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Evaluation of the implementation and effects of an obstetric kit used in the Adamawa region of Cameroon

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ABSTRACT

Objective: To assess the implementation and effects of the strategy, introduced in June 2011, of making obstetric kits readily available in health facilities in the Adamaoua region of Cameroon. **Methods:** We conducted a quasi-experimental study using an interrupted time series to assess the effects of the strategy, and a case study to evaluate its implementation. The reviewed data were gathered from 13 health facilities over a period from January 2008 to December 2014. Qualitative data were collected from in-depth interviews. **Results:** The provision of obstetric kits was effective in the intervention health facilities, although some challenges existed and included lack of staff motivation and rampant illegal practices. The number of deliveries and cesareans increased. **Conclusion:** There is a need to rethink this strategy, given its gaps and shortcomings.

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1. Introduction

According to WHO, in 2003 nearly 80% of maternal deaths were caused by direct obstetric complications, including postpartum hemorrhage, sepsis, dystocia, eclampsia, and complications from pregnancy interruption [1]. In 2005, WHO found that around 16%–33% of maternal deaths could be avoided if women were assisted in their delivery by a skilled birth attendant [2].

In 2013, 289 000 women died globally from pregnancy complications, giving birth, or just a few days after delivery. Among them, 99% of these deaths occurred in low-resource countries, including 62% in Sub-Saharan Africa [3]. Indeed, the risk of death for women during delivery throughout their reproductive life in low-resource countries is 25 times higher than in high-resource countries [4].

In a bid to meet the Millennium Development Goals (MDGs), African governments committed themselves to address the bottlenecks that prevent access to health care. Various strategies have been implemented, ranging from subsidized child deliveries in Burkina Faso, to fully free obstetric care in Benin and free childcare in Niger [5]. West and East African regions have a rich literature regarding the implementation and effects of the user fees exemption policy [6–11]. Although some

central African countries such as Cameroon and Gabon have applied policies to address the financial barriers to healthcare access, an evaluation of such policies has not yet been done. Meanwhile, there are socio-economic and cultural differences between Central Africa and West or East African countries. The current evaluation is intended to bridge the existing gaps and needs.

The aim of the present study was to evaluate the implementation and effects of a strategy providing obstetric kits in health facilities in the Adamaoua region, in the northern part of Cameroon.

2. Materials and methods

The strategy, implemented in June 2011 in the regions of Adamaoua, North, and Far North, was designed to address the “third delay” of receiving adequate health care in a health facility based on the following basic principles: accessibility of resources for natural deliveries, cesarean deliveries, and/or related complications through obstetric kits placed in health facilities; affordability for the poorest women by applying the “serving before charging” principle where care comes first and payment after; and providing health care staff with financial incentives to reduce illegal practices. The cost of the obstetric kit is XAF (Central African CFA Franc) 6000 for a normal delivery and XAF 40 000 for a cesarean delivery. The study was conducted in nine health facilities purposely selected in the three districts of the Adamaoua Region.

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Quantitative data on cesarean deliveries were collected monthly in health facilities using data collection forms over a period of seven years (2008–2014). These data were taken from the district database and approved after verification in the health facility registers.

To assess the implementation of the strategy we used a single case study that used individual in-depth face-to-face interviews with healthcare providers, beneficiaries, and hospital managers. Qualitative data were processed manually. We drew up a list of thematic areas building on the various aspects and objectives of the strategy, but also on what we observed in the field.

To analyze the effects of the strategy we used an interrupted time series of vaginal deliveries and cesarean deliveries. We applied a segmented regression model. The Durbin-Watson's alternative test and Breusch-Godfrey's test found a serial autocorrelation. Newey-West's method was used to correct the correlation of the series. The maximum lag to be considered in the structure of the autocorrelation terms of error was enjoyed according to the model. The regression model was defined as followed:

$$Y_t = \beta_0 + \beta_1 \text{Time before intervention} + \beta_2 \text{Intervention} + \beta_3 \text{Time after intervention}$$

Where:

Y_t is the average number per months of deliveries or cesarean deliveries.

The absolute effect (SE) of the intervention equals:

$$SE = \beta_2 + \beta_3 * \text{Number of months after intervention}$$

A significance level of $\alpha = 5\%$ ($P < 0.05$) was considered for statistical analyses. Estimates were calculated using Stata 12 version (Stata Corp LP, College Station, TX, USA).

Authorization to conduct the study was obtained from the regional delegates of public health and each interviewee was provided with an informed consent form prior to the interview.

3. Results

3.1. Analysis of the implementation process

The implementation measures for the strategy were undertaken rapidly by the Government of Cameroon. A Ministerial order was issued on May 31, 2011, to be enforced from June 1, 2011. Commencement of the process was delayed owing to a lack of understanding by the health workers, but also because politicians were not well prepared. In addition, care providers were not involved in the development of the strategy. A gynecologist said: *"As a gynecologist, I have never been associated with the development of this strategy but rather in its implementation."* One female nurse said: *"We have not been involved in the drafting of documents but had briefing sessions prior to their implementation."*

The capacity of all maternity staff from the health facilities was strengthened before the implementation of the strategy.

"We have received training sessions or have our capacity built on themes like emergency obstetric and neonatal care (EmONC), the use of the partograph, care protocol."

[Maternity head nurse]

Effective implementation of the strategy was acknowledged by a head of a maternity department who said: *"The implementation of this strategy has been effective since June 2011 and we apply the basic principle of having the women pay XAF 6000 and XAF 40 000 respectively for normal deliveries and cesareans."*

However, service providers believed that the implementation of the principle of "serving before charging" faced challenges. Indeed, at the

end of 2014, the costs for some 100 cesarean kits had yet to be recovered in a reference health facility.

"The implementation also experiences instances of kit shortages; to address this recurrent issue, we have set up a system for acquiring inputs (using private suppliers if possible). For over 3 months now, CENAME [a body which provides drug and consumables] has not delivered us suture threads."

[Obstetric kit manager]

The kit shortage has led to a significant increase in costs, as confirmed by a beneficiary: *"When I arrived, I was asked to pay XOF 500 up front; then, I was given a medical prescription for 5 pairs of gloves. After examination, the service provider placed injectable drug and required XOF 5000, which I 'bargained' and finally pay XOF 3500."*

A member of health care staff said: *"The obstetric kit strategy has increased attendance at health facilities and subsequently, impacted the workload. For instance, in the past, in my role as an obstetrician/gynecologist, I used to consult 20–25 patients a day. Currently, the number goes beyond 50 women daily. Before June 2011, the total number of births per year was 1500. Now, deliveries are more than 5000, while the size of the staff and the structure of the facility have remained the same."*

Regular maternity staff were given financial incentives that depended on recovery of the costs. This fee was collected and distributed to maternity workers. Interviews with health workers showed inequity in how incentives were calculated. Service providers said that maternity staff were disillusioned by these incentives, as highlighted by a female nurse: *"Our motivation is not enough, we are just working for others to benefit."* Another female nurse said: *"The incentive is very little. We work day and night, use all our imagination to save lives, resuscitate babies...that's too much work, not to talk of the adrenaline rush. But in return, the financial benefit is too little. At the end of the month, I get no more than XAF 15 000, which is my daily gain in the past."* A head of department also commented: *"There is a real gap between the workload and staff motivation."*

The strategy banned all prescriptions outside the kit. One head of department said: *"In some specific cases, we have to do prescription. For instance the kit does not include product to quickly deal with bleeding. Also note that some drugs (misoprostol, Haemaccel, Geloplasma) are not part of the kit. We prescribe some products just to save lives. This strategy bans prescriptions and this to me is contradictory."*

The obstetric kit strategy gave little flexibility to the healthcare providers consulting an expectant woman. Indeed, a kit for cesarean delivery implicitly required locoregional anesthesia, localized antibiotic treatment, and minimal post-intervention analgesia.

Cases of ransom were reported and actions were taken against staff found guilty, in compliance with health facility regulations. A gynecologist said: *"There are still cases of ransom. Pretending they have tablets or injections for quick delivery, some service providers take money from their patients. Although the guilty staff must justify their 'illegal' practices and attitudes, you agree and understand that when the motivation is missing, lots of things can happen."*

We also observed many issues related to the use of the remaining resources and this may be due to lack of a procedural manual. A head nurse said: *"In this project, the remaining inputs are not to be handed back to the family, but are kept in the emergency bag used as part of solidarity to support as many complications as possible."* However, only some of the products are given out, as one anesthetist described: *"The patient goes back with the rest of her medicines but we keep the drugs."*

There was a lack of communication for beneficiaries before coming to a health facility for delivery, for example, one said: *"I learnt of this strategy only when I was in labor."* However, some interviewees admitted that they were made aware of the strategy during their prenatal care.

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