks 6 days	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present (Chronic HTN)	Present	18	99	97.6	98	142	92	Trace	Clear	Alert	Healthy	Looks well	Yes	LSCS	No	No	No	No	No	No	No	No	6	No	Nil	Nil		Discharged