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*RESEARCH ARTICLE*

# USE OF CHECKLIST FOR EARLY RECOGNIZATION AND MANAGEMENT OF POST PARTUM COMPLICATIONS IN IMMEDIATE POSTPARTUM PERIOD

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## Abstract

**Background:** The immediate postnatal period refers to the time just after childbirth, during which the risks to the mother of postpartum haemorrhage and other significant morbidity are highest. Close direct or indirect supervision by a skilled attendant is required in this period so that any problems can be identified promptly and appropriate intervention can be taken. Present study was conducted to assess the usefulness of patient monitoring checklist in reduction of post partum and post surgical adverse events. The objective of the present study is to decrease the adverse events in postnatal cases from 11.70 percent to 3 percent within 8 weeks time.

**Materials and Methods:** A simple checklist was designed according to nine key components of supervision following delivery /caesarean section. Implementation of a checklist was accomplished following resident doctors and nurses training over 4 sessions. Measurement Data from all checklists used in the maternity ward were entered into a secure Microsoft Excel database. Deliveries for which a checklist was not filled out were excluded. An endline data was collected after eight weeks to assess the usefulness of checklist in prevention of postpartum adverse events.

**Results:** The adverse event rates were 11.70% for historical controls and 2.70% for checklist cases. There was statistically significant improvement (p value <0.001) in vigilance in monitoring of the postnatal cases. Resident doctors, faculty members and hospital administrators gave a positive feedback about the usefulness of checklist for routine use in obstetric practice.

**Conclusion:** It was found that integrating a post partum monitoring checklist, coaching and intervention with strong leadership support and adherence to QI principles of rapid cycles of change was successful in improving the delivery of quality treatment and was associated with some decline in post partum morbidity and mortality.



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## Introduction:-

The immediate postnatal period refers to the time just after childbirth, during which the infant's physiology adapts and the risks to the mother of postpartum haemorrhage and other significant morbidity are highest. The immediate postnatal period covers the first 24 hours from birth. Close direct or indirect supervision by a skilled attendant is required in this period so that any problems can be identified promptly and appropriate intervention or referral can take place.

All pregnancies carry risks. People with high-risk pregnancies may need extra care before, during and in post partum period. This helps to reduce the possibility of complications. High Risk mothers in the postnatal period are those mothers who are at the risk of their lives because of the complication occuringin the postnatal periods. These complications are usually life threatening if not treated at the earliest. Antenatal and intra natal period are the hardest part of a life span of a pregnant women. Similarly postnatal period is equally important in the life of a new mother. Still a successful delivery can put the mother into Highrisk situations. Mothers have to face many challenges during postnatal period. The major cause of Maternal Mortality Rate are the postnatal conditions which includes the mothers into high risk conditions like Postpartum Haemorrhage, Postpartum Eclampsia, Puerperal Infections etc

From more than 130 million births per year, the World Health Organization (WHO) estimates nearly 2,87,000 maternal deaths. The majority of maternal deaths are clustered around the time of birth, with the highest number of deaths occurring within the first 24 hours after childbirth[1]. As a solution to reduce this high perinatal mortality the World Health Organization (WHO) has introduced a safe childbirth checklist(SCC) in 2008, a 29-item evidence-based essential childbirth practice to help health-care workers to deliver consistently high quality maternal and perinatal care [2]. The WHO Safe Childbirth Checklist (SCC) incorporates major causes of maternal death, intrapartum stillbirth, and early neonatal death and expected to have an impact on maternal and perinatal morbidity and mortality.

The ‘know-do’ gap – the difference between a provider’s knowledge and behavior – has often been cited as a phenomenon in care delivery, which many believe may relate to the failure to remember critical steps during clinical care [3].

Checklists have been used as a tool to improve healthcare worker practices to deliver high quality essential care during institutional births [4]. However, evidence shows that when implemented alone they may not result in change or improvement in quality of care.Furthermore, studies show that the provision of clinical guide (tools) trainings to frontline healthcare providers alone will not be sufficient to improve adherence of core clinical care practices at required level [5].

In complex health system, determining the best way to translate novel checklists to improve adherence to evidence based practices by the end users may require system redesign at multiple interconnected levels, including behavioral change interventions. There was a need felt to develop a mechanism that will improve the existing patient monitoring system. Present study was conducted to assess the usefulness of patient monitoring checklist in reduction of post partum and post surgical adverse events.

## Materials And Method:-

Pravara Rural Medical College, Loni Ahmednagar, Maharastra, India is equipped with 1200 beds, including 200 beds in the maternity ward, with caesarean section capability. Maternity care occurs in the antenatal care ward, postnatal care ward and delivery room with around 10000 deliveries annually. 15 registered nurse midwives and 24 doctors staff the maternity ward in alternating shifts. A baseline data of three months duration (historical controls) was collected through document analysis to know the pattern of monitoring of immediate postnatal postoperative cases by doctors and nurses and the incidence and nature of postpartum and post operative maternal complications. The simple tool was designed according to nine key components of supervision following delivery /caesarean section**.(Fig.1)** The content validity was performed.Thedepartment of Obstetrics And Gynecology,Pravara Rural Medical College, Loni decided to test the implementation of the the post partum monitoring checklist supported by coaching conducted by maternity ward leaders to reduce preventable maternal complications.

An end-line data was collected after three months from June 1st 2022 to August 31st 2022 assessing the effect of introduction of postpartum monitoring checklist on the maternal outcome. The aim was to improve adherence to use

of checklist for all facility-based deliveries and to reduce preventable in-hospitalmaternal complications.Measureddata from all checklists used in the maternity ward were entered into a secure Microsoft Excel database. Deliveries for which a checklist was not filled out were excluded. In-hospital mortality data were extracted from facility-based registers.

## Results:-

Before implementation of the use of checklist, total of twenty four resident doctors and nurses participated in the training programme on use of checklist for monitoring postpartum events and early detection of complications. Nine parameters were used to assess the utilization of checklist and its effect on maternal outcome. The parameters were average number of clinical examinations by resident doctors within two hours of delivery or caesarean section, average number of clinical parameters noted during each clinical examination by resident doctor, average number of cases of postpartum haemorrhage needing blood transfusion per month, average number of cases requiring exploration in labour room or operation theatre for postpartum haemorrhage per month, total no of cases requiring ICU admissions for undiagnosed/latediagnosed peri-partum complications, average number of cases requiring increased hospital stay due to peri-partum complications per month and total number of maternal deaths in the hospital. The doctors and nurses completed all checklist sections in 95% of cases. There was significant decrease in adverse events in postnatalcases. **(Fig. 2**) The adverse event rates were 11.70% for historical controls and 2.70% for checklist cases. There was statistically significant improvement (p value <0.001) in vigilance in monitoring of the postnatal cases**.** Resident doctors, faculty members and hospital administrators gave a positive feedback about the usefulness of checklist for routine use in obstetric practice.

## Discussion:-

In the present study, checklist was introduced for monitoring of high risk and post operative cases in obstetrics.The keys to the success of the project was the application of many quality improvement principles during training and coaching including strategic problem solving skills, internal ownership, regular monitoring and evaluation, and engagement of leadership [6-8]. The implementation was taken on using a team approach. The team included the doctors, the head of maternity unitand the head of post-delivery unit, where all worked collaboratively in the preparation, assessment, implementation, and evaluation. The team not only measured the baseline practices but also assessed the working situation to identify and understand the barriers to proper performance. Feedback was provided to the staff regularly to ensure timely positive reinforcement and corrective actions.

The support from the hospital senior management team and the relevant staff was vital. Clear directives from management allowed the staff to understand the importance of this project. Involving the staff in the maternity ward from the planning stage of the project allowed them to take ownership of it and fostered early buy-in. We identified some highly motivated staff who were eager to improve the performance of their department and volunteered to coach during the implementation period. The early and continuous engagement of key actors helped to build a culture of teamwork and promote sustainability. With the support from the hospital administration and quality improvement team, the checklist has become part of the hospital protocol. All new staff working in the maternity unit will receive an orientation to the checklist. Such support from the hospital could increase the sustainability of the continuous use of the checklist despite the end of this study.

A quality improvement (QI) team was convened to develop and test an intervention to reduce maternal morbidity and mortality. Based on the discussion of potential root causes, the team identified that despite relevant trainings, including emergency obstetric care and life-saving skills, poor adherence to use of checklist persisted as a primary driver. Secondary drivers included frequent staff changes in maternity and the need for leadership to provide stronger motivation and support for the changes necessary to ensure quality. Use of checklist helped to induce the sense of responsibility among allstake holders and resulted in early detection of adverse eventsand reduction in maternal morbidity.

## In Conclusion:-

We found that integrating a post Partum monitoring checklist, coaching and intervention with strong leadership support and adherence to QI principles of rapid cycles of change was successful in improving the delivery of quality treatment and was associated with some decline in post partum morbidity and mortality. Scale-up of this checklist to all small facilities under Pravara Rural Medical College is planned. Understanding the feasibility of replication of

the intervention in other facilities using principles of QI and supporting the development of local champions will be important for effectiveness and long-term sustainability.

**Fig. 2:-** Effects of use of Checklist on monitoring of delivery andcaesarean cases.

| Parameters | **Parameter Before the use of Checklist (n=600)** | **After the use of Checklist (n=600)** |
|---|---|---|
| Average number of clinical examinations by resident doctors within two hours of delivery or caesarean section | 1.5 | 3.5 |
| Average number of clinical parameters noted during each clinical examination by resident doctor. | 2.5 | 7.5 |
| Average number of cases of postpartum haemorrhage needing blood transfusion per month | 20 | 07 |
| Average number of cases requiring exploration in labour room or operation theatre for postpartum haemorrhage per month | 4.85 | 1.20 |
| Total no of cases requiring ICU admissions for undiagnosed /late diagnosed peri-partum complications. | 09 | 01 |
| Average number of cases requiring increased hospital stay due to peripartum complications per month. | 07 | 01 |
| Total no. of Maternal deaths in hospital | 12 | 01 |

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