

Review article

Overcoming barriers to health service access: influencing the demand side

TIM ENSOR AND STEPHANIE COOPER

International Programme, Centre for Health Economics, University of York, York, UK

Evidence suggests that demand-side barriers may be as important as supply factors in deterring patients from obtaining treatment. Yet relatively little attention is given, either by policy makers or researchers, to ways of minimizing their effect. These barriers are likely to be more important for the poor and other vulnerable groups, where the costs of access, lack of information and cultural barriers impede them from benefiting from public spending.

Demand barriers present in low- and middle-income countries and evidence on the effectiveness of interventions to overcome these obstacles are reviewed. Demand barriers are also shown to be important in richer countries, particularly among vulnerable groups. This suggests that while barriers are plentiful, there is a dearth of evidence on ways to reduce them. Where evidence does exist, the data and methodology for evaluating effectiveness and cost-effectiveness is insufficient. An increased focus on obtaining robust evidence on effective interventions could yield high returns. The likely nature of the interventions means that pragmatic policy routes that go beyond the traditional boundaries of the public health sector are required for implementing the findings.

Key words: demand-side barriers, utilization, financing, interventions

1. Introduction

Evidence that the poor often benefit less from public spending is well established in the literature (Demery 2000; Makinen et al. 2000). The reason why the poor do not make more use of public services is driven by both supply and demand factors. The report on Macroeconomics and Health reinforced the need to overcome the substantial barriers to access that exist for the poorest (Sachs 2001). The focus of much health policy intervention has been on reducing supply barriers. Delivery of essential services concentrates on improving the quality of staff skills, protocols of treatment, availability of supplies and environment of health facilities. Yet while these interventions are important, they do not address many of the barriers to accessing services faced by a patient in a low-income country. Whether and where to go for treatment starts well before arrival in a facility and requires a myriad of complex, and potentially confusing, choices to be made. Often, health services of a reasonable quality exist, but few use them. Just as important are the physical and financial accessibility of services, knowledge of what providers offer, education about how to best utilize self- and practitioner-provided services and cultural norms of treatment.

In the next section, we review some of the principal demand-side barriers within the context of an economic framework of the demand for health care. These are illustrated by evidence on the importance of barriers in a variety of mainly low- and

middle-income countries. In section three, a description of actual interventions to reduce demand barriers is presented together with available, limited, evidence on their effectiveness. The final section discusses gaps in current knowledge and ways in which work on demand-side interventions might be extended.

2. Demand-side barriers

One illustration of the importance of demand-side barriers is provided by a survey of obstetric choices in Bangladesh (Barkat et al. 1995 reported in Piet-Pelon et al. 1999) (Table 1). In this survey, the majority of the most important reasons for not seeking emergency obstetric care were found to be demand factors.

Most of the standard economic frameworks of health care utilization model both supply and demand sides (Table 2). In this paper, demand-side determinants are defined as those factors that influence demand and that operate at the individual, household or community level. In contrast, supply-side determinants are those that influence the slope and position of the supply curve. Supply is determined by factors, derived from the health care production function, that interact to produce effective health care services, as follows:

$$Q_s = S(\text{factor prices/availability, technology, management, price})$$

Factor prices are the prices of those items required to

Table 1. Reasons for not seeking care in obstetric emergencies in Bangladesh

Supply or demand?	Reason	Percentage
DEMAND	Do not know about emergency problems	59.5%
DEMAND	Financial costs are relatively high	45.5%
DEMAND	Do not know about the availability of specific service at the facility	39.3%
SUPPLY	Required medicines not always available	38.2%
DEMAND	In-laws object	35.6%
DEMAND	Religion does not permit going outside of the house, especially during pregnancy	35.3%
DEMAND	Shyness	32.3%
DEMAND/SUPPLY	Facility too far from home	28.3%
SUPPLY	Doctor not available when needed	25.2%
DEMAND	Poor communication to facilities	17.8%
DEMAND	Husband objects	17.0%
SUPPLY	Difficult to get admission	14.1%
SUPPLY	Attitude of service providers to clients not very friendly	5.6%

Source: Adapted from Piet-Pelon et al. (1999)

Table 2. Supply and demand barriers to utilization of health care

	Example of barrier
Demand side	
1) Information on health care choices/providers	Lack of knowledge of providers
2) Education	Low ability to assimilate health choices and negotiate access to appropriate providers
3) Indirect consumer costs	
• distance cost	Long and slow travel to facilities
• opportunity cost	Need for patient and carer to stop working for long periods in order to seek care
4) Household preferences	Asymmetric control over household resources
5) Community and cultural preferences, attitudes and norms	Reluctance to seek health care for women outside home; community resistance to using modern medical care to assist with pregnancy
6) Price and availability of substitute products and services	Patients seek treatment through providers that are inappropriate for their condition such as drug sellers
Demand and supply interaction	
Direct price of service of a given level of quality (including informal payment)	High cost of services
Quantity rationing	Large unofficial payments to staff Long waits to see medical staff
Supply side	
1) Input prices and input availability	
• Wages and quality of staff	Absenteeism, staff not attracted to the area
• Price and quality of drugs and other consumables	Scarcity of supplies, weak cold chain
2) Technology	Inability to treat disease with given technology
3) Management/staff efficiency	Poor quality of management training, lack of management systems

‘produce’ treatment, such as staff time, capital equipment and buildings, consumables and land. In a market system, prices signal availability and quality. Within a public distribution system, the role of prices is a little different since they usually do not rise in response to shortage. Rather, scarcity is signalled by actual delays in the supply chain and variations in the quality of supplies. Factors are combined subject to available technology and management capability of the provider. The supply price also helps determine the level of production. In a public system this may be replaced by plans for a required level of production, which is in turn constrained by available budget.

On the demand side, the economic literature is dominated by

adaptations of the Grossman model that analyze individual investment and consumption decisions to improve health and utilize health care (Grossman 2000). Demand is influenced by factors that determine whether an individual identifies illness and is willing and able to seek appropriate health care. The model leads to a demand for health care of a given quality that is determined by individual and community factors as well as the price of medical care and other similar goods. This can be written as:

$$Q_d = D(\text{individual/household factors, community factors, prices})$$

Individual (and household) factors include age, sex, income,

education and knowledge about the characteristics of, and need for, medical treatment. Community factors include cultural and religious influences and other social factors that affect individual preferences. Price is a complex variable and includes the direct price and distance cost, opportunity (time) cost of treatment – since treatment can be time consuming – and any informal payments made to the facility for commodities or to staff. Also included are prices for substitute commodities that impact on health (PH), since individuals have some scope for choosing healthy lifestyles, safer employment or better nutrition in order to improve health or reduce the probability of ill health.

The determinants of demand and supply may in turn generate 'barriers' to utilization that arise when factors influence these determinants in a way that reduces utilization of services. Some of these barriers are illustrated in Figure 1.

In the paper, we focus on those demand factors that can be controlled at the community, household or individual level and are amenable to policy intervention. Individual characteristics that determine need, such as age and sex, are not considered since they cannot be controlled. The effect of gender on access to household resources is discussed however. The analysis does examine the effect of education, information and non-supply user costs of services since these are amenable to interventions. It may also be possible to influence community and cultural factors if they arise as a result of misinformation or inappropriate service configuration. We do not consider the role of income, although this is one of the most important factors in determining health spending and seeking behaviour (Gerdtham and Jonsson 2000). In principle, incomes are amenable to control but they are assumed to be mainly affected by wider economic policies outside the specific control of the health sector. We do not consider the direct price of health services, the price of alternative health services and the relative prices of other health-enhancing inputs since these are mostly related to supply of services.

Education and information

The effect of education and information can be divided into two categories. First, there is the impact of basic education on the demand for services. Education, which is often measured by level or duration of schooling, has been shown to be the most important correlate of good health (Grossman and Kaestner 1997). A study in Pakistan, for example, found

that maternal schooling was the most important factor in determining child survival (Agha 2000). A recent comparative article examining pre-requisites for successful development suggested that a high education base is a major determinant of above-average social development (Mehrotra 2000).

Education as a determinant of health care utilization is a more complex variable. To some extent, education can improve the ability of individuals to produce health themselves through better lifestyles rather than relying on health services. Yet there is also much evidence that better basic education can, through general improvements in literacy and specific health studies, increase desired and actual use of health services. Studies across a number of countries have, for example, indicated the importance of maternal education on the use of obstetric services (Cleland and van Ginneken 1988; Raghupathy 1996).

Education provides the consumer with the basis for evaluating whether they or a dependent require treatment. Information on the best places to seek care is additionally required. While it is sometimes suggested that individuals are unable to assimilate information on treatment options, this assumption is challenged by recent work in Tanzania (Leonard et al. 2001; Leonard 2002). These studies suggest that, far from being passive consumers, patients actively seek out not only the best-known provider but the best facility for a particular illness. Perceptions of quality do, in fact, accord quite well with technical evaluations.

The second knowledge effect is the specific impact of information on health and health care. Both education and information may be interlinked since the ability to assimilate health messages is likely to be determined in part by the level of general education. The impact of information on treatment options and desirable health seeking behaviour is also important in determining demand. One study finds that lack of information on the malign effects of excessive antibiotic use has a substantial positive effect on a preference for self-medication over use of health facilities (Okumura et al. 2002). There is also a substantial literature indicating that demand for family planning services is impeded by a lack of correct knowledge of contraceptive choices and side-effects (for example DeClerque et al. 1986; Donati et al. 2000).

The importance of misinterpreting health messages given out

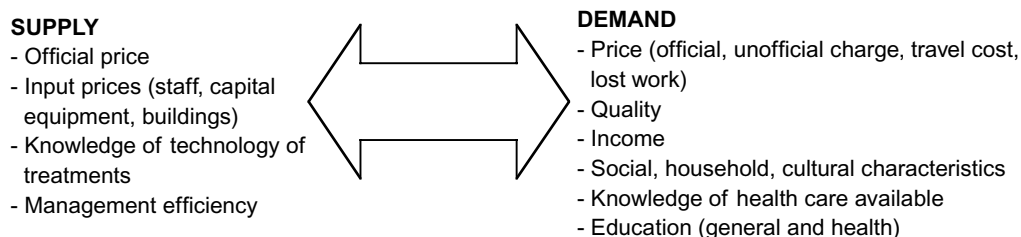


Figure 1. Supply and demand barriers to utilization of health care

by staff is demonstrated in a number of studies. One, examining the reasons for choosing delivery sites in Uganda, suggests that if a woman is told during ante-natal care that there are 'no problems', this is often interpreted as a sign that the delivery itself will be normal and that therefore attendance at a facility is not required (Amooti-Kaguna and Nuwaha 2000).

Consumer cost barriers

In this section we are concerned with the other costs to consumers, rather than those incurred when a user is at a facility.

There is much evidence to suggest that distance to facilities imposes a considerable cost on individuals and that this may reduce demand. In studies reviewed for this article, transport as a proportion of total patient costs (including facility costs not financed by the user) was found to be 28% in Burkina Faso, 25% in northeast Brazil and 27% in the United Kingdom (Sauerborn et al. 1995; Frew et al. 1999; Terra de Souza et al. 2000). Another study in Bangladesh suggested that it was the second most expensive item for patients after medicines (CIETcanada 2000).

Location and distance costs are often seen to negatively impact service utilization. A study in Vietnam found that distance is a principle determinant of how long patients delay before seeking care (Ensor 1996). Another, in Zimbabwe, suggested that up to 50% of maternal deaths from haemorrhage could be attributed to the absence of emergency transport (Fawcus et al. 1996). At the same time, distance is also cited as a reason why women choose to deliver at home rather than at a health facility; see, for example, studies in the Philippines (Schwartz et al. 1993), Uganda (Amooti-Kaguna and Nuwaha 2000) and Thailand (Raghupathy 1996).

The impact of location is not confined to low-income countries. One US study found that patients living more than 20 miles away from a hospital are much less likely to visit ambulatory services for after-care following myocardial infarction (Piette and Moos 1996). In Japan, one study found that access to follow-up treatment after treatment for cerebrovascular disease was considerably influenced by access to suitable transportation (Tamiya et al. 1996).

Distance may also have a differential impact across income groups. A study in Australia found that the impact of costs fell most heavily on the poor (Rankin et al. 2001). Qualitative evidence in Vietnam suggests that poorer households usually have access to inferior transport in the event of illness (Segall et al. 2000).

Consuming health care can be time intensive. Both patients and relatives may have to give up long periods of work (or leisure) in order to receive treatment. This represents an important cost to individuals, particularly during peak periods of economic activity such as harvest time. A study in Australia found that indirect costs account for 60% of the costs of treatment for surgery for patients from rural areas (Rankin et al. 2001). Convenience of opening hours, an

indicator of the importance of taking time off work, was found to be important in both Vietnam and Ghana in determining service use (Bosu et al. 1997; Segall et al. 2000).

Opportunity costs vary for different groups. A recent study in Pakistan, for example, found that compliance is more easily improved in those who are not economically active since they are more likely to have time to attend for treatment (Khan et al. 2002). In Uganda it was found that poorer patients were willing to travel considerable distances searching for better facilities, perhaps because their opportunity costs (see below) were lower (Akin and Hutchinson 1999). Similar results are borne out in studies of the private sector in India, where the search for quality (a supply variable) is often seen to override the distance cost and leads to complex and lengthy search strategies (Shenoy et al. 1997; Bhatia and Cleland 1999). These findings must, however, be balanced by the other effects of lower income that are often a consequence of lower opportunity costs.

Financial barriers may also interact with other demand barriers. One study in Kazakhstan, for example, found that the education of the household head or the care-seeker was an important determinant of the willingness to travel long distances to obtain treatment (Thompson et al., forthcoming).

Community and household barriers

The Voices of the Poor cross-country study found general agreement that men were invariably given preferential access to health care over women (Narayan 1997). Studies in Bangladesh, India and Côte d'Ivoire (although not in Peru, where the opposite result is reported) found that girls were much more likely to visit health care facilities and benefit from public and household health care expenditure (Gertler and van der Gaag 1990; Booth and Verma 1992; Begum and Sen 2000). Another study in India found that while a bias to boys existed, this was reduced when the household head was more highly educated. The reason for these differences is related to both cultural patterns and social factors within the household and wider community.

Cultural norms, such as purdah restrictions, can prevent women from seeking health care outside the home for themselves and their children (Rashid et al. 2001). This barrier is often raised still further when men provide services, and has been offered as one reason why Asian women living in Western countries often make little use of health services (Whiteford and Szilag 2000). Such restrictions may also interact with other barriers. One study in India found that distance was a much greater barrier to women than to men with similar incomes (Vissandjee et al. 1997). This may be because it is culturally unacceptable for women to leave their homes for long periods, or it could reflect less access to household resources to pay for transport.

Another example of culture as a barrier to using services is the perception among the Alur people of Uganda and the Bariba tribe of Benin that help with delivery indicates 'weakness' (Ndyomugenyi et al. 1998; Bhatia and Cleland

2001), and another is the unacceptability of modern contraception among men in parts of Pakistan (Casterline et al. 2001).

A related issue is that men often make decisions on care-seeking for women. In Senegal, for instance, a study found that more than 50% of decisions regarding female treatment were made by men (Post 1997). This is particularly important since, as one study in Bangladesh, South Africa, Indonesia and Ethiopia found, male decision-makers often spend less than women on social items (Quisumbing and Maluccio 1999). In a number of South Asian societies, the mother-in-law dominates decisions on childbirth and care related to pregnancy, particularly in early marriage. In these circumstances, whether a woman is delivered at home by a family member, by a traditional birth attendant (TBA) or at a health facility much depends on the beliefs of the mother-in-law (Piet-Pelon et al. 1999). At the community level, the TBA is also vital in influencing demand. One study in Rajasthan found that more than 90% of women who did not obtain referral care were advised against such care by the TBA (Hitesh 1996).

Two important factors influencing the effectiveness of the female voice in household decision-making are the extent to which female members are educated and contribute to household income. Quisumbing and Maluccio (1999) found that the difference in education between male and female members is crucial in determining influence. In a survey in Senegal, researchers found that in more than half of the cases decisions on care-seeking for women were made by the husband or other senior family member (quoted in Post 1997). A spokesperson for one Bangladeshi NGO reinforced this point:

*“One [women’s] group shared with me that a major change for their group members was that they were now included in family discussions, because they were literate and earning money. If a woman has no voice in the family, it doesn’t matter whether she knows she needs medical care or not, the decision will be made by her parents-in-law and/or her husband”.*¹

Increasing demand is therefore far more complex than simply the provision of health education advice or information, but is also strongly related to the relative position and education of family members. As suggested by one Indian study, when women cannot contribute through superior education or through income earning, their position is maintained through household chores (Ramasubban and Rishyasringa 2000). The completion of these duties may mitigate against them receiving care in the event of illness. This reinforces opportunity cost as a factor in reducing demand, not so much through any significant effect on total household earnings but in the lost position within the household hierarchy.

3. Intervening to reduce barriers

In this section we review available literature on the nature and impact of actual demand-side interventions. A review

was carried out based on a structured search of key electronic databases, websites of international agencies and non-government organizations and a series of key informant contacts with researchers working in related fields. More details of the strategy are provided in Ensor and Cooper (2002).

Why intervene?

Justification to intervene to reduce demand barriers can be divided into market failures and pursuance of social equity (Hurley 2000). Even once an efficient competitive provider network has been established, two key market failures may impede effective demand for health care. A key assumption for the efficient functioning of a market is that adequate and symmetric information is available to both buyers and sellers of the commodity. Yet often in health care markets, the lack of information or inability to assimilate and utilize the information on health care means that consumers are unable to make informed decisions. Providing education and information to individuals, households and communities is a way of dealing with informational gaps.

A further market failure issue is that health care markets are underpinned by considerable uncertainty, which means that consumers often find it difficult to spread risk and make sufficient resources available at the time of ill-health. It is well established that even in countries where insurance and capital markets are well developed, market failure that prevents the adequate coverage of catastrophic costs often persists. The problem is generally more acute in low- and middle-income countries where these markets are underdeveloped or nearly nonexistent.

The second main justification to intervene is where other means to allocate economic resources to individuals on an equitable basis have failed. In this case, some groups in society will be unable to meet their health care needs because of either the underlying income distribution or differences in intra-household bargaining power. This might lead to interventions to target resources at those in need but unable to access services.

Most of the barriers discussed in the previous section can be related to one or more market or equity failure (Table 3, adapted from the demand determinants listed in Table 2). Information and education are related to failures either in the form of knowledge of health care choices or in the ability to utilize this information in an effective way. To some extent, cultural and community barriers may also be related to information failures where they arise as a consequence of a lack of information about what constitutes medical provision and how patients will be treated once at a facility. So, for example, information might be used to reassure female patients that they will be treated by a female doctor. Community and cultural factors are clearly more complex and may also necessitate combined supply and demand-side interventions to bring appropriate services to the community, such as the door-to-door delivery of contraceptive services or provision of a skilled attendant at a home delivery. Consumer costs are the result partly of income distribution and partly

Table 3. Types of intervention to reduce demand barriers

	Example of barrier	Possible market failure	Example of interventions	
			Supply	Demand
1) Information on health care choices/providers	Lack of knowledge of providers	Information & education	Staff conduct outreach to provide services	Provide information on when to seek care and range of providers; accreditation systems to indicate better providers
2) Education	Low ability to assimilate health choices and negotiate access to appropriate providers	Information & education		Improve access to primary education, particularly for girls Stimulate demand using financial incentives to seek treatment
3) Indirect consumer costs				
• distance cost	Long and slow travel to facilities	Uncertainty & equity	Provide an emergency transport service with communication system; increase outreach work and numbers of peripheral facilities; more flexible working times	Transport loan funds; provision of cheap/flexible transport
• opportunity cost	Need for patient and carer to stop working for long periods in order to seek care	Uncertainty & equity		Incentives to reduce cost of lost-working time
4) Household preferences	Asymmetric control over household resources	Equity	Lower user charges for certain groups	Target subsidies at members of household with least access to services
5) Community and cultural preferences, attitudes and norms	Reluctance to seek health care for women outside home; community resistance to using modern medical care to assist with pregnancy	Information & education	Culturally sensitive health care delivery	Information to correct misapprehensions
6) Price and availability of substitute products and services	Patients seek treatment through providers that are inappropriate for their condition such as drug sellers	Information		Information on best treatment for disease

of lack of mechanisms to spread risk across the population or across time (so that individuals can pay for care when they can afford it rather than at the time of illness). The effect of household choices in preventing access to care to certain members is likely to be mainly the result of intra-household inequity.

Two qualifications are important in discussing interventions. A first qualification is that barriers to consumption do not necessarily indicate market failure. Consumers will always bear some cost of consumption even where income is equitably distributed and good mechanisms for risk-pooling exist. Similarly, community reluctance to use care may partly or fully represent a rational, informed choice not to use services offered. Secondly, even where a market failure does exist, it may turn out that the costs of reducing the consequent barrier exceed the benefits. This highlights the importance of closely monitored pilot interventions to determine whether it is in the interests of the population as a whole, and not just a particular community or individual, to intervene.

Interventions to reduce demand-side barriers arising from

these market failures could be of either a demand or supply-side nature (see columns 4 and 5, Table 3). Distance costs can be minimized either by providing community-based financing to meet the immediate costs of travel (demand-side intervention) or by providing an emergency transport service (supply-side intervention). Similarly, cultural concerns about the appropriateness of services might be alleviated partly by information (demand-side) but also by making services themselves more appropriate to the community (supply-side).

One of the difficulties in evaluating evidence on demand barrier impact is that the setting for the natural experiments often makes it difficult to attribute causation to the intervention being tested. Ideally, the intervention should be implemented either at a time when few other factors are changing or when these factors can be measured and their confounding impact adjusted.

A striking aspect of the search was that while much literature was found on barriers, far less was uncovered on the means to reduce these barriers. Still fewer studies provided

documented evidence of the impact of the interventions. The studies obtained during the search were dominated by reproductive health examples, many from the obstetric care literature, and this is reflected in the literature discussed below. The studies examined are divided into the same three sections used in Section 2.

Education and information

The concept of demand barriers is well recognized in the literature on maternal health, which has been formalized in the delays model (Maine 1997). This proposes three barriers to accessing care: delay in the decision to seek care, delay in getting to the facility and delay in obtaining the appropriate care once at the facility. The first two delays can be classified as demand barriers. The first delay is largely an issue of information and education, although it is also likely to be a decision based on availability of resources at time of need and so relates to lack of risk-pooling and intra- and inter-household equity, too. The second delay is likely to be largely a financial issue relating mainly to availability of resources. It could also be determined by ignorance of appropriate transport or means of accessing funds to pay for the costs.

A variety of interventions have been conducted to overcome these delays. Many of them were implemented through the Prevention of Maternal Mortality (PMM) network, although there is also evidence from a range of other sources.²

Interventions aimed at improving education and information have frequently centred on the training of community educators. These are generally women living in the target communities who can convince families of the need to obtain maternal care and help to facilitate admission to hospital in an emergency. Three such schemes in Nigeria, Sierra Leone and Ghana all led to a substantial increase in admission to hospital for normal and complicated deliveries (Kandeh et al. 1997; Nwakoby et al. 1997; Opoku et al. 1997). An NGO in Bangladesh trained TBAs to provide advice on referral and to assist women in getting to hospital when necessary (Barbey et al. 2001), whilst an education initiative in Malawi reported a three-fold increase in use of hospitals or clinics for postpartum care and a doubling in delivery care (Gennaro et al. 2001). Another campaign, in Kebbi State, Nigeria, reported a positive impact on awareness of obstetric complications but no impact on referrals (Gummi et al. 1997). One problem was that other factors, particularly a decline in real incomes, was thought to confound the positive impact on utilization arising from the education. Unfortunately, no attempt was made to adjust for these factors.

One cross-country project implemented community education, transport and training for TBAs in Indonesia, Bolivia and Guatemala in order to stimulate use of essential obstetric care (EOC) (Kwast 1995; 1996). Although no results are reported for the Javan interventions, substantial increases in referrals are reported in both Guatemala and Bolivia. The projects' aim was to highlight the improvements that could be made to referrals and maternal mortality through community level (demand-side) interventions. No information is provided in the studies on the costs of intervening.

Consumer cost barriers

A variety of interventions helped to reduce the delay in reaching a facility. In northwest Nigeria, a project worked with transport unions to provide reliable and affordable transport (Shehu et al. 1997). A seed fund for the cost of fuel was provided, which was replenished with contributions from users. Drivers were trained to be respectful to those using the transport by avoiding smoking, talking loudly or showing impatience. A project in Sierra Leone provided radios to summon vehicles to take women to hospital in the case of obstetric emergency (Samai and Sengeh 1997). Both interventions report a substantial increase in the number of people visiting hospital.

Another group of interventions have helped to develop community loan funds which are used by those who need to pay for transport as well as other costs of health care. One of the studies, in Sierra Leone, compared a district that developed such funds with non-intervention communities and found a doubling of obstetric admissions in the former compared to no change in the latter (Fofana et al. 1997). The report suggests that only two out of six communities initially targeted actually succeeded in establishing funds because of relatively stronger leadership. In Nigeria, an evaluation of a loan project concentrated solely on the number of loans given and their repayment (more than 93%) within the first year (Chiwuzie et al. 1997; Essien et al. 1997). The project is considered a success within these relatively narrow parameters, although concerns have been raised about fund depletion and the need to raise the rate of interest to offset the cost of loan defaulters. A breakdown of costs indicates that project money spent on loans accounts for around 58%, implying a relatively high administrative cost. Start-up and ongoing costs are not separated, so it is hard to measure the recurrent costs of administration.

A further intervention used to overcome distance barriers is to establish maternity waiting homes near district hospitals. Two such interventions in Zimbabwe and Ethiopia report high use of hospitals and low rates of complications for the subsequent delivery (Poovan et al. 1990; Spaans et al. 1998). No attempt was made to check for possible selection bias arising from certain types of women using these facilities. In two other countries, Ghana and Zaire, similar interventions were less positively received, largely because the facilities were situated in rather desolate surroundings without good facilities for preparing meals (Hildebrandt 1996; Post 1997). These studies emphasize the importance of consulting with the community on the potential intervention before an investment is made.

That transport networks are important in influencing demand is recognized by the increasing number of social protection loan projects that are financing some upgrading of local road networks. Examples were found, for example, in World Bank social protection projects in Argentina, Georgia, Burundi, Madagascar and Vietnam (see World Bank project website <http://www.worldbank.org/> and go to 'projects and programs'). However, only one of these (Burundi) had specific reference to investment in roads as a way of improving access to health care.

The proliferation of community insurance schemes, in principle, provides a way of addressing demand-side barriers by incorporating these costs into the overall benefits package. Yet none of the recent reviews of community schemes mention that such costs are, in practice, covered (see for example Atim 1998; Bennett et al. 1998). One exception is a scheme in Samburu district, Kenya, which covers transport costs as high as US\$60 per year for a household premium of US\$5 per year (Macintyre and Hotchkiss 1999). The scheme is only evaluated in terms of numbers of members and no evidence of the effect on utilization is offered.

Interventions that cover the indirect opportunity costs to users have been stimulated by a growing appreciation that one of the inhibitors to the continuation of treatment is the need to regularly present for therapy. Payments may compensate patients for time off work, travel and general inconvenience. One review of studies, mostly from the United States, found that in 10 out of 11 studies, meeting certain criteria payments had a positive impact on compliance (Giuffrida and Gravelle 1998).

Treatment of tuberculosis is particularly suited to this type of intervention since treatment is extremely intensive and the externalities of non-treatment are significant. A recent review identified 26 separate schemes, across low-, middle- and high-income countries, which offer inducements including food and transport subsidies in return for clinic attendance. One project in Haiti made financial payments to cover travel, nutrition supplementation and income lost during treatment (Farmer et al. 1991). Evaluation indicated that all those receiving treatment recovered, whereas 46% of those in a control group still had the disease after 1 year.

Community, household barriers and supply-side responses

It is difficult to identify interventions that are primarily focused on the alleviation of cultural or household demand barriers. Many of the interventions appear to address a number of market failures caused by a variety of factors. A number of supply-side responses to demand barriers appear to address consumer cost and information barriers and in addition provide services to a community that are more culturally appropriate.

Many of the efforts to stimulate demand for family planning services have focused upon the delivery of services within the community. This strategy, usually known as community-based delivery, takes supplies into the villages, and even the homes, of potential users. The strategy may help to overcome a multiplicity of demand-side obstacles, including ignorance of family planning products, cultural reluctance by men and women to seek contraceptives in public facilities and minimization of household costs. It may also motivate people to use other services. In India, for example, family planning workers help to stimulate the demand for child health services at the same time as offering family planning advice (Srivastava and Bansal 1996). One review of community delivery in Africa suggested a generally positive impact on contraceptive prevalence (Phillips et al. 1999). Little attention was given to the cost-effectiveness or sustainability of such schemes.

The strategy of doorstep delivery of family planning services to rural households in Bangladesh is increasingly being seen as a successful way of overcoming consumer cost and social objections to women obtaining services outside the home (Arends-Kuenning 1997). It is now felt that significant improvements in the contraceptive prevalence rate have rendered this expensive policy unnecessary. Recent changes in policy have begun re-orientating the focus of delivery to community clinics rather than door-to-door provision (GOB 1998). It is not yet known what impact this will have on use of services.

4. Conclusion

The review in Section 2 indicates the importance of demand-side factors in determining access to services. The findings in Section 3 suggest that evaluation of effective ways to reduce these barriers is an under-researched area, but one where the policy implications are potentially substantial. The evidence suggests that interventions can be successful in raising demand, provided that supply is also improved. It suggests that in designing interventions, the communities should be fully involved in order to ensure that the resulting solution is socially acceptable. Further conclusions are hampered first, by the general lack of evidence and, secondly, where studies have been carried out, by weaknesses in study design, meaning that findings are often not sufficient to enable their generalization to other settings. Concerns include inadequate evidence on effectiveness and costs, a lack of clear goals for demand-side policy and evaluation of their cost-effectiveness, the need to pay greater attention to cross-sector collaboration and a greater focus on the interventions that benefit the poor.

(i) Inadequate evidence on effectiveness and costs

In trials of clinical interventions it has become standard to conduct a randomized control trial, preferably double-blinded. No such standard exists for trials of health system interventions such as those addressing demand-side barriers discussed in this paper. This is unsurprising given that some of the standards of RCTs, such as blinding, are extremely difficult or even impossible to implement. Yet the size of the interventions suggests that a similar consistent standard is required.

The initial intention to conduct a systematic review was dropped when it became clear that very few studies would meet the minimum criteria for inclusion. The main weaknesses revealed were biases occurring from the method of inclusion into the study and the inadequate costing of most interventions. It was difficult, for example, even where costs were included, to distinguish capital from recurrent costs.

There is a general lack of rigour or consistency in the evaluation of evidence of the interventions' effectiveness in most of the studies reviewed. Many of the interventions found in both the published and unpublished literature were largely descriptive. Some of the interventions carried out limited evaluation, but in most cases these evaluations did not control for confounding factors. Cost information is extremely scarce and most studies do not differentiate

between capital and recurrent costs. Few studies provide sufficient information to carry out even a rudimentary cost-effectiveness analysis.

(ii) Aims of intervention and relative cost-effectiveness

Many of the interventions appear to have the increase in utilization of services as an over-riding objective. So, for example, one study measures the numbers covered by a transport scheme (Macintyre and Hotchkiss 1999), another the number of loans provided through an obstetric loan fund (Chiwuzie et al. 1997), while a further study examines admission rates to hospitals and clinics (Gennaro et al. 2001). Measurement of these process and output indicators is understandable in the context of each of the projects, where more sophisticated indicators would have taken longer and been more difficult to measure. The problem with this approach is that without clearly establishing the reason for the intervention and the limits of the market or distributional failure, it becomes hard to decide on what basis to extend the scheme. If, for example, the reason for intervention is mainly informational, then extending the intervention to an entire community may be justified. On the other hand, if the reason is one of equity, then only poorer groups might be targeted. From a policy perspective, further information is required to decide on the extent to which the benefits in terms of improved outcomes or increased outputs match the costs expended.

(iii) Recognition of the need for cross-sector collaboration

Many of the barriers discussed in Section 2 are likely to be amenable to interventions that are beyond the scope of the health sector. Typically, a Ministry of Health may have relatively little influence over many of the demand barriers. While spending on training for doctors or improvement of a clinic is possible, budget flexibility may not extend to improving a rural road or expanding access to schooling, even if this actually represents the main barrier to increasing utilization. In many cases, successful demand strategies will often require assistance both from donors and other ministries.

A further cross-sector issue is that in a number of cases, particularly those related to cultural barriers, health care access is just one facet amongst many social issues. The fact that in some communities women have inferior access to resources and may be prevented from making their own choices, has implications for health and also for all other aspects of an individual's lifestyle. It relates to the general need to empower weaker members of society to make independent choices. It suggests that much more impact could be gained by attempting to address some of these social issues across government, rather than from the narrow perspective of a sector ministry. It reinforces the importance of using cross-sector initiatives, such as HIPC³ and PRSP, to address some of the barriers to access that cannot be addressed by the public health sector alone.

(iv) Focusing on poverty

An aspect lacking in most studies is an explicit focus on interventions which target the demand barriers most affecting

poorer populations. In most cases interventions do not differentiate between their impact on poor and non-poor groups. This is important, given that many of the interventions are designed to reduce financial barriers, which are likely to be higher for the poor. It is clear that many of the interventions aim to target entire communities, with the aim of enlisting general community support for the purpose of reducing maternal deaths. In this case it is clear that a direct targeting approach would not be appropriate. Yet information on the actual beneficiaries of the intervention is still needed by policy-makers wishing to concentrate resources on those least able to afford health services.

In some cases interventions are designed for particular groups, all, or most, of whom are likely to fall into vulnerable groups. Interventions to increase compliance in TB treatment, for example, may benefit vulnerable groups disproportionately, as well as having a wider public health function. Yet evaluation data on the beneficiaries would still be useful, if only to convince governments and donors of the desirability of the interventions.

Endnotes

¹ Dr C Marsden for Food for the Hungry (FHI), Bangladesh.

² Initially PMM was a project supported by the School of Public Health, Columbia University, but since 1996 it has become a permanent regional body with a headquarters in Accra.

³ Programme of debt relief for Heavily Indebted Poor Countries (HIPC).

References

- Agha S. 2000. The determinants of infant mortality in Pakistan. *Social Science and Medicine* **51**: 199–208.
- Akin JS, Hutchinson P. 1999. Health-care facility choice and the phenomenon of bypassing. *Health Policy and Planning* **14**: 135–51.
- Amooti-Kaguna B, Nuwaha F. 2000. Factors influencing choice of delivery sites in Rakai district of Uganda. *Social Science and Medicine* **50**: 203–13.
- Arends-Kuenning M. 1997. *The equity and efficiency of doorstep delivery of contraceptives in Bangladesh*. Working Paper. Dhaka: The Population Council, Policy Research Division.
- Atim C. 1998. *The contribution of mutual health organisations to financing, delivery, and access to health care in West and Central Africa: synthesis of research in nine countries*. Bethesda, MD: Partnerships for Health Reform, Abt Associates Inc.
- Barbey A, Faisal AJ, Myeya J et al. 2001. *Dinajpur Safe Mother Initiative: Final Evaluation Report*. Dhaka: CARE Bangladesh.
- Barkat A, Helali J, Rahman M, Majid M, Bose ML. 1995. *Knowledge, attitude, perception and practices relevant to the utilisation of emergency obstetric care services in Bangladesh: a formative study*. Dhaka: University Research Corporation.
- Begum S, Sen B. 2000. *Not quite, not enough: financial allocation and the distribution of resources in the health sector*. Research Report 167. Dhaka: Bangladesh Institute of Development Studies.
- Bennett S, Creese A, Manasch R. 1998. *Health insurance for the non-formal sector*. Geneva: World Health Organization, Division of Analysis Research and Assessment.
- Bhatia J, Cleland J. 1999. Health seeking behaviour of women and costs incurred. In: Pachaori S (ed). *Implementing a reproductive health agenda in India*. New Delhi: Population Council, pp. 207–34.
- Bhatia JC, Cleland J. 2001. Health-care seeking and expenditure by young Indian mothers in the public and private sectors. *Health Policy and Planning* **16**: 55–61.

- Booth BE, Verma M. 1992. Decreased access to medical care for girls in Punjab, India: the roles of age, religion, and distance. *American Journal of Public Health* **82**: 1155–7.
- Bosu WK, Ahelegbe D, Edum-Fotwe E, Bainsan KA, Turkson PK. 1997. Factors influencing attendance to immunization sessions for children in a rural district of Ghana. *Acta Tropica* **68**: 259–67.
- Casterline JB, Sathar ZA, Haque MU. 2001. *Obstacles to contraceptive use in Pakistan: a study in Punjab*. Working Paper. Islamabad: The Population Council, Policy Research Division.
- Chiwuzie J, Okojie O, Okolocha C et al. 1997. Emergency loan funds to improve access to obstetric care in Ekpoma, Nigeria. *International Journal of Gynaecology and Obstetrics* **59**: S231–6.
- CIETCanada. 2000. *Service Delivery Survey: second cycle, 2000 preliminary findings*. Dhaka: Health and Population Sector Programme.
- Cleland JG, van Ginneken JK. 1988. Maternal education and child survival in developing countries: the search for pathways of influence. *Social Science and Medicine* **27**: 1357–68.
- DeClerque J, Tsui AO, Abul-Ata MF, Barcelona D. 1986. Rumor, misinformation and oral contraceptive use in Egypt. *Social Science and Medicine* **23**: 83–92.
- Demery L. 2000. *Benefits incidence: a practitioner's guide*. Washington: World Bank, Poverty and Social Development Group, Africa Region.
- Donati S, Hamam R, Medda E. 2000. Family planning KAP survey in Gaza. *Social Science and Medicine* **50**: 841–9.
- Ensor T. 1996. *Health sector reform in Asian transition countries: study on social sector issues in Asian transition economies*. York: University of York, for the Asian Development Bank.
- Ensor T, Cooper S. 2002. *Resource allocation and purchasing: influencing the demand side*. York: Centre for Health Economics, University of York. Prepared for the World Bank, Resource Allocation and Purchasing Project.
- Essien E, Ifenne D, Sabitu K et al. 1997. Community loan funds and transport services for obstetric emergencies in northern Nigeria. *International Journal of Gynaecology and Obstetrics* **59**: S237–44.
- Farmer P, Robin S, Ramilus SL, Kim JY. 1991. Tuberculosis, poverty, and 'compliance': lessons from rural Haiti. *Seminars in Respiratory Infections* **6**: 254–60.
- Fawcus S, Mbizvo M, Lindmark G, Nystrom L. 1996. A community-based investigation of avoidable factors for maternal mortality in Zimbabwe. *Studies in Family Planning* **27**: 319–27.
- Fofana P, Samai O, Kebbie A, Sengeh P. 1997. Promoting the use of obstetric services through community loan funds, Bo, Sierra Leone. *International Journal of Gynaecology and Obstetrics* **59**: S225–30.
- Frew E, Wolstenholme JL, Atkin W, Whynes DK. 1999. Estimating time and travel costs incurred in clinic based screening: flexible sigmoidoscopy screening for colorectal cancer. *Journal of Medical Screening* **6**: 119–23.
- Gennaro S, Thyangathyanga D, Kershbaumer R, Thompson J. 2001. Health promotion and risk reduction in Malawi, Africa, village women. *Journal of Obstetric, Gynecologic and Neonatal Nursing* **30**: 224–30.
- Gerdtham U, Jonsson B. 2000. International comparisons of health expenditure: theory, data and econometric analysis. In: Culyer J, Newhouse JP (eds). *Handbook of health economics: volume 1A*. Amsterdam: North-Holland.
- Gertler P, Van der Gaag J. 1990. *The willingness to pay for medical care*. Washington, DC: World Bank.
- Giuffrida A, Gravelle H. 1998. Paying patients to comply: an economic analysis. *Health Economics* **7**: 569–79.
- GOB. 1998. Project Implementation Plan. Health and Population Sector Programme. Dhaka: Government of the People's Republic of Bangladesh.
- Grossman M. 2000. The human capital model. In: Culyer AJ, Newhouse JP (eds). *Handbook of health economics: volume 1A*. Amsterdam: North-Holland.
- Grossman M, Kaestner R. 1997. Effects of education on health. In: Behrman JR, Stacey N (eds). *The social benefits of education*. Ann Arbor, MI: University of Michigan Press.
- Gummi FB, Hassan M, Shehu D, Audu L. 1997. Community education to encourage use of emergency obstetric services, Kebbi State, Nigeria. *International Journal of Gynaecology and Obstetrics* **59**: S191–200.
- Hildebrandt E. 1996. Building community participation in health care: a model and example from South Africa. *Image: Journal of Nursing Scholarship* **28**: 155–9.
- Hitesh J. 1996. Perceptions and constraints of pregnancy-related referrals in rural Rajasthan. *Journal of Family Welfare* **42**: 24–9.
- Hurley J. 2000. An overview of the normative economics of the health sector. In: Culyer AJ, Newhouse JP (eds). *Handbook of health economics: volume 1A*. Amsterdam: North-Holland, pp. 1803–62.
- Kandeh HB, Leigh B, Kanu MS et al. 1997. Community motivators promote use of emergency obstetric services in rural Sierra Leone. *International Journal of Gynaecology and Obstetrics* **59**: S209–18.
- Khan MA, Walley JD, Witter SN, Imran A, Safdar N. 2002. Costs and cost-effectiveness of different DOTS strategies for treatment of tuberculosis in Pakistan. *Health Policy and Planning* **17**: 178–86.
- Kwast BE. 1995. Building a community-based maternity program. *International Journal of Gynaecology and Obstetrics* **48**: S67–82.
- Kwast BE. 1996. Reduction of maternal and perinatal mortality in rural and peri-urban settings: what works? *European Journal of Obstetrics and Gynaecology* **69**: 47–53.
- Leonard KL. 2003. *'Active patients' in rural African health care: implications for welfare, policy and privatization*. New York: Columbia University, Institute for Social and Economic Research and Policy.
- Leonard KL, Mliga GR, Mariam DH. 2002. *Bypassing health centers in Tanzania: revealed preferences for observable and unobservable quality*. Department of Economics, Discussion Paper Series. New York: Columbia University.
- Macintyre K, Hotchkiss DR. 1999. Referral revisited: community financing schemes and emergency transport in rural Africa. *Social Science and Medicine* **49**: 1473–87.
- Maine D. 1997. Lessons for program design from the PMM projects. *International Journal of Gynaecology and Obstetrics* **59**: S259–65.
- Makinen M, Waters H, Rauch M et al. 2000. Inequalities in health care use and expenditures: empirical data from eight developing countries and countries in transition. *Bulletin of the World Health Organization* **78**: 55–74.
- Mehrotra S. 2000. *Integrating economic and social policy: good practices from high-achieving countries*. Working Paper. Florence: Innocenti Research Centre, UNICEF.
- Narayan D. 1997. *Voices of the poor: poverty and social capital in Tanzania*. ESD Studies and Monographs Series No. 20. Washington, DC: World Bank.
- Ndyomugenyi R, Neema S, Magnussen P. 1998. The use of formal and informal services for antenatal care and malaria treatment in rural Uganda. *Health Policy and Planning* **13**: 94–102.
- Nwakoby B, Akpala C, Nwagbo D et al. 1997. Community contact persons promote utilization of obstetric services, Anambra State, Nigeria. *International Journal of Gynaecology and Obstetrics* **59**: S219–24.
- Okumura J, Wakai S, Umenai T. 2002. Drug utilisation and self-medication in rural communities in Vietnam. *Social Science and Medicine* **54**: 1875–86.
- Olaniran N, Offiong S, Ottong J, Asuquo E, Duke F. 1997. Mobilizing the community to utilize obstetric services, Cross River State, Nigeria. *International Journal of Gynaecology and Obstetrics* **59**: S181–9.
- Opoku SA, Kyei-Faried S, Twum S et al. 1997. Community education to improve utilization of emergency obstetric

- services in Ghana. *International Journal of Gynaecology and Obstetrics* **59**: S201–7.
- Phillips JF, Greene WL, Jackson EF. 1999. *Lessons from community-based distribution of family planning in Africa*. Policy Research Division Working Paper no. 121. New York: Population Council.
- Piet-Pelon NJ, Rob U, Khan ME. 1999. *Men in Bangladesh, India and Pakistan: reproductive health issues*. Dhaka: Karshaf Publishers.
- Piette JD, Moos RH. 1996. The influence of distance on ambulatory care use, death, and readmission following a myocardial infarction. *Health Services Research* **31**: 573–91.
- Poovan P, Kifle F, Kwast BE. 1990. A maternity waiting home reduces obstetric catastrophes. *World Health Forum* **11**: 440–5.
- Post M. 1997. Preventing maternal mortality through emergency obstetric care. Washington, DC: SARA Project, Academy for Educational Development.
- Quisumbing AR, Maluccio JA. 1999. *Intrahousehold allocation and gender relations: new empirical evidence from four developing countries*. Working Paper 2. Washington, DC: World Bank.
- Raghupathy S. 1996. Education and the use of maternal health care in Thailand. *Social Science and Medicine* **43**: 459–71.
- Ramasubban R, Rishyasringa B. 2000. Treatment-seeking by women in Mumbai slums. Paper presented at the workshop on Reproductive Health in India: New Evidence and Issues, Tata Management Training Centre, Pune, Maharashtra, India, 28 February–1 March 2000.
- Rankin SL, Hughes-Anderson W, House AK et al. 2001. Costs of accessing surgical specialists by rural and remote residents. *Australia and New Zealand Journal of Surgery* **71**: 544–7.
- Rashid SF, Hadi A, Afsana K, Begum SA. 2001. Acute respiratory infections in rural Bangladesh: cultural understandings, practices and the role of mothers and community health volunteers. *Tropical Medicine and International Health* **6**: 249–55.
- Sachs J. 2001. *Macroeconomics and health: investing in health for economic development*. Report of the Commission on Macroeconomics and Health. Geneva: World Health Organization.
- Samai O, Sengeh P. 1997. Facilitating emergency obstetric care through transportation and communication, Bo, Sierra Leone. *International Journal of Gynaecology and Obstetrics* **59**: S157–64.
- Sauerborn R, Bodart C, Essomba R. 1995. Recovery of recurrent health services costs through provincial health funds in Cameroon. *Social Science and Medicine* **40**: 1731–9.
- Schwartz JB, Akin JS, Popkin BM. 1993. Economic determinants of demand for modern infant-delivery in low-income countries: the case of the Philippines. In: Mills A, Lee K (eds). *Health economics research in developing countries*. Oxford and New York: Oxford Medical Publications.
- Segall M, Tipping G, Lucas H et al. 2000. *Health care seeking by the poor in transitional economies: the case of Vietnam*. IDS Research Report 43. Brighton: Institute of Development Studies, University of Sussex.
- Shehu D, Ikech AT, Kuna MJ. 1997. Mobilizing transport for obstetric emergencies in northwestern Nigeria. *International Journal of Gynaecology and Obstetrics* **59**: S173–80.
- Shenoy KT, Shenoy TS, Krishnan TN. 1997. Determinants of health care service utilization in Kerala. *Journal of Clinical Epidemiology* **50**: 455.
- Spaans WA, van Roosmalen J, van Wiechen CM. 1998. A maternity waiting home experience in Zimbabwe. *International Journal of Gynaecology and Obstetrics* **61**: 179–80.
- Srivastava RK, Bansal RK. 1996. Please use the health services – more and more. *World Health Forum* **17**: 165–8.
- Tamiya N, Araki S, Kobayashi Y et al. 1996. Gender difference in the utilization and users' characteristics of community rehabilitation programs for cerebrovascular disease patients in Japan. *International Journal for Quality in Health Care* **8**: 359–66.
- Terra de Souza AC, Peterson KE, Andrade FM, Gardner J, Ascherio A. 2000. Circumstances of post-neonatal deaths in Ceara, Northeast Brazil: mothers' health care-seeking behaviors during their infants' fatal illness. *Social Science and Medicine* **51**: 1675–93.
- Thompson R, Miller N, Witter S. Health seeking behaviour and rural/urban differences in Kazakhstan. *Health Economics* (in press).
- Vissandjee B, Barlow R, Fraser DW. 1997. Utilization of health services among rural women in Gujarat, India. *Public Health* **111**: 135–48.
- Whiteford LM, Szelag BJ. 2000. Access and utility as reflections of cultural constructions of pregnancy. *Primary Care Update* **7**: 98–104.

Acknowledgements

We are grateful to a number of people and organizations for providing information on demand-side barriers and initiatives. They include: Jayshree Balachander, Oona Campbell, Ramon Abel Castano-Yepes, Lesong Conteh, Kiran Dev Pant, Priti Dave Sen, Nel Druce, Maria Goddard, Davidson Gwatkin, Sara Joseph, Barbara Klugman, Jack Langenbrunner, Kenneth Leonard, Benjamin Loevinsohn, Di McIntyre, Adilet-Sultan Meimanaliev, Kate Marsden, Anne Mills, Valeria Oliveira-Cruz, Kris Prenger, Dzhamilya Sadykova, Rachel Tolhurst, Catriona Waddington, Pongsadhorn Pokpermddee, Christian Aid, CARE International. We would also like to thank two anonymous referees for their comments on an earlier draft. The World Bank provided funding to carry out this research.

Biographies

Tim Ensor, BSc, MA, DPhil, is currently a senior research fellow in the Dugald Baird Centre for Reproductive Health, University of Aberdeen and principal economist, Oxford Policy Management. He undertook this work while at the University of York, where he has taught and researched health financing issues in low- and middle-income countries for the last 10 years.

Stephanie Cooper, BA, PG Diploma, works in the Centre for Health Economics, University of York, on the implementation research work-programme of the Initiative for Maternal Mortality Programme Assessment run by the University of Aberdeen. She is active in the development community and is currently completing a Masters dissertation.

Correspondence: Tim Ensor, International Programme, Centre for Health Economics, University of York, Heslington, York, YO10 5DD, UK. Tel: +44 (0)1904/433716. Fax: +44 (0)1904/432701. E-mail: te1@york.ac.uk