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## Cost sharing scheme for emergency obstetric care in Secteur 30 health district, Ouagadougou, Burkina Faso

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### *Abstract*

In January 2005, a cost-sharing system was introduced into Secteur 30 health district, an urban district of the city of Ouagadougou, with the aim of improving access to emergency obstetric care for pregnant women in the district. The cost-sharing covers emergency transport and caesarean deliveries. The direct costs are shared between four parties: 1) the management committees of health centres and confessionnal health facilities, 2) the woman and her family, 3) the local authorities and 4) the health district. These different contributions reduce the family's share and generate a surplus for treating the poorest inhabitants of the district.

Three years after implementation, the results have been measured in terms of service utilisation, quality of care, financial viability and perception of the system by the different parties involved. Data were collected from several sources: routine data from the health information system, individual prescription forms, an Unmet Obstetrical Needs (UON) study and individual interviews with the different parties. The coverage of assisted deliveries in the district rose from 66.2% in 2003 to 86.5% in 2007 and the

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rate of caesarean deliveries from 2.5 to 3.7%, with 1% of interventions for absolute maternal indications. The cost-sharing system is financially viable and managed to adapt itself to the introduction of a new national subsidy for emergency obstetric care. It now provides complete case management for a caesarean delivery for only 6,000 CFA francs (9.1 €). Nevertheless, the sustainability of such a system, based on an annual commitment from each party, requires monitoring and evaluation within Burkina's fast changing context (decentralisation, reforms).

**Keywords** : cost-sharing, Burkina Faso, emergency obstetric care, access to health care, urban health

## *Introduction*

With a ratio of 484 maternal deaths for 100,000 live births (Ministère de l'Economie et du Développement, INSD 1999), improved maternal health and access to emergency obstetric care represent a major challenge to Burkina Faso's health system. Over the last ten years, the Ministry of Health has endeavoured to provide each region with access to basic obstetric services provided by Health and Community Promotion Centres (CSPS) and complete obstetric health care by Medical Centres with Surgical Units (CMA) (Ministère de la Santé 2000, Ministère de la Santé 2001a, Ministère de la Santé 2004). Despite these efforts, the national average caesarean rate remains low: 0.7% of expected births, according to the 2005 study on demography and health (2005). The level of CMAs varies considerably from one district to another (42 functional CMAs out of 53) and many women still have limited access to emergency obstetric care (Ministère de l'Economie et du Développement, INSD 2005, Ministère de la Santé 2005a). Financial constraints remain amongst the major barriers limiting access to health care (Thaddeus & Maine 1994). In Burkina Faso in 2006, the GDP per inhabitant stood at 235,615 FCFA (359€), with 46.4% of the population living below the poverty line (82,672 FCFA (126€) per person per year (Ministère de l'Economie et du Développement, INSD 2003). According to the Priority Survey carried out by NISD in 1998, of the reasons cited for patients' non-use of modern services, economic issues ranked in second place, after a preference for self-medication (Ministère de l'Economie et du Développement, INSD 1998). The poorest members of the population delay

seeking health care. They have to pay transport costs, travel long distances and then cover the treatment costs on arrival. Only a tiny fraction of the population has health insurance coverage (La Concertation 2004, Bicaba *et al.* 2004, Su *et al.* 2006). A family spends an average of 4,018 FCFA (6.1€) a month on health, and the poorest quintile of the population only 1,014 FCFA (1.5€) (Ministère de l'Economie et du Développement, INSD 1998). Yet the average price of a caesarean observed in 3 regional hospitals stands at 75,000 FCFA (114€), with the highest price being 300,000 FCFA (475€) (Bicaba *et al.* 2004).

Different initiatives have been launched to reduce these financial barriers. In 2001, UNICEF started supporting the introduction of cost-sharing systems for obstetric emergencies in the Eastern Region (Bogandé, Diapaga & Pama), the Eastern Central Region (Koupéla and Ouargaye) and the Sahel Region (Sebba) (Ministère de la Santé 2005b). An evaluation of this experience carried out in 2003 showed a reduction in the direct costs incurred by the patient and her family of 60 to 70% without prepayment and an increase in the rate of caesarean deliveries (Nacoulma *et al.* 2003). In January 2005, after 18 months of preparation, the Secteur 30 health district, an urban district of the city of Ouagadougou, set up a cost-sharing system in its turn, with the technical support of the AQUASOU project<sup>7</sup>. It is the first time this system has been tested in an urban set up. On 1st October 2006, the State of Burkina Faso introduced a national subsidy for deliveries and emergency obstetric care, covering 80% of direct costs. This was in addition to the districts' own efforts to reduce the fees for obstetric care.

This chapter aims to describe the different steps involved in introducing a cost-sharing system into Secteur 30 health district, its management and its adaptation to the fast changing context of Burkina Faso (decentralisation process). It will also present the results 3 years after the system's implementation.

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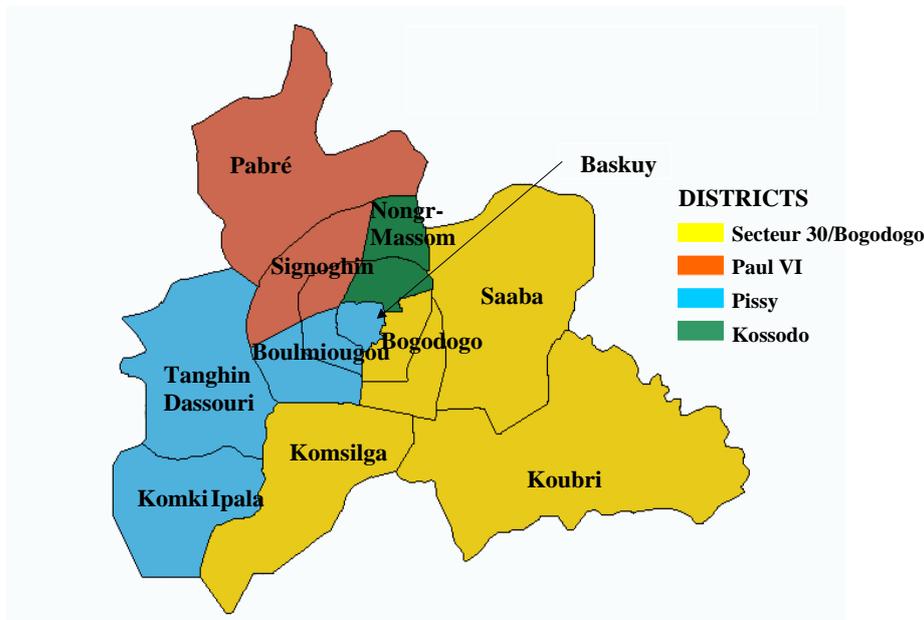
<sup>7</sup> Project for Improving Quality and Access to Emergency Obstetric Care, financed by the French Ministry of Foreign Affairs. Duration: 3 years (1st January 2003- 31 December 2005). Intervention area: Secteur 30 health district. Partners: Institute of Tropical Medicine (Anvers), Institute of Research for Development (Marseille), Equilibres & Populations (Paris)

## Context

### SECTEUR 30 HEALTH DISTRICT

Secteur 30 health district, called Bogodogo district since 2008, was one of the four districts constituting the Central health region (Figure 1). It extended over a surface area of 1,534 Km<sup>2</sup> (currently 1,200 km<sup>2</sup>) and covered the *arrondissement* of Bogodogo (5 urban sectors and 2 villages), forming part of the *commune* of Ouagadougou and the *departments* of Saaba (23 villages), Koubri (25 villages) and Komsilga (36 villages). The local administration is as follow : i) the whole Central region is headed by a High Commissioner (a Government representative); ii) the whole town of Ouagadougou, by the Mayor of Ouagadougou; iii) Bogodogo *arrondissement* is also headed by a mayor; iv) each of the three rural *departments*, by a prefect. All these representatives are committed to cost-sharing system as we will see below. In 2006 its population was estimated at 489,976 inhabitants, 330,153 of whom lived in urban areas.

Figure 1. Map of health districts in Ouagadougou (Central Region)



The health district includes 44 first level health facilities, 3 medical centres including two confessional and a Medical Centre with a Surgical Unit. 85% of the district's population lives less than 5 km away from a health facility (Ministère de la Santé 2006) and 66% of women delivered with qualified assistance in 2003. Communities run their own health centres through management committees (COGES).

#### THE CMA OF SECTEUR 30

The CMA is the district's referral hospital. The operating theatre opened on 1 August 2003, but emergency obstetric surgery has only been possible 24/7 since 1 October 2004 with one gynaecologist permanently on call (external doctors are needed to complete the obstetric duty roster). Two midwives, a delivery assistant and a helper are on duty for the delivery room day and night, weekends included. There are 24 beds in the maternity ward, which is few compared to service utilisation (4,182 admissions and 3,509 deliveries in 2005). The occupation rate reached 103% in 2005 (AQUASOU 2003) and in 2006 the health district introduced a policy for reducing the number of normal deliveries in the CMA, by opening maternity units in the outlying areas and offering good delivery conditions in 1<sup>st</sup> level health facilities (equipment, training). Women now have to attend these first, and by 2006, the total number of CMA admissions had dropped by 25% (2,476 deliveries).

#### *The cost-sharing system*

##### THE PRINCIPLE OF COST-SHARING

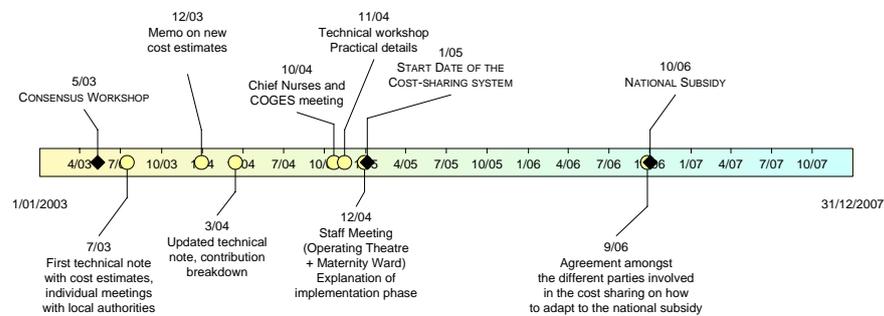
The objective of cost-sharing is to improve access to emergency obstetric care for women living in Secteur 30 health district. The cost-sharing covers 'emergency transport and a caesarean'. The direct costs are shared between four parties: 1) the COGES and health facilities run by religious groups, 2) the woman and her family, 3) the local authorities and 4) the Ministry of Health. The funds contributed by these different parties reduce the family's share and generate a surplus for treating the poorest members of the district.

##### THE PREPARATORY PHASE

The preparatory phase lasted a year and a half (Figure 2). The principle of introducing a cost-sharing system for obstetric emergencies was adopted

during a consensus workshop held on 6<sup>th</sup> of May 2003, attended by the representatives of health centre management committees, health authorities at district, regional and central levels, international partners, professional associations, medical schools, representatives of local authorities, women's associations and health staff members (AQUASOU 2004).

Figure 2. The main stages of introducing cost-sharing



The first technical note was presented to the different parties (local authorities, COGES, District Management Team) in July 2003. It estimated the number of major obstetric interventions (MOI) by department or communes of origin, based on an empirical rate of 2.5% of expected births (being 538 MOI a year and an average of 45 a month). It then provided a cost estimation for the package of services (transport, surgery and post-operative care for mother and child), fixed at 112.8€ (Table 1). It should be noted that the parties adopted a solidarity-based approach for financing transport, fixing the same price for all regardless of the distance involved.

Table 1. Estimated cost of a major obstetric intervention (MOI)

	2005		2008	
	FCFA	€	FCFA	€
<b>Surgical intervention costs</b>				
Surgical act	8,750	13.3	8,750	13.3
Surgery kit	17,000	25.9	26,995	41.2
Specific products (anaesthesia, oxygen)	18,000	27.4	18,000	27.4
Bed charge	6,000	9.1	3,500	5.3
Postoperative prescription (mother + child)	16,000	24.4	15,000	22.9
Additional examinations	2,000	3.0	2,000	3.0
<b>Transport costs</b>				
Ambulance	1,418	2.2	1,418	2.2
Fuel (20 litres/100 km) for an average of 24km	3,360	5.1	3,360	5.1
Maintenance	1,440	2.2	1,440	2.2
Stretcher bearer	-	-	912	1.4
<b>System management</b>				
'Cost Recovery' officer	-	-	1,136	1.7
Travel costs : patient follow-up in University Hospital	-	-	161	0.2
Evaluation costs (UON study)	-	-	268	0.4
<b>TOTAL</b>	<b>74,000</b>	<b>112.8</b>	<b>83,000</b>	<b>126.5</b>

ASMADE, an endogenous development NGO, and the Union of Bogodogo Women's Associations were mandated to organise meetings with representatives of the population (women and men) in rural and urban areas. They evaluated families' financial capacities and heard the opinions of those using the cost-sharing system. All the parties then agreed on a contribution breakdown (Table 2). International partners do not make financial contributions to the system, providing alternative forms of input instead: technical support, material and training. The system's start date was fixed for 1st January 2005. Monitoring and management details were clarified and all parties' signed a one year renewable cooperation agreement.

**Table 2. Breakdown of the different parties' contributions for a major obstetric intervention (in Euros)**

Parties	From 1st January 2005 to 31st September 2006			From 1st October 2006		
	FCFA	Euro	%	FCFA	Euro	%
<b>Families</b>	<b>25,000</b>	<b>38.1</b>	<b>34%</b>	<b>6,000</b>	<b>9.1</b>	<b>7%</b>
COGES & Confessional health facilities	8,000	12.2	11%	6,000	9.1	7%
Secteur 30 health district	21,000	32.00	28%	14,000	21.3	16%
Local authorities	20,000	45.2	27%	13,000	19.8	17%
State (national subsidy)				44,000	67.1	53%
<b>TOTAL</b>	<b>74,000</b>	<b>112.8</b>	<b>100%</b>	<b>83,000</b>	<b>126.5</b>	<b>100%</b>

#### TARGET POPULATION AND ELIGIBILITY

The beneficiaries of the system are pregnant women living in Secteur 30 health district. District non-residents benefit from the same care but cannot take advantage of the preferential fees.

The cost-sharing system covers all major emergency interventions related to pregnancy (caesarean delivery, laparotomy for ectopic pregnancy, haemostasis hysterectomy and complicated perineum and cervical repair requiring general anaesthesia).

All costs relating to the emergency surgery are included in the fee: transport by ambulance, surgery, additional examinations, post-operative care for the mother and child during their stay in the CMA, hospitalisation and dressings as an outpatient until all wounds are fully healed.

#### COST RECOVERY

The patient or her family have to pay her contribution (25,000 FCFA from January 2005 up to September '07 and only 6,000 FCFA since 1<sup>st</sup> October 2006 (see section below for this modification) to the cashier of Secteur 30's CMA before or after surgery, depending on her resources. A Cost-Recovery Officer is responsible for this process. The poorest members of the district have a certificate issued by the social services exempting them from payment. The CMA's social services can also decide to exonerate families without such a certificate after a rapid social assessment<sup>8</sup>.

<sup>8</sup> The rapid social assessment includes questions on profession, place of residence, type of

If the CMA's pharmacy is short of certain generic medicines or a particular pathology requires a specialist product, the family receives a prescription for the product's purchase in a private pharmacy. The CMA refunds the family on the presentation of a receipt, following verification by the Cost Recovery Officer.

#### MANAGING THE COST-SHARING SYSTEM

A monitoring committee was set up, composed of representatives of the different parties (20 members). It meets every 3 months to check if the system is running according to their written agreement.

There is also an executive committee at Secteur 30 CMA level. Its 7 members meet up every 15 days and oversee the system's daily management. But in practice, this smaller committee permanently ensures that the system is running smoothly. It carries out a monthly analysis of data and monitors contributions (reminder letters for the COGES' contribution, contacts with the local authorities).

The executive committee includes a Social Educator who assumed his functions in the CMA in July 2005. He works in close cooperation with the cost-sharing parties and developed an assessment grid for criteria of indigence.

A cost-recovery officer was recruited in December 2005. He plays a critical role in monitoring patients in the system and following up direct health expenses. In practice, every morning he receives the files of operated patients with authorisation to leave the CMA, and gives them or their families explanations about the care received, the costs involved and the amounts due. He takes this opportunity to explain the cost-sharing system, naming the various financial contributors involved. Having settled the amounts due, he gives the patients a post-operative liaison form for the continuity of their care as outpatients and an appointment for a control visit 45 days after surgery. The officer cross-checks the various documents on a regular basis: nurses' prescription forms, the pharmacy register, the overview of post-operative care expenditure. This ensures that surgical protocols are applied and there is no misappropriation of medicines. He informs the head of the Gynaecology-Obstetrics Department of any anomalies observed, and takes corrective measures by questioning the parties concerned.

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residence, means of travel, number of dependants and partner's profession.

A cost-recovery guideline (explaining the care process for each patient and how the recovery system works) has been drawn up for each party to refer to in the event of any problems.

An individual prescription form is made up for each woman who underwent surgery. It is used to note all the examinations carried out, medicines administered and surgery performed, and the drugs taken out from the CMA's pharmacy. Prescriptions are no longer handed over directly to the family (except when, as described above, the drugs in the pharmacy are out of stock).

#### MONITORING AND EVALUATION

The system for compiling the information used in monthly activity reports was improved (number of admissions, deliveries, caesarean sections, complications). The multitude of existing registers for admissions and deliveries was replaced by only one. It is checked and completed every morning during the staff meeting at 8 am, when the night duty team presents its caseload to the gynaecologist in charge.

An Unmet Obstetric Needs (UON) study (data collected on major obstetric interventions for women living in Secteur 30) is carried out each year in Ouagadougou's various public hospitals and private clinics. This allows us to calculate a Major Obstetric Intervention (MOI) rate for women in the district and check if needs are met, especially for the rural population. The individual prescription form gives the real cost of the care provided in order to adjust the estimations if necessary. It also facilitates prescription control and allows non-standard practices to be stamped out.

#### RECENT DEVELOPMENTS IN COST-SHARING: THE NATIONAL SUBSIDY FOR DELIVERIES AND EMERGENCY OBSTETRIC CARE

The National Assembly of Burkina Faso voted to include a national subsidy for deliveries and emergency obstetric and neonatal care (EmOC) in its 2006 budget as part of its drive to improve the financial accessibility of obstetric services. This measure came into effect on 1<sup>st</sup> October 2006 (Box 1).

The subsidy aims to provide enough funds from the State, local authorities and management committees to support 80% of normal delivery costs in the health districts, 60% of normal delivery costs in national and regional hospitals and 80% of EmOC costs from 2006 to 2015.

**Box 1. Services covered by the national subsidy (Ministère de la Santé 2005c)**

- Normal deliveries
- Emergency obstetric and neonatal care
  - Caesarean sections
  - Laparotomy for ectopic pregnancy and ruptured uterus
  - Complicated deliveries: all vaginal deliveries requiring the use of products (solutions, oxytocics, antispasmodics, blood transfusions, etc.), repair of complicated cervical or perineal tears under general anaesthesia, uterine revision, vacuum extraction/forceps delivery and internal manoeuvres
  - Management of pre-eclampsia and eclampsia crises
  - Intensive care (acute cerebral distress, severe neonatal infection, severe respiratory distress, hypothermia) for newborns (less than or equal to 7 days old)
  - Manual Vacuum Aspiration (MVA) for abortion complications
  - The transport/evacuation of pregnant women from their villages to health centres and from health centres to the referral centre.

This national subsidy has led to a decrease in the official price of a caesarean (operation, medicines and consumables, additional examinations, hospitalisation and transport) to 11,000 FCFA in all public hospitals in the country and a delivery (act, medicines and consumables, observation) to 900 FCFA in a CMA and 1,800 FCFA in a university teaching hospital. But in Secteur 30 district, which already practices cost-sharing for caesarean deliveries, this national subsidy has been already integrated into the present system, thereby reducing even more the price of a caesarean for patients.

**INTEGRATING THE NATIONAL SUBSIDY INTO THE COST-SHARING SYSTEM**

The District Management Team, with the Regional Health Director, made a proposal to the monitoring committee redefining each party's contribution in order to integrate the national subsidy into the cost-sharing system. This process took into account the updated price of caesareans, including the cost-recovery officer's salary and changes in the composition of caesarean kits (extra thread, spinal anaesthesia needles). The cost was estimated to be 126.5 € (83,000 FCFA) (Table 1) and all members of the monitoring committee adopted the new contribution breakdown in September 2006. All parties'

contributions dropped following the national subsidy's introduction (Table 2), as did the price of a caesarean, standing at only 6,000 CFA since 1<sup>st</sup> of October 2006. The estimated total budget required for the case management of the 746 procedures expected in 2008 stands at 61,918,000 CFA, to be distributed between the different parties involved (Table 3).

Table 3. Provisional global budget for 2008 (746 procedures expected)

	Total 1 lump sum	Patient	COGES	ECD	Local contributions	State (subsidy)
<b>Contribution breakdown</b>	100%	7%	7%	17%	16%	53%
<b>For one intervention (FCFA)</b>	83,000	6,000	6,000	14,000	13,000	44,000
In Euros €	126.5	9.1	9.1	31.6	29.4	99.5
<b>For 746 interventions (FCFA)</b>	61,918,000	4,476,000	4,476,000	10,444,000	9,698,000	32,824,000
In Euros €	94,393	6,824	6,824	15,992	14,785	50,040

## Methods

The cost-sharing system has been documented in the various mission and annual activity reports produced within the AQUASOU project framework, setting out the different implementation phases. The executive and monitoring committees' reports have documented any implementation difficulties and the results in terms of the number of patients covered and the system's financial viability (balance between expenditure and the different parties' contributions).

In addition to the routine data produced by the maternity ward, extra studies were required to measure the impact of the cost-sharing system on service utilisation, quality of care, and perception of the system by the population and personnel.

#### QUALITATIVE DATA

- Qualitative studies have been carried out amongst patients and their families to measure the population's knowledge of the system and its appreciation. Twenty four women or family members were interviewed in June 2005, and 26 in December 2005, being 6 months and 12 months after the start of the initiative, when the family's contribution was still fixed at 25,000 FCFA.
- Interviews were also conducted during the same period (June and December 2005) with health centre staff (rural and urban CSPS) and hospital staff (from different services) to document their perceptions of the system.
- *Equilibres & Populations* carried out interviews with the Mayor of Ouagadougou, the Mayor of Bogodogo, the High Commissioner of the Central Region and the 3 prefects of the rural departments during the preparatory phase in July 2003, just before the cost-sharing system began in December 2004 and during the official closure of the AQUASOU project in February 2006. Others were carried out in December 2006 and 2007 by ASMADE, an NGO with activities in political mobilisation.
- The minutes (annotated by FR) of executive committee meetings held between January 2005 and April 2006 reported any critical incidents, the days and reasons for operating theatre closures and the solutions suggested by the executive committee.
- The minutes of meetings with the COGES involved in the different stages of the process were used to collect their understanding and perceptions of the system.

#### QUANTITATIVE DATA

- Routine health data from the district hospital maternity ward (admissions, deliveries, complications, referrals) from 2003 to 2007.
- «C-section» forms (used for the UON study). This form provides information on the procedures and their outcomes. It was filled in for all district residents receiving a caesarean section, wherever it took place (district hospital or other neighbouring private or public facility) and for non residents operated on at the district hospital.
- «Individual prescription forms» for women who underwent caesarean section (the treatment received and its cost) in 2005. This form lists all

the surgical acts performed and the medicines prescribed for women during their stay and how much they cost. It was introduced in January 2005, when the cost-sharing system began.

- « Referral and retro-information forms » from 2004 to 2006. These forms were standardised for all the district's health facilities (public and private) and introduced in February 2004. They ensure continuity of care through information on patient status during evacuations.

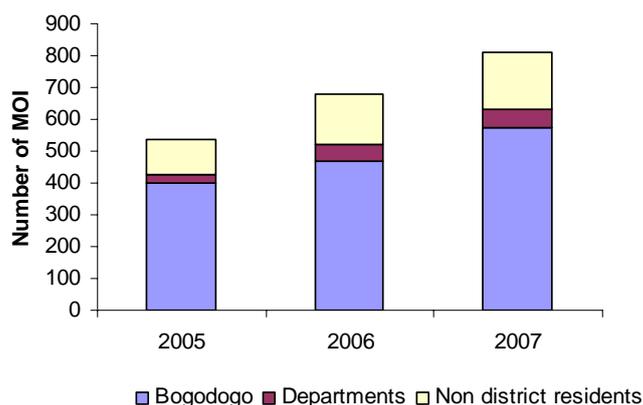
## Results

### UTILISATION

#### *Origin of the beneficiaries*

The majority of women receiving surgery originate from Secteur 30 health district. Of the 808 major obstetric interventions carried out in 2007, 22% of the women were non residents. The number of interventions increased by 23% in the district between 2005 and 2006 and by 20% between 2006 and 2007, which is far more than the population growth rate, situated at around 6.6% (Figure 3).

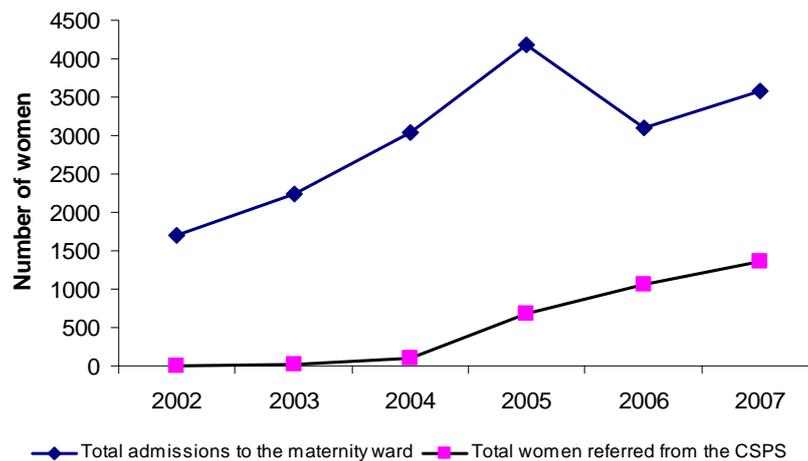
**Figure 3. Number and origins of women undergoing Major Obstetric Interventions (MOI) in the CMA between 2005 and 2007**



### Referrals

As from 2005, there was a sharp increase in the number of emergency referrals from the district's CSPS towards the Secteur 30 CMA. This trend continued in 2006 and 2007, establishing the CMA as a referral centre: referred patients represented 16% of all admissions in 2005 and 38% in 2007 (Figure 4).

Figure 4. Total admissions and referrals received in the CMA's maternity ward from 2002 to 2007



### Coverage of assisted deliveries

The coverage of assisted deliveries by Secteur 30 district stood at 66.2% in 2003 and has been increasing ever since. In 2007, it stood at 86.5%.

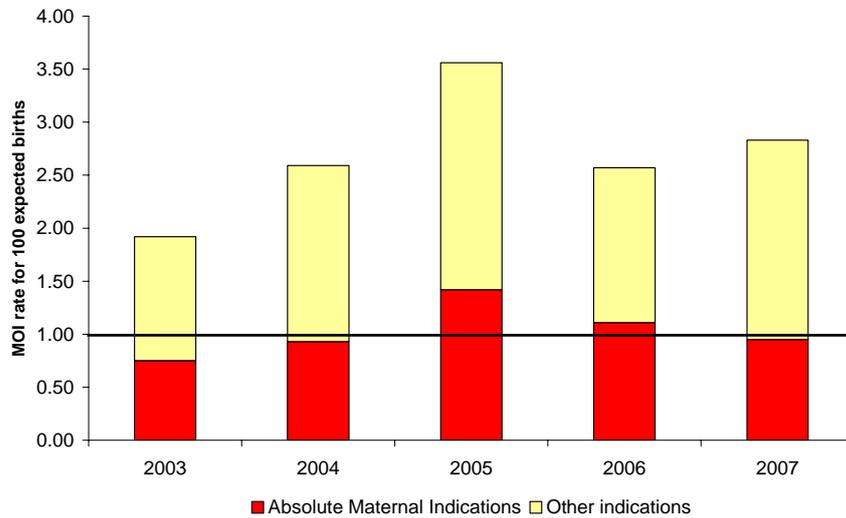
### Coverage of maternal needs in major surgery

The rate of major obstetric interventions (for 100 expected births) within the population of Secteur 30 district rose sharply during the first three years, then pulled back to an average of 2.8%. Between 2003 and 2007, the rate of major obstetric procedures had multiplied by 2.4 in rural areas (from 0.34% to 0.81%) and 1.4 in urban ones (2.69% to 3.81%).

The rate of major obstetric interventions for absolute maternal

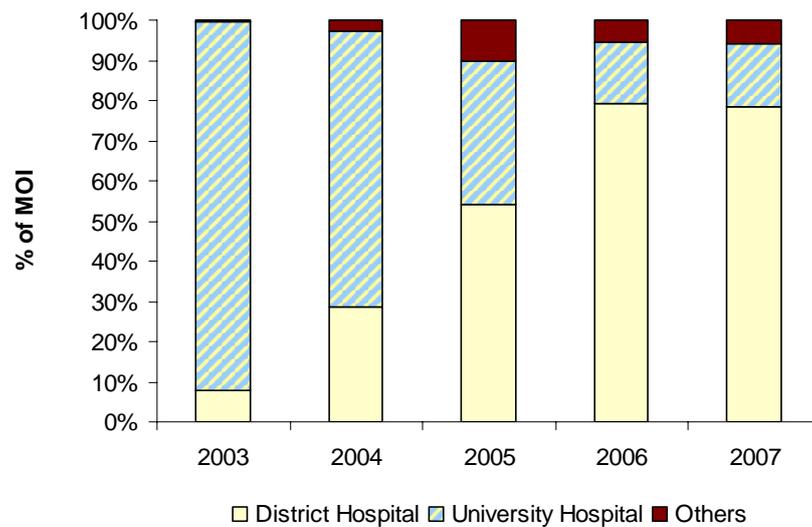
indications (MOI for AMI) was less than 1% before the operating theatre began to function 24/7 at the end of 2004. The peak observed in 2005 (the year the cost-sharing system began) can be explained by the increased frequency of caesarean deliveries following suspicion of cephalo-pelvic disproportion (Figure 5).

Figure 5. Changes in the rate of Major Obstetric Intervention (MOI) for women of Secteur 30 district



Since 2005, the CMA has carried out the majority of its obstetric surgery on women of the district: 78% in 2007 compared to 8% in 2003 (Figure 6).

Figure 6. Proportion of Major Obstetric Interventions (MOI) carried out per hospital for district residents, 2003 - 2007



#### QUALITY OF CARE

##### *Rationalisation of care*

The introduction of the cost-sharing system has had an impact on the rationalisation of health care. All gynaecologists working in the CMA had to agree on the contents of a surgical kit containing mainly generic products provided by CAMEG (the national purchasing centre for essential and generic medicines). The operating teams were encouraged to use the Misgav Ladach operating technique for caesarean section (Holmgren *et al.* 1999) along with protocols for post-operative care (ablation of the urinary catheter on Day 1, getting up and eating early, discharge from hospital on Day 4 in the absence of complications). The introduction of individual prescription forms provides closer monitoring of the direct costs of a caesarean delivery. An increase in the cost of post-operative care, for example, leads to analysis of prescriptions and a discussion with the nursing team. This happened once in 2006 and again in 2007. The increases coincided with the arrival of new nursing staff in the surgery unit.

### *Mortality and lethality*

From 2005 to 2007, the Secteur 30 CMA performed 2,022 surgical procedures (MOI and complicated perineal and cervical tears). There were 15 per- and postoperative deaths over three years. Three women had to return to theatre because of postoperative haemorrhages on Day 0 and 10 for wound dehiscence, Ten patients suffered from endometritis and/or wound infections (of which 4 required re-admission) (Table 4).

Table 4. Per or postoperative deaths

Causes of per or postoperative deaths (C-section, ectopic pregnancies, serious cervical tear)	2005 n=536	2006 n=678	2007 n=808
Haemorrhage	1	5	5*
Infection	1	0	0
Transfusion accident	1	0	0
Eclampsia	0	2	0
Total	3	7	5
Post-surgery lethality	0.56%	1.03%	0.62%

\*(4 C-Sections + 1 repair of cervical tear)

Early perinatal mortality (<24h) after caesarean delivery dropped from 3.6% in 2005 to 2% in 2007 for all types of caesareans and from 4% to 2.2% for emergency caesarean deliveries.

### FINANCIAL VIABILITY

Over the period of three years, 79% of contributions were recovered at COGES level. The percentage of recovery amongst patients rose from 90% in 2005 to 97.7% in 2007. Nine of the poorest inhabitants of the district were treated free of charge in 2007 as compared to twenty in 2006, before the reduction of fees to 6,000 CFA.

The salary of the Cost Recovery Officer, responsible for the proper running of the system, is covered by the system. The system's administration costs only represent 3% of the total costs.

The financial viability of the system depends on several factors: the estimation of the expected number of major obstetric interventions to be performed on district residents per year; the adherence of providers to prescription protocols and the payment of each contributor involved in the

system.

The estimation of the number of expected caesarean deliveries determines the contributions requested from each party. If the estimation is too low, the system goes into debt. These estimations are re-evaluated and adjusted every year in accordance with the previous year's results, and have not been exceeded so far. Cost estimations are based on standardised health care protocols for caesarean section and postoperative care and the prescription of generics. Non-adherence to these prescription rules can generate costs exceeding the estimate. The greatest variations arise during postoperative care (from 4,540 to 122,410 CFA). Whilst costs can exceed estimates for complicated cases, the average has remained reasonable: 13,654 FCFA for the 3 years (16,000 CFA in 2005, 11,743 CFA in 2006 and 13,219 in 2007). Regarding the different parties' contribution payments, certain parties needed reminding (every quarter) before their payments were forthcoming. The successive changes in the district and hospital administrator and accountant caused some delays in local authorities' payments, but they always settled their contribution. Some management committees have payments outstanding, often linked to internal problems within the committees. So the cost-sharing system is not in debt, but district managers continue to experience difficulties with its appropriation, considering it as an extra workload.

#### PERCEPTIONS OF THE STAKEHOLDERS

##### *Population's perception*

The study carried out in June and December 2005 amongst women delivered by C-section and their families revealed that few of them were aware of the cost-sharing system's existence before their admission to the CMA's maternity ward. Most of the women and their relatives were informed of the system when the decision to proceed with a C-section was taken. For others, they chose the CMA maternity because they knew about the system.

The relatives expressed their appreciation of the system, even when the household financial contribution was at 25,000 CFA. Comments such as "*it's a big relief for the families*", "*it's a real help*" were repeated time and time again. Before the introduction of this system, coping with the cost of a caesarean delivery presented enormous difficulties, with health facilities asking for prepayment before providing any care and patients and their

families never knowing how much the operation would cost<sup>9</sup>. So, with surprise, the beneficiaries observed that *“even if you don’t have the funds, you have access to health care”*, an important development given the usual practice of payment before receiving anything at all. *“Patients aren’t disturbed, they receive rapid care”*, *“here, it’s great, they (the health personnel) don’t give out prescriptions”*, *“twenty five thousand, that’s not a lot for saving two lives! We can’t do everything for free: health care has a price!”*, even though the people interviewed recognised that some families struggle to pay this sum. It should be noted that some beneficiaries said they had to sell an asset or take out a loan to cover the expenses of maternity care. Finally, there was a high opinion of the personnel’s competence and the quality of the care received. *“They don’t sleep here, they don’t neglect people. As soon as you call, they come...”* “

Nonetheless, the users found it unsatisfactory to limit these efforts to obstetric emergencies. During an information meeting held for the general public, ASMADE revealed the extent of demands concerning general follow up during pregnancy. Many women called for a subsidy for antenatal care (ANC) and treatment of all complications during pregnancy, or suggested that ANC should be free. As it was, the cost-sharing initiative had just been linked up to a policy decision concerning free ANC that had not yet taken full effect in the field. Moreover, ANC had officially been free in Burkina Faso since the system’s initiation in 2005, but was still being paid for in some places due to shortages of products (medicines and consumables) that should normally be administered for free. Health workers in first line facilities were obliged to prescribe or sell the products in question, which led to confusion and incomprehension amongst women, and gave the impression that ANC was still fee-based.

In addition, the people interviewed suggested that costs should also include postpartum newborn care<sup>10</sup>.

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<sup>9</sup> Amounts were often quoted as exceeding 100,000 FCFA.

<sup>10</sup> Newborn care was integrated into the ‘C-section package’ after the first year.

### *Providers' perception*

The health personnel in the first line facilities, and above all in the rural CSPS, declared themselves highly satisfied with the system. Since its introduction, they had rarely been called on to negotiate with families about the need to evacuate whilst family members gathered the sum required to cover evacuation and surgical costs. They found their working conditions more "comfortable", both in taking the decision to evacuate and putting this decision into practice. According to the personnel interviewed, they were still uncertain about transport when the system was put into place: certain drivers had not understood that the cost of transport was included in the fee of 25,000 CFA, and continued to demand "motivation" from families before setting off. Moreover, the lack of available ambulances meant that some families had to pay for a taxi or private car.

The personnel working in the referral maternity ward also experienced this same sensation of "comfort", even if it was tempered by the risk of work overload generated by the system's expected success in the health district. Just as the first line facilities' personnel could now decide to evacuate with more ease, the maternity ward and operating theatre personnel could now decide to perform surgery with more ease, again without waiting for payment.

The complete understanding of the system by health personnel was not immediate, and the less they were directly involved in women deliveries the more the appropriation of the cost-sharing system took time. Some individuals found it hard to discard their old "reflexes". Thus regular explanations were required on delivering patient care without waiting for pre-payment and abandoning the habit of prescribing products (drugs and consumables) to buy outside the facility. New recruited personnel or trainees arriving in the maternity ward needed special attention to be fully informed. Adhesion to the new system was slower for the non-medical personnel, i.e; pharmacists, laboratory technicians, cashiers, drivers, cleaners, and administrative hospital and district staff. Adhesion was hampered by other patients who did not understand why these women benefited "privileges" whilst they received no help for their treatment whatsoever<sup>11</sup>.

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<sup>11</sup> It should be borne in mind that the relative incomprehension of patients suffering from health problems that "do not fit" into specific programmes with regards to those who do benefit from reductions or even free health care due to the availability of subsidies for certain

### *Contributing parties' perception*

The first interviews, held in July 2003 during the preparatory phase, revealed that the different representatives of the local authorities judged their financial commitment to maternal health justified and necessary, but feared that their efforts would lack visibility and prove complicated to put into practice. They had high expectations of being accorded credit for their contributions by the population and technical and financial partners in Ouagadougou and Burkina. After three years of the system running satisfactorily, the local authorities have maintained their participation and say that they draw more benefits from it than initially imagined. During the interviews held in December 2007, they expressed their satisfaction to be "*doing something concrete and practical for women's health*", which moreover contributes to their access to health care objectives (they now have a mandate in this domain). They also emphasised their understanding of the system, and above all that they knew where their money is going and how it is really being used. More specifically, the mayor of Ouagadougou continued to hold out hope that the system would be extended to other health districts covering the city and so benefit all the women and families of Ouagadougou. The mayor of Bogodogo, i.e. the representative of the urban *arrondissement* which is a major beneficiary of the system, is convinced of the initiative's pertinence for the women under her jurisdiction and has no intention of turning back. She also pointed out that the system "*relieves the commune's social services department by taking care of the poorest women in case of obstetric emergency*" because in her opinion the cost-sharing system covers global case management - based on defined criteria - and is more effective than the usual mechanisms of social assistance provided by the commune. The Prefects considered the project as an opportunity to introduce concrete and practical assistance for the people living within their department and to take a stand on health issues. They include participation in the reduction of maternal mortality in their action plans and requests for resources from the High Commissioner who is well-informed on this subject himself and secures the system. The Prefects' financial implication and participation in steering the system, on a par with the other parties, has provided them with a role of

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pathologies is a frequently observed phenomenon, extending well beyond this particular system of cost-sharing.

legitimate guarantors of the system and the quality of health care and health training in their areas.

The other contributors to the system, the COGES, make frequent demands for more information and repeated explanations of the budgets. This point has cropped up in every meeting. Those COGES which are on time with their contributions ask for a much more strict management targeted to non-payers and laggards, "*some of them haven't paid and yet their women benefit from the system*"<sup>12</sup>. The laggards or bad payers regularly demand that their debts be cancelled from one year to the next. Even if the money from the COGES is raised from the sale of generic medicines and should be invested in the population's health, the monthly contributions to the cost-sharing system are perceived as a cut in the COGES' income. They have not used their contributions to gain credit within their communities, and have not circulated any information on the system, contrary to the local authorities.

## *Discussion*

The overview of the three years of implementation is generally positive if we count the rise in assisted deliveries and caesarean deliveries, the financial balance of the system and the families' satisfaction.

### FACTORS OF SUCCESS

If we analyse the reasons for this success, we can first of all cite the patience and attention to detail accorded to the preparatory phase, which mobilised political players and health centres' management committees and secured their financial commitment. The system also benefited from the involvement of the health authorities: the director of the Family Health Department has supported a cost-sharing approach since these systems started up in the eastern districts in 2001 (Ministère de la Santé 2005b). The Management of the Central Region was present throughout all the different implementation stages and the Regional Director of Health became personally involved, participating in all the cost-sharing system's monitoring committees. The

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<sup>12</sup> It is important to emphasise that the parties involved in the project chose at its outset not to penalise women coming from COGES behind on their payments, as has been the case in other cost-sharing experiences in Burkina Faso.

District Management Team, whilst referring to the experience acquired by UNICEF in rural districts (Nacoulma *et al.* 2003) managed to adapt the system to an urban environment by committing the professional health facilities and local authorities to cost-sharing and introducing its own monitoring tools (individual prescription forms). The system was supported by an improved management of human resources (team meetings, redeployment of personnel between the different hospital services). Finally, the regular monitoring of prescriptions led to rationalised care and reduced case management costs. As a consequence, the system could adhere to the estimates made at the outset and maintain its financial viability.

#### DIFFICULTIES ENCOUNTERED DURING IMPLEMENTATION

##### *Providing quality emergency obstetric care 24/7*

One of the major difficulties was providing emergency obstetric care 24/7 and guaranteeing the package of services promised for the fee throughout the year. There were also hiccups when nurses had to draw up prescriptions for private pharmacies (oxytocin, stitching thread) following shortages in the hospital's drugs store. The operating theatre also experienced some problems (shortages of oxygen and anaesthesia products, break downs in sterilisation equipment), leading to the suspension of activities and the transfer of women to the university teaching hospital. Difficulties in managing stocks and maintaining material are recurrent issues. It should be noted that in the majority of cases, drugs and material stock shortages at CMA level were linked to central purchasing public offices shortages of generics. There were also shortages of medical personnel. The numerous training courses, studying opportunities and supervision missions proposed to doctors disrupt the duty roster and jeopardise the permanence of care. External personnel were called in to cover the gaps, but the system cannot cover this cost if such a need becomes generalised. In 2007, the CMA no longer had a blood bank for emergency transfusions due to the creation of a national transfusion centre and new rules concerning the circulation of blood products.

A final difficulty resides in the maternity ward's limited capacity, which will soon be overwhelmed by the increase in activity. As it is, the Secteur 30's CMA drains from the populations of the surrounding districts because their CMAs do not have operating theatres open 24/7 (22% of women operated on in 2007 were not district residents).

*Personnel's adherence to the system*

The second difficulty concerns the health staff's adherence to the cost-sharing system. Generally speaking, setting up such a system is synonymous with tighter control over monetary flows relating to transport, purchase and use of medicines and consumables, examinations and medical or non-medical acts as well as increased demand for medicines, material and personnel availability. The system also involves paying more attention to patients'/their families' complaints, in the framework of another part of the AQUASOU<sup>13</sup> project (Richard *et al.* 2009). A number of studies have shown that little arrangements on the side allow health facility personnel (medical or not) in sub-Saharan Africa to increase their incomes, compensating for what are often low salaries (Ferrinho & Van Lerberghe 2000, Jaffré & Olivier de Sardan 2003, Van der Geest 1982, Fassin 1992, Cresson & Schweyer 2000). These "little arrangements" range from holding down several jobs at once, thereby reducing the working hours spent in the health facility, to setting up small businesses in the facility itself, involving the sale of medicines and consumables (including stock misappropriation at times) and explicit demands for "motivation" by patients before delivering any care. Tighter control therefore implies that the facilities' personnel earn less. No compensation was offered for this drop in their income following the introduction of improved practices. The different parties involved in the cost-sharing chose not to introduce indemnities, judging that the work expected of the personnel did not extend beyond their job descriptions and official bonuses already existed for those personnel involved in the department's activity, paid by the CMA<sup>14</sup>. Whilst this is a legitimate position, does it encourage the personnel's long-term adherence to the system? This is one of the most acute issues considering certain vertical programmes providing case management for specific pathologies - programmes heavily subsidised at times - with high bonuses for the personnel involved.

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<sup>13</sup> Particularly by the introduction of audits on obstetric complications under the form of case reviews, case-note analysis associated with interviews of the women and their relatives.

<sup>14</sup> There is an official set up in which part of user fees are distributed quarterly to the hospital personnel according to their professional category.

## URBAN-RURAL DISPARITY

The results show that fewer major obstetric surgical interventions are performed on the district's rural population than on its urban residents. This obviously raises the issue of geographic accessibility; the Prefects of the three departments also think that the populations of their rural departments are overestimated. The figures used are projections based on the last census, dating from 1996 (Ministère de la Santé 2001b). Another practice to be taken into account: women often join their families or families-in-law in the city at the end of their pregnancies, preferring to be near a hospital in the event of a problem. On admission, they declare their urban address, thus lowering the rural figures.

## MOBILISING THE COMMUNITIES

ASMADE organised 146 information meetings throughout the district with the direct involvement of 14,000 people. The District Management Team organised several meetings on cost-sharing for the Presidents of COGES and the Chief Nurses of the Health Centres. But the target groups - women's associations, leaders and COGES members - did not always make information available to the direct beneficiaries: the pregnant women. Moreover, the Chief Nurses did not always train the personnel in their health centres to use the system. It should be noted that this lack of information from managers to their teams is not specific to cost-sharing, whether for the Chief Nurses or the Presidents of the COGES. The District Management Team becomes aware of this lack of communication during its supervisory visits. Following a presentation of the results during a monitoring committee, the different parties decided to change their strategy, focusing directly on midwives and auxiliary birth attendants in the CSPS, who would then pass on information to women during ANC. This campaign was backed up with posters placed in ANC waiting rooms and a series of radio broadcasts.

## THE FUTURE OF THE COST-SHARING SYSTEM IN A CHANGING CONTEXT

Since the initiation of the cost-sharing system, many aspects of Burkina's administrative and political context have changed: a national subsidy for normal deliveries and emergency obstetric care came into force in October 2006, rural communes joined the other cost-sharing parties in 2007

following the decentralisation process unfolding in Burkina Faso and the district's target population changed in 2008 following the re-drafting of health boundaries for the Central Health Region. All these changes could have destabilised the enterprise launched in 2004, without mentioning the end of the AQUASOU project in March 2006, which had supported the system's initiation. Yet despite it all, the system still continues, and has managed to integrate the various changes. The political decision to subsidise 80% of the costs of delivery, related complications and C-sections came into force on 1<sup>st</sup> October 2006, and led to a further reduction in direct costs for the family: 6,000 CFA for the case management of mother and child for a caesarean delivery. The different parties have renewed their partnership agreement with the Secteur 30 district. It is difficult to predict the future of the cost-sharing system because the agreement is re-negotiated annually with the different parties. It should be noted that the Ministry of Health has used the experience of Secteur 30 health district, in particular the monitoring of prescriptions during case management, for drawing up its guideline on procedures and tools for implementing the national subsidy.

The efforts made by the Secteur 30 health district team have been recognised by all, and the district received the best district prize in 2007, awarded by the Ministry of Health. Nonetheless, this recognition has not been translated into a budgetary allocation to the hospital. Secteur 30's CMA has had to cope with growing running costs in the operating theatre generated by the increase in surgical activity: maintenance of medical equipment, generator, etc. In 2007, the theatre's running costs amounted to 30 million CFA (45,800 €). Secteur 30's CMA is currently ranked 3<sup>rd</sup> nationally in terms of surgical activity, after the two national hospitals, yet it does not receive more public funds for covering its running costs than the other district hospitals. The surgical activity and cost-sharing system will be unable to continue if these funds do not increase.

### Box 2. Lessons learnt

<p>Strong points of the system</p>	<ul style="list-style-type: none"> <li>• Improved access to <i>Emergency Obstetric and Neonatal Care</i> (EmNOC)</li> <li>• Organisation of referrals</li> <li>• Implementation of Comprehensive EmNOC in CMAs</li> <li>• Improved community participation</li> <li>• Local authorities' involvement in resolving health issues</li> <li>• Installation of a dynamic team in setting up EmNOC</li> <li>• The creation of a multi-sectored approach in finding solutions to maternal health issues</li> </ul>
<p>Points to improve</p>	<ul style="list-style-type: none"> <li>• Capacity strengthening of COGES Presidents, Stability of COGES team</li> <li>• Local authorities' participation</li> <li>• Equipment in the CMA maternity ward</li> <li>• Workforce (gynaecologists-obstetricians, midwives)</li> <li>• Setting up protocols adapted to the available resources</li> </ul>
<p>Conditions for launching such a system</p>	<ul style="list-style-type: none"> <li>• Local bodies' political will and financial commitment</li> <li>• Effectiveness of decentralisation (existing laws and local authorities having decisional and financial capacities)</li> <li>• Highly committed District Management Team</li> <li>• Highly committed COGES</li> <li>• A CMA in working order             <ul style="list-style-type: none"> <li>- Equipment</li> <li>- Sufficient Human Resources for providing 24/7 health care</li> <li>- Gynaecologists-obstetricians available and committed to the process, particularly the Head of Department</li> <li>- Creation of obstetrics case-notes</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>- Use of medical and nursing care protocols</li> <li>- Organisation of a daily case review after the night shift.</li> <li>- Pharmaceutical stock correctly managed</li> <li>- A Cost Recovery Officer for following up health expenditure on a daily basis</li> <li>- A midwife for data entry of UON study data</li> </ul> <ul style="list-style-type: none"> <li>• A relay point (local NGO) for social mobilisation</li> </ul>
Conditions for sustainability	<ul style="list-style-type: none"> <li>• The effective participation of the different parties through their financial contributions and attendance in meetings</li> <li>• The effective holding of statutory meetings</li> <li>• The presentation of a complete and comprehensible financial overview</li> </ul>
Conditions for scaling up (other districts in Ouagadougou)	<ul style="list-style-type: none"> <li>• An improvement in health care provision in the referral facility (personnel, equipment, protocols)</li> <li>• The involvement of all the figures of authority in the district (mayors, NGOs, Chief Nurses of Health Centres, COGES, etc)</li> <li>• The identification of a relay facility for implementing the communication strategy</li> </ul>
Advantages of a cost-sharing system	<ul style="list-style-type: none"> <li>• Removing the financial barriers to access to emergency obstetric care</li> </ul>
Disadvantages	<ul style="list-style-type: none"> <li>• The phenomenon of attraction that increases the personnel's work load without any compensation for their loss of income resulting from tighter cost controls (transfer requests as a consequence)</li> </ul>

## *Conclusion*

These last 3 years of implementation have proved that such a cost-sharing system can be adapted to an urban environment with the support of new parties: local authorities and confessional health facilities. The technical aspects of public health were supported by active political mobilisation and the time taken over the preparatory phase gave the different parties time to appropriate the system. One of the keys to success was undoubtedly the participative and cross-sectorial approach adopted during the preparatory phase and throughout implementation, as well as rigorous monitoring of the system. New channels for mobilising the community should be envisaged to involve even more users. The cost-sharing experience in Secteur 30 health district is full of promises, but its development over time requires close monitoring. The system has been developed in a context that cannot be guaranteed over the long term (committed Head of Gynaecology-Obstetrics Department, supportive health and political authorities, technical assistance from international partners). The different parties have to decide on the system's future every year, and the agreements are signed on an annual basis only. The Ministry of Health encourages cost-sharing systems, but has not made them compulsory, and only 10 out of 55 districts had a system in place before the introduction of the national subsidy for emergency obstetric care. Secteur 30 health district has managed to adapt to the changes in national policy for the benefit of the women under its charge, lowering the price of a caesarean below the official one (6,000 CFA instead of 11,000 CFA), but it is difficult to predict what impact the national subsidy will have on the other cost-sharing systems in Burkina.

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## References

AQUASOU, Programme d'Amélioration de la Qualité et de l'Accès aux Soins Obstétricaux d'urgence (2003) Compte-rendu de la première réunion de consensus, Composante 2, Ouagadougou, Burkina Faso.

AQUASOU, Programme d'Amélioration de la Qualité et de l'Accès aux Soins Obstétricaux d'urgence (2004) Compte-rendu de l'atelier technique sur le partage des coûts pour les urgences obstétricales dans le district sanitaire du secteur 30, Composante 2, Ouagadougou, Burkina Faso.

Bicaba A., Ouédraogo JG & Ki Ouédraogo S (2004) *Gouvernance, équité et santé. Politiques de santé et équités en Afrique de l'Ouest. Accès aux urgences chirurgicales et équité.* Association Burkinabé de Santé Publique (ABSP). Centre de Recherche pour le Développement (CRDI). Université de Montréal, Rapport final.

Cresson G & Schweyer FX (2000) *Les usagers du système de soins*, Éditions ENSP (Collection recherche, santé, social), Rennes.

Ensor T & Ronoh J (2005) Effective financing of maternal health services: a review of the literature. *Health Policy* 75, 49-58.

Fassin D (1992) L'anthropologie et la santé publique : réflexions à partir de quelques expériences, in *Anthropologie, santé, maladie : autour d'études de cas; Anthropologie médicale appliquée au développement et à la Santé*, Toulouse, Amades, 92, 9-24.

Ferrinho P & Van Lerberghe W (2000) Providing health care under adverse conditions. Health personnel performance and individual coping strategies. *Studies in Health Services Organisation & Policy*, 16, Anvers, ITG Press.

Holmgren G, Holm LS & Stark M (1999) The Misgav Ladach method for a caesarean section: method description. *Acta Obstetrica et Gynecologica Scandinavica* 78, 615-21.

Jaffré Y & Olivier de Sardan JP (2003) Une médecine inhospitalière. Les difficiles relations entre soignants et soignés dans cinq capitales d'Afrique de l'Ouest, Paris, Karthala.

La Concertation (2004) Inventaire des systèmes d'assurance maladie en Afrique: synthèse des travaux de recherche dans 11 pays. La concertation, Dakar.

Ministère de l'Economie et du Développement, INSD (Institut National de la Statistique et de la Démographie) (1998) Enquête prioritaire sur les conditions de vie des ménages 1996, Burkina Faso, Ouagadougou.

Ministère de l'Economie et du Développement, INSD (Institut National de la Statistique et de la Démographie) (1999) Enquête Démographique et de Santé du Burkina Faso 1998/1999, Ouagadougou.

Ministère de l'Economie et du Développement, INSD (Institut National de la Statistique et de la Démographie) (2003) Enquête burkinabé sur les conditions de vie des ménages, Ouagadougou, Burkina Faso.

Ministère de l'Economie et du Développement, INSD (Institut National de la Statistique et de la Démographie) (2005) Enquête Démographique et de Santé du Burkina Faso 2003, Ouagadougou.

Ministère de la Santé (2000) Politiques et normes de services de santé de la reproduction. Direction de la Santé de la Famille, Ouagadougou, Burkina Faso.

Ministère de la Santé (2001a) Plan National de Développement Sanitaire 2001-2010. Burkina Faso.

Ministère de la Santé (2001b) Projections de populations des districts de la région sanitaire de Ouagadougou pour la période 2000-2005. Région du Centre, Direction régionale de la santé du Centre, Ouagadougou.

Ministère de la Santé (2004) Plan Stratégique pour une Maternité à Moindre Risque 2004-2008. Direction de la Santé de la Famille, Ouagadougou, Burkina Faso.

Ministère de la Santé (2005a) Annuaire statistique 2004. Secrétariat Général, Direction des Etudes et de la Planification, Ouagadougou.

Ministère de la Santé (2005b) Cadre Conceptuel pour la mise en place de système de partage de coûts. Direction de la Santé de la Famille, Ouagadougou.

Ministère de la Santé (2005c) Stratégie nationale de subvention des accouchements et des soins obstétricaux d'urgence au Burkina Faso. Direction de la Santé de la Famille, Ouagadougou.

Ministère de la Santé (2006) Plan d'action du district sanitaire du secteur 30. Région centre, Direction régionale du centre. Burkina Faso, Ouagadougou.

Nacoulma D, Belemviré S & Djiguemdé AP (2003) Un partenariat pour l'amélioration de l'accessibilité aux soins d'urgence : « les communautés s'impliquent », Communication aux 10<sup>ème</sup> Journées des Sciences de la Santé de Bobo-Dioulasso.

Richard F, Ouédraogo C, Zongo V, Ouattara F, Zongo S, Gruénais ME & De Brouwere V (2009) The difficulty of questioning clinical practice: experience of facility-based case reviews in Ouagadougou, Burkina Faso. *BJOG* 116, 38-44.

Su T, Kouyaté B & Flessen S (2006) Catastrophic household expenditure for health care in a low-income society: a study from Nouna district, Burkina Faso. *Bulletin of the World Health Organization*, 84, 21-7.

Thaddeus S & Maine D (1994) Too far to walk: maternal mortality in context. *Social Science & Medicine*, **38**, 1091-110.

Van der Geest S (1982) The efficiency of inefficiency. Medicine distribution in south Cameroun. *Social Science & Medicine*, **16**, 2145-53.