

# Evaluation of the Practice of Immediate Care for Newborns in the Obstetric Gynecology Department of the Gabriel Touré University Hospital of Bamako, Mali

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## Abstract

The care provided in the neonatal period by caregivers in health facilities and by parents in the community is essential for the survival of the newborn. Our work aimed to assess the practice of essential care for newborns at the maternity hospital during the first six hours of life. **Methodology:** It was a cross-sectional study, which took place over a period of six months and fifteen days (from April 27 to November 12, 2020). We evaluated the practice of immediate care given to newborns over 32 weeks of amenorrhea by the health personnel involved against the recommendations of the World Health Organization (WHO) on essential newborn care (ENC). **Results:** Our study involved 422 live newborns, which represented 22% of all live births. The sex ratio was 1.2. The gestational age of newborns was 37 to 41 Week of Amenorrhea (WA) in 69.2%. The majority of births were performed by doctors specializing in gynecology and obstetrics, or 66.4% of cases. Midwives provided care in 51.7% of cases. Out of 422 newborns, 408 were immediately dried, 96.7% of the time. Less than half (44.1% of newborns) had benefited from the late cord clamping. Eye care was administered to the vast majority of newborns (94.3% of cases). The breastfeeding technique was verified in only 2.8% of cases. Only 1.7% (7 newborns) were monitored during the first six hours of immediate postpartum. In the immediate post-partum period, 18

newborns had problems that required treatment. NNS were correctly administered in 39 newborns (9.2%). **Conclusion:** Our study shows inadequacies in the practice of essential care for newborns within our maternity. Thus, many newborns can be saved through the practice of essential newborn care (NHS) at different levels of the health pyramid.

## Keywords

Evaluation, Immediate Care, Newborn, Bamako, Mali

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## 1. Introduction

According to a statement by the United Nations Children's Fund (UNICEF), "the period around birth provides a window of opportunity for the prevention and management of maternal and neonatal complications that may otherwise be fatal" [1]. Every year, about 1.16 million African newborns die within the first 28 days. Nearly a quarter of all these deaths occur within the first 24 hours of life [2] [3] and many more in the following six days [4] [5]. The care provided during the neonatal period by caregivers in health facilities and by parents in the community is essential for the survival of the newborn. The components of Essential Newborn Care (ENC) are Combating hypothermia (by immediate drying and wrapping of newborns after birth, initiation of skin-to-skin contact and delayed bathing), hygiene measures (by keeping the cord clean and dry), proper nutrition (by immediate breastfeeding and exclusive breastfeeding) and the demand for care for illness [6]-[8]. The reduction of neonatal mortality in Mali has been slower and lower, with an increase from 60 neonatal deaths per 1,000 live births in 1995 to 33 in 2018 (less than 30% reduction over 23 years) [9]. Despite the efforts made by all actors, problems persist regarding the proper care of the newborn in health facilities at all levels. It is found that, in terms of reproductive health, the care provided to the newborn is insufficient [10]. Health workers' skills in newborn care are relatively low and more focused on medical aspects [10]. The reference service in the care of mother-child couples in Mali is the Gabriel Touré University Hospital Centre through the existence of a reference department for gynecobstetrics and neonatology. During the practice of pediatric activities in maternity, we discovered that the newborn did not receive a monitoring sheet during the immediate postpartum period. Hence, this work is initiated with the objective of evaluating the practice of essential care of newborns during the first six hours of life and developing a monitoring sheet for the newborn in immediate postpartum.

## 2. Methodology

Our study was conducted in the maternity hospital of the Gabriel Touré University Hospital Center in Bamako. Its gynecobstetrics department consists of two departments, the gynecology and the obstetrics department. It is located at the top

(3rd level) of the health pyramid in the reference and evacuation system of Mali. He receives obstetric and gynecological emergencies from different municipalities in Bamako and the surrounding area. It has an average capacity of 50 beds distributed between a waiting room, seven (7) hospitalization rooms and a suite of diapers. The department received 4,346 patients in 2019, performing 3,474 deliveries, of which 2,161 were vaginal and 1,313 were caesarean [11]. A descriptive cross-sectional study was conducted from April 27th to November 12th, 2020 over a six-month and fifteen-day period. And was concerned all live newborns at birth having at least 32 weeks amenorrhea, resulting from a vaginal delivery or caesarean section in the maternity hospital of the Gabriel Touré University Hospital, whose health did not require resuscitation or transfer to neonatology (Apgar score in the first minute is greater than or equal to 7). And medical staff who provide essential care to newborns, regardless of their area of expertise. We excluded all newborns born outside the usual place of birth from the service or requiring resuscitation or whose state of health required specialized care (Newborn with an infectious risk, respiratory distress, malformation, perinatal anoxia, premature less than 32 weeks of amenorrhea (WA). The sample size (n) was calculated according to Schwartz's formula:  $n = Z(\alpha) \sqrt{2pq} / i^2$  with p at 50%. The minimum sample size was 384. Adding 10% of the sample size for unusable records, we get  $n = 422$  newborns. The survey was conducted in the delivery room. The investigator was in the birthing room and recruited newborns who met the inclusion criteria. He noted his observations on the survey sheet regarding the delivery room, newborn care and health staff attitude. The variables studied were the components of essential care for newborns which are: immediate drying, skin-to-skin contact, late clamping, early breastfeeding, eye care, vitamin K1 administration and monitoring for the first six hours. The components have been defined as suites. Immediate drying: when done within the first five minutes after birth.

No need for resuscitation of the newborn: if the newborn had cried immediately after birth and was toned and well colored. Skin-to-skin contact: it was considered done if the newborn was put in skin-to-skin contact with his mother either immediately or within six hours of birth.

Late clamping: the clamping was considered late when it was done at least one minute after birth. Early breastfeeding: when the newborn is breastfed within one hour of birth.

Data were collected from the survey sheet and analyzed with the Statistical Package for Social Sciences (SPSS) software version 23. A descriptive analysis was performed to determine the frequency of categorical variables.

As with any research activity, there is an ethical problem, especially in health. We have asked for the consent of the head of the department and parents. Anonymity and confidentiality of data have been preserved.

### 3. Results

During the study period, there were 1576 live births. Our study covered 422 live

newborns which thus represented 22% of all live births. The sex ratio was 1.2. Newborns had a normal weight between 2500 - 4000 g in 60.4% of cases with an average weight of 2695.5 g  $\pm$  671.8 from extremes [1200 and 4885 g]. In the vast majority of cases 76.3% of newborns had a normal height (46 to 54 cm) and the average height was 48.3 cm  $\pm$  3.6. Two out of three newborns (70.1% of cases) had a normal cranial circumference (32 to 36 cm). The gestational age of newborns was 37 to 41 weeks of amenorrhea in 69.2% (**Table 1**).

**Table 1.** Characteristics of newborns.

Characteristics of Newborns	Effective	%
<b>Sex</b>		
Male	230	54.5
Female	192	45.5
<b>Gestational Age in Amenorrhea Week</b>		
< 37	121	28.7
<b>37 à 41</b>	<b>292</b>	<b>69.2</b>
> 41	9	2.1
<b>Weight (g)</b>		
< 2500	159	37.7
<b>2500 - 4000</b>	<b>255</b>	<b>60.4</b>
> 4000	8	1.9
<b>Size (cm)</b>		
< 46	93	22
<b>46 - 54</b>	<b>322</b>	<b>76.3</b>
> 54	7	1.7
<b>Cranial Perimeter (cm)</b>		
< 32	112	26.5
<b>32 - 36</b>	<b>296</b>	<b>70.1</b>
> 36	14	3.3

For the preparation and practice of childbirth: the most observed attitude among the midwives was the wearing of a clean robe in 99.5% of cases. Only 15.6% of the midwives wore an eye protection. Personnel wearing sterile gloves in one delivery out of three (28.7% of cases). The neonatal resuscitation table was prepared in 27.3% of cases. The air current was present in the room in 54.5% of cases. The majority of births were performed by doctors specializing in gynecology and obstetrics, or 66.4% of cases. Essential care for newborns was provided by midwives in 51.7% of cases.

Regarding the practice of essential care for newborns, out of 422 newborns, 408 benefited from immediate drying, or 96.7% of cases. Only 66 infants were breastfed early, or 15.6% of cases. Only 44.1% of newborns were breastfed late. Early breastfeeding was performed in only 15.6% of newborns. The vast majority of newborns received eye care in 94.3% of cases. The majority of our skin-to-skin contacts were performed just for the time of the umbilical cord section in 53% of cases. Less than half (44.1% of newborns) had been treated with delayed cord clamping. Only 38.4% of newborns had received the full systematic examination.

The health record of the newborn was filled in 45.5% of the cases. The breastfeeding technique was verified in only 2.8% of cases. Only 1.7% (7 newborns) were monitored during the first six hours of immediate postpartum. During the first six months, 18 out of 422 newborns had immediate postpartum problems. These problems were the occurrence of respiratory distress in 11 (eleven) newborns, followed by cord bleeding in 6 (six) newborns and hypothermia (one newborn).

Essential care of newborns was properly administered in 39 newborns, 9.2%. The main difficulties were the lack of involvement of the nursing staff, followed by the lack of space, 30.8% and 18.2% respectively (Figure 1, Figure 2).

#### Practice of birth room care

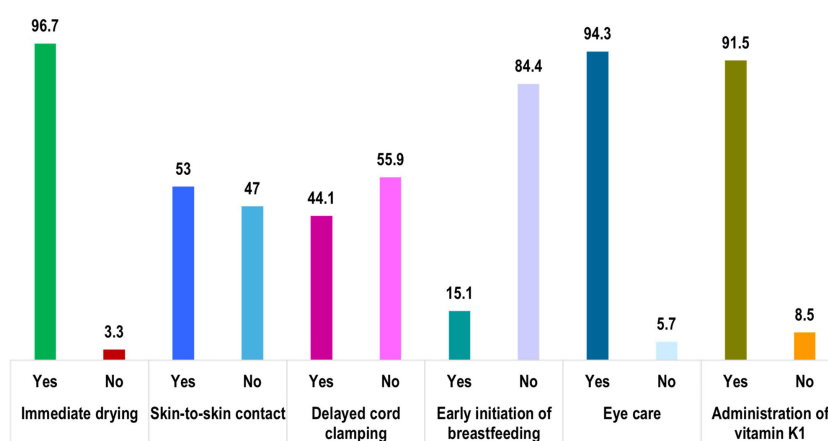


Figure 1. Distribution of newborns by practice of birth room care.

#### Evaluation of essential newborn care

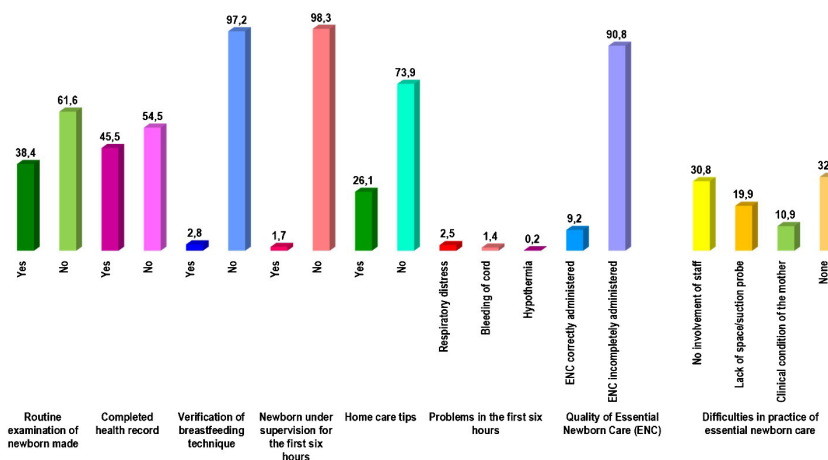


Figure 2. Distribution of newborns according to quality of care and difficulties in the practice of essential newborn care (ENC).

## 4. Comments and Discussion

Limitations and difficulties of the study: We conducted a cross-sectional study

and, as with all these studies, they describe the situation at a given time and in a given place. Part of the questionnaire should be administered to caregivers who were often reluctant and incomplete. Despite these limitations, our results have further informed the practice of essential care for newborns in need of urgent intervention.

Poor quality of newborn care is a major obstacle to survival. According to the WHO, the majority of neonatal deaths occur in the first hour of life. Hypothermia is a risk factor directly affecting morbidity and mortality. Because it increases the occurrence of neonatal infection, coagulation disorders, neonatal respiratory distress [12]. Appropriate hypothermia management could prevent 40% of neonatal mortality [13]. Among these actions, immediate drying is an important part of hypothermia prevention. In our study, all newborns (96.7%) were dried immediately. In some African regions the practice of this gesture does not exceed 70%, as in Ethiopia (69%) [14] and Ghana (51.4%) [15]. After immediate drying, the newborn should be kept in normothermia. Skin-to-skin contact is one of the preventive measures against hypothermia. In our study more than half (53%) of the newborns were placed on their chest before the cord section. This rate is much higher than the national data for the country alone 2% are placed on the mother's breast [12]. Immediate skin-to-skin contact helps regulate the newborn's body temperature and allows its organism to be populated with beneficial bacteria from the mother's epidermis. These "good" bacteria provide protection against infectious diseases and help strengthen the baby's immune system. It also strengthens the mother-child bond [16].

The late cord clamping, WHO recommends as soon as the state of the newborn does not require birth assistance and there is no contraindication (such as Mother infected with HIV or hepatitis B virus) late cord clamping approximately one to three minutes after birth [17]. It allows the maintenance of blood circulation between the placenta and the newborn, increases blood mass as well as iron reserve and decreases by 61% the occurrence of anemia in infants [17] [18]. We found a frequency of 44.1% of late clamping in our study. One infant in five is anemic [9]. So this practice must be the rule as long as it is possible to achieve.

Early breastfeeding is an important factor in reducing mortality, averting about 10% of neonatal deaths [13]. In our series, early breastfeeding is missing only 15.6% of newborns were breastfed within an hour of birth. This rate is lower than the data found in sub-Saharan regions where it varied between 17 and 95%, with almost half of the countries reporting that less than 50% of newborns started breastfeeding within an hour. In all regions of Senegal (18 to 75%), in Uganda between 27 and 70% [19]. This discrepancy could be explained by the fact that after birth, the newborn is separated from his mother for routine practices such as measuring physical parameters, administering vitamin K1, and eye care. Eye care, in our study, was administered to 94.4% of newborns. In France [20], the survey conducted by 17 regional pharmacovigilance centres (RVPC) revealed that one third of the maternity hospitals surveyed do not practice systematic antibiotic

prophylaxis. In Turkey, however, antibiotic prophylaxis is systematically used in 66.7% of cases in university hospitals and 50% in community hospitals [21]. WHO [22] and health authorities in Mali [23] [24] recommend systematic antibiotic prophylaxis for newborns at birth by applying 1% tetracycline ointment.

In our study, only one in ten (minus 10%) newborns had received all the immediate essential care. The difficulties in providing essential care for newborns were the lack of involvement of the nursing staff, lack of space, poor health of the mother and high workload in 30.8% and 18.2%, 10.9%, 5.7% respectively. These difficulties are different from those of Davrieux L, who had a different view of the workload and organization of the service [25].

Immediate post-partum monitoring of the newborn can detect problems related to extra-uterine life adaptation and malformations. Thus, respiratory distress, umbilical cord bleeding and hypothermia were the main problems found in our study. This contact shows the interest of monitoring the newborn during the first six hours of immediate postpartum under medical observation before returning home. Continuity of care must be the rule by making a systematic comprehensive examination of all newborns at the end to detect any abnormality, to show the mother how to breastfeed her child, to carry out a good monitoring to detect difficulties in adapting to the extra-uterine life, to provide advice on the signs of danger, feeding the newborn, hygiene and follow-up schedule for the newborn including vaccination. Thus, the newborn and his mother must require paramedical or medical supervision [15]-[26].

## 5. Conclusion

The reduction in neonatal mortality remains a concern for all health personnel. Our study shows deficiencies in the practice of essential care for newborns within our maternity. It has enabled us to identify the main difficulties. We will need to include the newborn in the immediate post-partum monitoring package. Thus, many newborns can be saved through the practice of essential newborn care (ENC) at different levels of the health pyramid. We must therefore extend this study to all our health structures by seeking financial support.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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