

# Uncovered Transfusion Needs in Obstetrics at the District Hospital of Niono in Mali

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## Abstract

**Introduction:** Worldwide, the demand for blood exceeds the supply. Transfusion services face the constant challenge of providing sufficient supplies of quality blood products. The objective of this study was to analyze this gap between demand and supply in the Obstetrics service. **Methodology:** this is a prospective cross-sectional study carried out in the maternity ward of the Niono district hospital during the 1st semester of 2020. The study population was composed of patients admitted with an obstetric complication requiring a transfusion request not made or partially satisfied. **Results:** 125/196 patients (63.78%) had a blood request that was unmet or partially met. 220/588 units of blood requested were not served; or 37%. These unmet needs concerned patients who were mainly housewives (98%), unschooled in 87% and residing in rural areas in 89% of cases. 85% of patients had a hemoglobin level below 7g/dl before the blood transfusion. Out of stock was the reason for unmet requests in 88% of cases. 2 cases of death were recorded among the 125 patients, a rate of 1.6%.

**Keywords:** Blood transfusion, uncovered need, Obstetrics.

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## INTRODUCTION

Hemorrhage contributes to nearly 27% of maternal deaths worldwide [1], and reaches 40% in sub-Saharan Africa [2]. Treatment of hemorrhage in pregnant or postpartum women requires rapid, quality blood transfusions [3]. Timely availability of safe blood is essential to meet the clinical demand emerging in healthcare settings to ensure appropriate treatment and minimize preventable maternal deaths. Worldwide, the demand for blood exceeds the supply of transfusion services [4]. All countries face the constant challenge of providing sufficient supplies of quality blood products. There are a number of obstacles to the provision of transfusion services, in particular the inadequacy of the strategy of donating blood from voluntary unpaid donors; even if we note an increase in blood donations through this strategy between 2008 and 2018 according to the WHO transfusion database. In Mali, the supply of blood products is mainly ensured by family

compensation donations [5-8], and blood donations from unpaid voluntary donors represent only 30.6% of donations. In this context, social vulnerability factors can have an influence on the coverage of transfusion needs. It is to better appreciate this problem of unmet needs at the local level that we initiated this study in the Niono health district.

**Objective:** Evaluate the uncovered transfusion needs in Obstetrics in the health district of Niono.

## METHODOLOGY

This is a cross-sectional descriptive study carried out in the Gynecology-Obstetrics department (Maternity Unit) of the Niono district hospital from January 1, 2020 to June 30, 2020. The study population was composed of patients admitted to obstetric emergencies with a complication requiring a blood

transfusion whose blood demand was not met or partially satisfied.

## RESULTS

During this period, 492 patients were admitted to the obstetric emergency department of the Niono Reference Health Center, among which, 196 required a blood transfusion, or 40% of admissions. The demand for blood consisted only of whole blood. Blood donations were made up of 76% family compensation donations, 20% voluntary no donations remunerated in mass campaign and 4% voluntary not remunerated individual donations. The prescription ratio was 3 units of whole blood per patient. 125/196 patients had their needs unmet or partially met. In terms of blood units requested, 220/588 were not served; i.e. an unsatisfied demand rate of 37%. The patients affected by the unmet requests were aged between 15 and 45 years with an average age of 27 years.

**Table I: Socio-epidemiological profile of patients affected by unmet requests**

|                                       | Number     | %          |
|---------------------------------------|------------|------------|
| <b>Patient residence</b>              |            |            |
| Rural                                 | 111        | 88.8       |
| urban                                 | 14         | 11.2       |
| <b>Total</b>                          | <b>125</b> | <b>100</b> |
| <b>Profession of patients</b>         |            |            |
| Housewife                             | 123        | 98.4       |
| Housekeeper                           | 1          | 0.8        |
| Street seller                         | 1          | 0.8        |
| <b>Total</b>                          | <b>125</b> | <b>100</b> |
| <b>Level of education of patients</b> |            |            |
| Out of school                         | 109        | 87.2       |
| Primary                               | 14         | 11.2       |
| Secondary                             | 2          | 1.6        |
| <b>Total</b>                          | <b>125</b> | <b>100</b> |

The patients for whom the requests were not satisfied were mainly unschooled housewives residing in rural areas. Obstetric hemorrhage and anemia linked to malaria were the main indications for transfusion with respectively 52.8% and 38.4% of cases. The unmet needs concerned blood groups O+ (41%), B+ (26%), A+ (25%), AB+ (5%) and others (3%). During this study, 2 cases of death were recorded (2/125), representing a rate of 1.6% among patients whose needs were not met.

In 88% of cases the reason for the non-satisfaction of needs was the rupture of general stock and in 12% of cases the specific rupture of stock of the compatible group.

## DISCUSSION

During this study, the blood product prescribed and available was only whole blood. Traore *et al.*, [9] made the same observation in a study carried out at the Nianankoro FOMBA Hospital in Ségou, Mali. This

situation in Mali is explained by the absence of equipment necessary for apheresis in the majority of transfusion structures and sometimes by the prescribing habits of providers. Blood donations were ensured by family compensation in 76% of cases while voluntary non remunerated donation represented only 24%, including 20% during mass campaign donations. This study did not record any remunerated blood donation. Blood donation for profit is not a common practice in Mali. The 24% rate of voluntary non remunerated donations was lower than the national 30.6% in Mali recorded in WHO reports on blood transfusion [7, 8]. The rate of 37% of uncovered transfusion needs is very high. Similar rates were reported in another study in Mali in Ségou by Traoré *et al.*, [9]. Lower rates of unmet transfusion needs have been reported, respectively 14.8% in Tanzania [10] and 8% in India [4]. The high rates of unmet transfusion needs in Mali could be explained by the insufficiency of voluntary non remunerated donation and the high cost of transfusion inputs for family compensation donations. In Mali, at the majority of health structures, the inputs for the transfusion activity are paid by the beneficiary's family in the case of a family compensation donation and by the health establishment in the case of a voluntary mass or individual donation. The subsidy from the State and its partners only concerns the national blood transfusion center. Payment concerns empty blood bags, transfusions and immunological tests. This cost limits the availability of blood products and the access of poor and vulnerable patients to these products. In a context of dominant family compensation type donation, the social profile of the beneficiary becomes important and can negatively influence access to blood products. The unmet transfusion needs concerned rural patients in 88.8% of cases, housewives in 98.4% of cases and those not in school or at primary level in 98.4% of cases.

## CONCLUSION

This study highlighted the problem of access to transfusion services with an unmet transfusion need rate of 37%. The rupture of the general stock of blood products is the main reason for these unmet needs. It mainly concerns socially deprived patients. It is therefore necessary to organize at the district level a permanent system of voluntary unpaid donation taking into account the vulnerability factors of beneficiaries to improve equitable access to blood transfusion services.

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