Community health insurance in sub-Saharan Africa: Opportunities for improving access to emergency obstetric care?

Werner Soors[1], Maria-Pia Waelkens[1] & Bart Criel[1]

Abstract

Risk sharing eases the financial burden for the individual household and prepayment ensures quick access at the time of need. These two attributes of insurance improve access and reduce delay when seeking health care. Swift access is particularly important for emergency obstetric care and, indeed, evidence from African community health insurance schemes indicates that financing emergency obstetric care is a prioritised service in the benefit package. Recent improvements in the supply of emergency obstetric care, especially predictable fees and better services, provide a major opportunity to include emergency obstetric care in a scheme's benefit package. Community health insurance can flexibly and appropriately adapt to a changing environment. Whatever the other financing mechanisms for emergency obstetric care in place, community health insurance can cover the remaining cost. The complementarity of community health insurance to other interventions exceeds the financial domain as schemes expand their role as intermediaries between health professionals and the population.

In this article we illustrate these potential contributions of community health insurance to improve access to emergency obstetric care with evidence from African experiences.

Keywords: **c**ommunity health insurance, maternal health, access, financing, sub-Saharan Africa.

[1] Health Policy and Financing Unit, Department of Public Health, Institute of Tropical Medicine, Antwerp. Email : wsoors@itg.be (correspondence should be addressed to this author).

Introduction

Community health insurance (CHI) aims to improve access to health care and to protect households from health-expenditure related risks. The term CHI embraces a broad array of nonprofit schemes providing risk pooling to cover part or all of the costs of health care services. To a greater or lesser extent, CHI schemes target households that derive their income from the informal economy and are excluded from formal systems of social protection. Membership is therefore usually voluntary. In principle, CHI schemes promote participatory decision-making and management. Building on mutual aid and solidarity, risk sharing is as inclusive as possible and membership premiums are independent of individual health status. However, premiums are usually flat rates, thus not modulated according to ability to pay (Bennett 2004; Bennett & Kelley 2004; Criel *et al.* 2008).

Community health insurance in Africa started with isolated initiatives in the 1980s and has since undergone a rapid expansion. A count in 11 francophone countries of West Africa showed a growth from 76 active schemes in 1997 and 366 in 2003 (Concertation 2004) to 626 in 2006 (Ndiaye *et al.* 2007). Several countries - most notably Ghana (Agyepong & Adjei 2008) and Rwanda (PHR*plus* 2006) - made community health insurance national policy.

The contribution of CHI to covering maternal health services has been studied before. In 2001, the International Labour Organisation carried out a survey looking specifically at maternity benefits offered by the schemes (ILO 2003). African countries included in the survey were Senegal, Tanzania and Uganda. The study reports on 23 schemes, 13 of which are in Africa, that offer maternity benefits, but gives only basic information about the schemes. PHR*plus*, one of the main partners of CHI in Africa, proposes guidelines for promoting reproductive health services through CHI based on their experience in sub-Saharan Africa (PHR*plus* 2004). Empirical evidence on the effects of African CHI schemes are still scarce (Ekman 2004). A first attempt to group evidence from three West African countries on CHI and utilisation of maternal health services was published in 2008 (Smith & Sulzbach 2008).

This paper discusses the potential contribution of CHI to financing emergency obstetric care (EOC) in Africa today. We illustrate these opportunities with secondary data from the existing literature and

inventories, and deliberately use primary data from our own consultations in the field (Uganda, Togo, Mauritania and Mali).

Insurance: improved access through prepayment and risk sharing

As with other forms of health insurance, CHI shares the underlying principles of prepayment and risk sharing. Prepayment at the time when money is available ensures access at the time of need - even when money is scarce. Sharing the financial risk of health care expenditure eases the burden for the individual and can make expensive services accessible.

From this technical point of view, emergency obstetric care clearly qualifies as a proper candidate for any form of health insurance. It is a service where fast access at the time of need is crucial. Women who prepaid their contribution to a health insurance scheme should be able to access care without delaying to seek out cash for paying user fees. Whereas the price to pay for a caesarean section is high and often unaffordable for the individual household (Kowalewski *et al.* 2002; Storeng *et al.* 2008), risk sharing can make a difference (Richard *et al.* 2007) precisely because of its rare occurrence. We illustrate this using a premium calculation exercise from a Ugandan CHI scheme (see Box 1).

Box 1. Effective risk spreading for caesarean section in Uganda

According to national population statistics, five percent of the population in Uganda are pregnant women (UBOS 2006). Of those, it is expected that 60% would come to a health centre for delivery. The average fee for an uncomplicated delivery at the Nyamwegabira health centre in the particular area where this scheme operates is 7,400 Ugandan shilling (UGS). Hence, the premium for this service is 222 UGS per individual scheme member per year.

When need for a caesarean section is identified, the average charge for transport to the referral hospital plus the fee for complicated delivery amounts to 70,000 UGS (27 €). By estimation, 10% of all women coming to the health centre for delivery would need such service. Hence, the premium is calculated at 210 UGS (0.08 €) per individual scheme member per year.

An expensive service thus becomes quite affordable when the risk is spread among all members. In fact, the premium comes down to that of a much less expensive (but more frequent) service.

Services	**Expected consumption**			**Premium calculation**
	% of population	**Expected use**	**Average fee**	**Pure premium**
	A	**B**	**C**	**A x B x C**
Uncomplicated delivery at health centre	0.05	0.60	7,400 UGS	222 UGS
C-section + transport to hospital	0.05	0.06	**70,000 UGS** (27 €)	**210 UGS** (0.08 €)

Source: Waelkens MP (2007) Third phase of the feasibility study: preparing decision-making. Ugandan visit report April 13-30, 2007, commissioned by Cordaid.

Emergency obstetric care: a perceived need

Community health insurance schemes rarely cover all health care services from the start (Bennett & Kelley 2004). Especially in the beginning, the number of members may be too small and the pooled resources too little to do so. Over time - when understanding and confidence grow and the number of members increases - members may be willing and schemes able to add services to the initial package. At the start, members and schemes have to make tough choices. The package on offer reflects a balance between social priorities as defined by members and technical priorities as proposed by scheme managers.

The different inventories of CHI schemes in West Africa carried out by *La Concertation*[2] give an idea about the place of EOC among the services covered. Out of 366 active schemes listed in the 2003 inventory, 55% provided coverage for caesarean section. Only generic drugs and uncomplicated deliveries were included more often in the benefit package (see Table 1). The 2006 inventory[3] confirms the high priority given by scheme members and schemes to emergency obstetric care: caesarean section was covered in 72% of the schemes[4]. Only generic drugs, first-line curative services and uncomplicated delivery were covered more frequently.

[2] *La Concertation entre les acteurs du développement des mutuelles de santé en Afrique*/The Dialogue between the actors of mutual health organizations in Africa: a network including most CHI schemes of West Africa. See http://www.concertation.org

[3] *Inventaire permanent - Afrique - 2006 - Concertation*. See http://www.concertation.org/gimi

[4] We should not consider the apparent increase of C-section coverage from 55 to 72% as significant: the methods of data collection changed, and the 2006 inventory gathers information about 126 active schemes only. Instead of contacting all known schemes individually as was done in 2003, scheme managers were expected to enter their data online. This method may have excluded smaller schemes with less opportunity to cover referral care.

Table 1. Services covered by CHI schemes in the 2003 inventory of La Concertation

Service	Number of schemes that cover this service	Percentage of schemes that cover the service
Generic drugs	285	77.9%
Uncomplicated delivery at first line	212	57.9%
Caesarean section	**201**	**54.9%**
Out-patient care at first line	197	53.8%
In-patient care at first line	185	50.5%
Antenatal care at first line	176	48.1%
Complicated delivery without C-section	166	45.4%
Hospitalisation in medical ward	162	44.3%
Surgery	159	43.4%
Ambulance	136	37.2%
Local transport	57	15.8%

Source: Concertation (2004).

Overall, the services most included in an African CHI package are those that are most frequently needed and used: curative services at first-line level, generic drugs and uncomplicated deliveries. Referral care and transport to a hospital are covered to a lesser extent. Different reasons may explain this choice (PHR*plus* 2004). First of all, from the insurer's side, the inclusion of expensive risks is not an option for small schemes, as it endangers solvency when the number of claims becomes high (Dror 2002). Secondly, from the demand side, CHI members tend to prefer the coverage of relatively frequent events - like ambulatory curative care - because it gives them a tangible return to their financial investment. Health insurance is a fairly new concept: often people are unaware that coverage of rare and expensive risks is the most profitable intrinsic benefit of insurance. Thirdly, from the supply side, quality referral care at a reasonable distance may not be available; but whenever referral is covered, caesarean section is the service most frequently included in the benefit package. This may well reflect that emergency care for childbirth is one of people's priorities.

After inclusion of a service in a scheme's benefit package, copayment - the part of the fee that remains for the beneficiary to pay at the point of use -

may also reflect people's choices. No copayment is asked for caesarean section in 48% of the CHI schemes that include such service according to the 2003 inventory. This is striking given the fact that the introduction of copayment tends to be a standard policy. Caesarean section is often the only service for which no copayment is asked (Concertation 2004).

How scheme members and managers carefully balance inclusion of services and copayment can be illustrated by the choices made in Togo (see Box 2). The current benefit packages include few referral services, but all include caesarean section. Members agree not to include more referral services before gaining sufficient numbers of members. Copayment is compulsory for all first-line services. Indeed, informed members understand that a personal contribution at this level may limit unnecessary use of care. CHI schemes only intervene for 50% of the fee for uncomplicated deliveries. The rationale is that the cost of an uncomplicated delivery is affordable, and that women have enough time to gather the money needed. No copayment however is asked for caesarean section: managers see no need for gatekeeping and people know there is no time to find cash.

Other schemes seem to follow a similar reasoning. In Ghana for example, before the free delivery care policy was implemented, 72% of 47 schemes surveyed covered the full fee of complicated deliveries (Atim *et al.* 2001), while only 29% cover uncomplicated deliveries (PHRplus 2004).

Box 2. C-sections, benefit packages and copayment in Northern and Central Togo

Annual contribution for the CHI schemes of Tidonti, Sikbaog, Kpong and Tammongue in Northern Togo is 1,500 CFA (about 2.3 €) per household member per year. Caesarean section is currently the only referral service included in the benefit package. The schemes pay all expenses for a caesarean section up to a ceiling of 80,000 CFA (122 €). The amount of this ceiling was agreed on and identical to the calculated average expenses for caesarean section at the Dapaong referral hospital. No ambulance is available and arrangements for emergency transport are not yet included in the benefit package. The feasibility of including additional referral services will be studied in the course of 2008.

Since their start in 2004, the four mentioned schemes have registered 359 deliveries. Six women were referred to the hospital due to complicated labour, two of whom had to be assisted by caesarean section.

Two CHI schemes were set up in Central Togo in 2007. They benefited from the experience of the schemes in Northern Togo and were less reluctant to include expensive services. They rightly understood that covering caesarean section is not

necessarily a threat to the financial stability of their scheme, providing membership is large enough and good arrangements are made with the hospital. Consequently, they did not fix a ceiling on coverage for caesarean section and were able to reduce the financial barrier further than their colleagues. In the case of Tchaoudjo, the scheme is currently looking into the possibilities of including emergency care for children with severe malaria, as a second priority after caesarean section.

CHI coverage (proportion of the fee free of copayment)	**Northern Togo: Tidonti, Sikbaog, Kpong, Tammongue**	**Central Togo: Tchaoudjo**	**Central Togo: Sotouboua**
At first-line level			
Curative consultation + generic drugs	80%	70%*	75%*
Normal delivery	50%	50%	50%
Antenatal care	50%	50%	50%
At referral level			
Caesarean section (intervention + hospitalisation)	100%, up to 80,000 CFA (122 €)	100%	100%
Admission for severe malaria in children	-	60%	-

* Including minor surgery, interventions for snake bites, rapid tests and admission for observation

Sources: Scheme evaluations & personal communication with Jean de la Croix Yangnenam (Dapaong) and Graziella Ghesquière (Sokodé).

Supply-side efforts: opportunities for including EOC in insurance packages

The calculation of a premium for inclusion of referral care of any kind into an insurance package is no easy task in low-income countries. Often the information needed is not at hand. Fees for hospital care are often unpredictable. Fee lists may not be transparent or there may be no standardized fees at all. Hospital providers may be reluctant to agree to fixed prices, because they tend to adapt treatment and prices to the financial

capacity of individual patients.

With regard to referral care, the case of emergency obstetric care is gradually moving away from the picture described above. From the insurance point of view, years of supply-side efforts targeting obstetric care have generated better quality EOC in some places, more predictable and/or lower fees for EOC in other places, or a combination of both. Pricing for obstetric care is becoming more transparent than for other health care services. Many hospitals and specialized facilities now offer caesarean sections at a fixed fee, including or not drugs and hospital days. This evolution makes inclusion of EOC in a CHI benefit package less difficult than it used to be. Box 3 provides an illustration of how the combined effect of predictable fees and an alternative high-quality provider can positively influence content and price of a benefit package.

Box 3. Obstetric services covered and reimbursement provided in the Health Project of Dar-Naïm, Nouakchott

The Health Project of Dar-Naïm (*Projet Santé de Dar-Naïm*, PSDN) is a private nonprofit organisation that operates four health facilities (one health centre and three health posts) and supports the CHI scheme *Mutuelle de Santé Communautaire de Dar-Naïm* (MSCDN) in Dar-Naïm, one of the urban departments in Mauritania's capital Nouakchott.

In 2006, the MSCDN reimbursed 60 uncomplicated deliveries at 75% in the PSDN-owned health facilities and three caesarean sections (out of seven women referred with complicated labour) at 100% in a referral hospital. The fee for an uncomplicated delivery was 1,500 ouguyia (UM); the fee for a C-section varied and was on average 26,750 UM (73 €).

In 2007, the MSCDN reimbursed 38 uncomplicated deliveries at 75% in the PSDN-owned health centres and two caesarean sections (out of 8 women referred with complicated labour) at 100% in the same referral hospital. The fee for an uncomplicated delivery was still 1,500 UM; the fee for a C-section was now fixed at 30,000 UM (82 €). The latter fee did not include drugs or hospital days. The scheme reimbursed a maximum of 5,000 UM for complicated delivery without C-section and provided all referred women with an extra 500 UM for transport.

In April 2008, the PSDN signed a contract for referral of women presenting complicated labour with the health centre of Sebkha, a health facility specialising in obstetric care. The contract between the two providers guarantees PSDN a fixed price of 20,000 UM (54 €) for a C-section and of 3,500 UM for a complicated delivery without C-section. These fees include the intervention, the drugs, the hospital days and all related expenses other than transport costs. If drugs are not

available at Sebkha health centre, the latter provider still pays for them.

The PSDN has applied the *Forfait obstétrical* (Renaudin *et al.* 2008) since April 2008. Regardless of the intervention needed, all women presenting for delivery at a PSDN facility are now charged 3,000 UM (the fee asked by other health centres in the area for an uncomplicated delivery). Regardless of the intervention carried out (uncomplicated delivery at the PSDN facility or complicated delivery at Sebkha health centre), reimbursement for MSCDN members is 75%, copayment for the household being 750 UM (2 €). All financial risks are now borne by the provider.

Sources: Project evaluation & personal communication with Bâ Abdoulaye Samba, Nouakchott.

Flexibility and complementarity: added values of community health insurance

The smooth adaptation of a Nouakchott CHI scheme to a changing environment is not incidental. It illustrates a core characteristic of community health insurance: flexibility due to proximity. Indeed, participatory decision-making by end-users enables CHI schemes to adapt swiftly and appropriately to a changing environment. Genuine preoccupation with the interests and demands of the community is noticeable already in the design of a CHI scheme, carried out through a feasibility study; the reimbursement of transport costs for complicated deliveries in Mali before and after 2005 provides an example (see Box 4).

Box 4. Reimbursement of transport costs by CHI schemes in Ségou, Mali, before and after national fee exemption

Despite more than a decade of well-intended health sector reforms, Mali's maternal health records are far from enviable. By the beginning of this century, maternal mortality was still over 570 per 100,000 live births. Absent and inaccessible emergency obstetric care certainly played a role: on average only 0.8 major obstetric interventions were performed per 100 expected births (UON Network 2001).

Against this background, the Malian government declared caesarean section free of charge in July 2005. Unlike in Ghana and Senegal (Witter *et al.* 2008), the exemption was applied to the whole direct cost (the total cost of surgical intervention, drugs, laboratory tests and hospitalisation days for all women presenting at a referral facility with symptoms requiring a C-section). As in Ghana and Senegal, transport (and other indirect) costs were left out. Policy-makers assumed that a national cost-sharing system already in place at referral level* would

make up for this deficiency. Users and CHI schemes deem this cost-sharing mechanism to be complicated and ineffective.

In the central Ségou region of Mali, most CHI schemes constituted before 2005 reimburse 75% of the transport cost for women in complicated labour, despite the presence of a cost-sharing mechanism.

In the same region, all CHI schemes constituted after 2005 reimburse 100% of the transport cost for women in complicated labour. The users' demand voiced in the feasibility study prompted maximum reimbursement from the onset of the scheme.

* Cost sharing is practised through a solidarity fund (*Caisse de Solidarité*) managed at the referral facility, with financial inputs from the parturient, the community organisation owning the health centre in her home village (*ASACO, Association de santé communautaire*), the local government of her home village, and the referral facility.

Source: References mentioned, plus personal communication with Seydou Ouattara and Aly Barry, Ségou.

The complementary potential of CHI reaches beyond financing arrangements. The identification of a CHI scheme with a well-defined community provides an attractive interface between policy-makers, providers and the community. Schemes play a role in organising access to services by connecting services to their intended beneficiaries. Policy-makers, government officials and providers increasingly approach CHI schemes for the social marketing of policy features and services. In Mali for instance, involvement of CHI schemes and ASACOs in communicating the existence of fee exemption for C-section is a common feature and part of the policy implementation.

Performance and effects on utilisation of community health insurance

Experts' perception of CHI's performance and impact is mixed (Bennett 2004; Carrin *et al.* 2005; Ekman 2004), partly due to lack of empirical evidence, partly due to lack of a uniform framework for analysis. In a recent review of different financing mechanisms for maternal health, insurance was praised because it allows households to pay when they can, because it reduces uncertainty and because it can be used to encourage referrals. At the same time the authors were critical of the potential of insurance. Premiums

unaffordable to the extreme poor, limited financial sustainability of schemes, limited risk pooling and the interpretation of pregnancy as "not a typically insurable risk" were described as disadvantages of insurance in financing maternal health (Borghi *et al.* 2006).

As far as CHI's effect on delivery in a health care facility is concerned, studies carried out on behalf of PHR*plus* in Mali (Diop *et al.* 2006, Franco *et al.* 2006) and Senegal (Diop *et al.* 2006) suggest higher service utilisation among scheme members than among non-members, but most schemes scrutinised in these studies are even more small-scale than the African average, limiting both the schemes' potential and the study findings' external validity.

Findings from two larger schemes in the DR Congo (Criel *et al.* 1999) and Ghana (Diop *et al.* 2006; Sulzbach *et al.* 2005) offer a clearer picture. Both schemes specifically aim to improve access to hospital care, including emergency obstetric care. In the DR Congo, membership of the Bwamanda scheme led to a higher uptake of C-sections. The relative increase in C-section rates was even more pronounced for communities living far away from the hospital, suggesting that the scheme actually helped to overcome geographical barriers to hospital utilisation. In Ghana, membership of the Nkoranza Community Health Plan was associated with a 12% increase in institutional deliveries. Insured women in Nkoranza were twice as likely to benefit from C-section as uninsured women (Sulzbach *et al.* 2005).

Conclusion: a role for community health insurance in emergency obstetric care

In this paper, we presented four arguments for the potential contribution of community health insurance to improve access to emergency obstetric care.

First on technical grounds, risk sharing for a rare event compensates for the price to pay. It makes emergency obstetric care an exemplary candidate for health insurance, regardless of pregnancy itself being a typically insurable risk.

Second, evidence from a large number of African CHI schemes indicates that financing emergency obstetric care through CHI is a prioritised response to a perceived need at both demand- and supply-side. Evidence from Togo shows that realising this ambition does not have to be restricted

only to big schemes (although we recognise that size helps).

Third, recent improvements in the supply of emergency obstetric care, especially predictable fees and better services, provide a major opportunity to include emergency obstetric care in a scheme's benefit package.

Fourth, community health insurance has an important added value due to its intrinsic user-centred design. It can flexibly and appropriately adapt to a changing environment. Whatever the other financing mechanisms for emergency obstetric care in place, the remaining cost will never be zero for the end-user. The complementarity of community health insurance with other interventions aiming at improving access to quality EOC is thus highly welcomed. This complementarity exceeds the financial domain as schemes expand their role as intermediaries between health professionals and the population.

Acknowledgements

The authors wish to thank Jean de la Croix Yangnenam and Graziella Ghesquière for data from Togo, Bâ Abdoulaye Samba for data from Mauritania, and Seydou Ouattara and Aly Barry for data from Mali. The authors assume full responsibility for their interpretation of these data.

References

Agyepong I & Adjei S (2008) Public social policy development and implementation: a case study of the Ghana National Health Insurance Scheme. *Health Policy and Planning* **23**(2), 150-60.

Atim C, Grey S, Apoya P, Anie S & Aikins M (2001) A survey of health financing schemes in Ghana. Partners for Health Reform*plus*, Abt Associates, Bethesda, MD.

Bennett S (2004) The role of community-based health insurance within the health care financing system: a framework for analysis. *Health Policy and Planning* **19**(3), 147-58.

Bennett S & Kelley A (2004) 21 questions on CBHF: an overview of community-based health financing. Partners for Health Reform*plus*, Abt Associates, Bethesda, MD.

Borghi J, Ensor T, Somanathan A, Lissner C & Mills A (2006) Mobilising financial resources for maternal health. *Lancet* **368**(9545), 1457-65.

Carrin G, Waelkens MP & Criel B (2005) Community-based health insurance in developing countries: a study of its contribution to the performance of health financing systems. *Tropical Medicine & International Health* **10**(8), 799-811.

Concertation (2004) Inventaire des mutuelles de santé en Afrique: synthèse des travaux de recherché dans 11 pays. La Concertation entre les acteurs de développement des mutuelles de santé en Afrique, Dakar.

Criel B, Van der Stuyft P & Van Lerberghe W (1999) The Bwamanda hospital insurance scheme: effective for whom? A study of its impact on hospital utilization patterns. *Social Science & Medicine* **49**(7), 897-911.

Criel B, Waelkens MP, Soors W, Devadasan N & Atim C (2008) Community health insurance in developing countries. In Kris Heggenhougen and Stella Quah (Eds). *International encyclopedia of public health*, Volume 1, Academic Press, San Diego, CA, pp 782-91.

Diop F, Sulzbach S & Slavea C (2006) The impact of mutual health organizations on social inclusion, access to health care, and household income protection: evidence from Ghana, Senegal, and Mali. Partners for Health Reform*plus*, Abt Associates, Bethesda, MD.

Dror D (2002) Health insurance and reinsurance at the community level. In David Dror and Alexander Preker (Eds) *Social reinsurance: a new approach to sustainable community health financing*, Geneva, ILO & Washington, the World Bank.

Ekman B (2004) Community-based health insurance in low-income countries: a systematic review of the evidence. *Health Policy and Planning* **19**(5), 249-70.

Franco L, Simpara C, Sidibé O, Kelley A, Diop F, Makinen M, Ba A & Burgert C (2006). Equity initiative in Mali: evaluation of the impact of mutual health organizations on utilization of high impact services in Bla and Sikasso districts in Mali. Partners for Health Reform*plus*, Abt Associates, Bethesda, MD.

ILO (2003) Extending maternity protection to women in the informal economy: an overview of community-based health-financing schemes. International Labour Organisation, Geneva.

Kowalewski M, Mujinja P & Jahn A (2002) Can mothers afford maternal health care costs? User costs of maternity services in rural Tanzania. *African Journal of Reproductive Health* **6**(1), 65-73.

Ndiaye P, Soors W & Criel B (2007) A view from beneath: community health insurance in Africa. *Tropical Medicine & International Health* **12**(2), 157-61.

PHR*plus* (2004) MHOs and reproductive health: using mutual health organizations to promote reproductive health. Partners for Health Reform*plus*, Abt Associates, Bethesda, MD.

PHR*plus* (2006) Catalogue of community based health financing schemes: Rwanda. Community Health Financing Association for Eastern Africa, Kampala.

Renaudin P, Abdelkader MO, Abdelaziz SMO, Mujtaba MO, Saleck MO, Vangeenderhuysen C & Prual A (2008) Risk sharing as solution for providing access to emergency obstetric care: experience with obstetric risk insurance in Mauritania. *Studies in Health Services Organisation & Policy* **24**, 85-114.

Richard F, Ouédraogo C, Compaore J, Dubourg D & De Brouwere V (2007) Reducing financial barriers to emergency obstetric care: experience of cost-sharing mechanism in a district hospital in Burkina Faso. *Tropical Medicine & International Health* **12**(8), 972-81.

Smith KV & Sulzbach S (2008) Community-based health insurance and access to maternal health services: evidence from three West African countries. *Social Science & Medicine* **66**(12), 2460-73.

Storeng KT, Baggaley RF, Ganaba R, Ouattara F, Akoum MS & Filippi V (2008) Paying the price: the cost and consequences of emergency obstetric care in Burkina Faso. *Social Science & Medicine* **66**(3), 545-57.

Sulzbach S, Garshong B & Banahene G (2005) Evaluating the effects of the National Health Insurance Act in Ghana: baseline report. Partners for Health Reform*plus*, Abt Associates, Bethesda, MD.

UBOS (2006) 2002 Uganda population and housing census. Uganda Bureau of Statistics, Kampala.

UON Network (2001) Tackling unmet needs for major obstetric interventions, case studies: Mali. Institute of Tropical Medicine, Antwerp.

Waelkens MP (2007) Third phase of the feasibility study: preparing decision-making. Ugandan visit report April 13-30, 2007. Cordaid, The Hague.

Witter S, Armar-Klemesu M & Dieng T (2008) National fee exemption schemes for deliveries: comparing the recent experiences of Ghana and Senegal. *Studies in Health Services Organisation & Policy*, **24**, 167-98.