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Addressing access barriers to health services: an analytical framework for selecting appropriate interventions in low-income Asian countries

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While World Health Organization member countries embraced the concept of universal coverage as early as 2005, few low-income countries have yet achieved the objective. This is mainly due to numerous barriers that hamper access to needed health services. In this paper we provide an overview of the various dimensions of barriers to access to health care in low-income countries (geographical access, availability, affordability and acceptability) and outline existing interventions designed to overcome these barriers. These barriers and consequent interventions are arranged in an analytical framework, which is then applied to two case studies from Cambodia. The aim is to illustrate the use of the framework in identifying the dimensions of access barriers that have been tackled by the interventions. The findings suggest that a combination of interventions is required to tackle specific access barriers but that their effectiveness can be influenced by contextual factors. It is also necessary to address demand-side and supply-side barriers concurrently. The framework can be used both to identify interventions that effectively address particular access barriers and to analyse why certain interventions fail to tackle specific barriers.

Keywords Access barriers, interventions, effectiveness, analytical framework, supply side, demand side

KEY MESSAGES

- A comprehensive overview of all identified access barriers to health care and interventions to address them in low-income Asian countries is formulated into an analytical framework.
- Application of this framework enables policy makers and health planners to identify the different dimensions and aspects of barriers to access to health services, and to devise the specific intervention or combination of interventions that can best address these barriers. Conversely, the framework can assist in assessing the appropriateness of existing interventions as a means to address the identified access barriers.

Introduction

In low-income countries (LIC), health care and related expenditures feature prominently as causes of impoverishment. Noponen *et al.* (2004) found an incidence of 1.2 monthly illnesses per poor household in India. Krishna (2006) identified the cost of treatment for illness to be the cause of 85% of all cases of impoverishment. Van Doorslaer *et al.* (2006) found that an additional 78 million people in 11 Asian countries would fall below the extreme poverty line if conventional poverty estimates incorporated out-of-pocket expenditure for health. Heltberg and Lund (2009) found that the costs associated with illness among the poor in Pakistan resulted in reduced food consumption, withdrawal of children from school, sale of major assets, putting children to paid work and even bonded labour, while only 12% were able to recover from the associated economic shock.

Within this context, a resolution to provide universal coverage—defined as access for all to appropriate promotive, preventive, curative and rehabilitative services at an affordable cost—was endorsed by World Health Organization (WHO) member states in 2005 (Carrin *et al.* 2008). Recommended actions to alleviate barriers to access to health care related mainly to financial interventions. However, as multiple factors play a role, addressing access costs alone will not ensure access to health services. The purpose of this paper is to provide an overview of the various barriers to access and different interventions designed to address them in LIC. Following the methods section, barriers identified from a review of the literature are described. The following section provides an overview of existing interventions to address these barriers. The various dimensions of access barriers and the interventions designed to address them are then arranged into an analytical framework. The framework is applied to two case studies from Cambodia as an illustration. The final section discusses the framework's strengths and the additional research required to fill identified knowledge gaps. While the paper is not explicitly focused on the poor, it has been written with their fate in mind since they carry the brunt of barriers to health services.

Methods

A search of the PubMed database was conducted to identify published articles on access barriers to health services and the interventions designed to overcome them. The time-frame for the searches covered the period from 1998 onwards, as this is the period for which papers can be retrieved through HINARI, a programme enabling researchers from LIC to access a wide range of medical journals. Key words used were 'access', 'barriers', 'interventions', 'health services', 'health care', 'demand-side', 'supply-side', 'enabling', alone or in combination for 'low-income countries' or 'developing countries'. Additional peer-reviewed or grey literature was identified from the reference lists of the retrieved papers. The literature search was carried out up to the point where the authors deemed the potential for identifying new types of barriers to be exhausted. Also, when similar access barriers or interventions were found in subsequent papers, only the initial one was retained.

Habicht *et al*. (1999) categorized three types of scientific inference that are frequently used by policy makers in the health sector. When an intervention is ongoing and decision makers want to know whether to continue or scale up the initiative, an adequacy statement suffices since it answers the question of whether an expected change took place. The associated assessments do not require a control. When policy makers want to know whether the observed changes are due to the intervention and not to external factors or confounding, then a plausibility assessment is considered appropriate. The influence of external factors is restrained by using a control. When the information requested concerns whether an intervention or strategy improved health outcome, interventions and controls require to be randomized, and a randomized controlled trial (RCT) is called for. This is termed a probability assessment. Thus, for the analytical framework, plausibility or probability assessments of interventions to overcome access barriers are not deemed necessary since adequacy inference is considered sufficient as it indicates the potential to increase access.

This search identified one existing framework for assessing access barriers to health services by Peters *et al.* (2008) and a rudimentary framework by Ensor and Cooper (2004) on supply-side and demand-side barriers. These frameworks were combined and enriched by findings on barriers from the literature review to develop a more comprehensive structure capturing additional aspects that hinder access to care.

Our approach was to focus on interventions that can bear results in the short or medium term and can be implemented at district level, either by the health sector alone or in combination with other departments and/or civil society organizations (see below). In some cases, important factors hampering access to care—such as lack of social support or female autonomy, as highlighted by Rutherford *et al.* (2010)—were acknowledged but not included in the framework as they require societal changes that are hard to bring about. Cultural aspects that potentially act as access barriers are acknowledged and included in the analysis only when they were not deemed highly context-specific. Classification of the interventions according to access dimensions along with supply-side and demand-side perspectives was initially done by the first author, with final classification according to agreement by all authors. Although some access barriers—such as prices of services—seem to reflect both supply-side and demand-side perspectives concurrently, for the sake of simplicity they were accorded only one perspective.

Two case studies from Cambodia were used to illustrate the proposed analytical framework. These studies were selected because they take place in the same country, apply concurrently numerous interventions aimed at addressing access barriers and provide sufficient information on output measures. Since the case studies serve as an illustration, it is not the objective to provide an in depth comparison of them.

Barriers to accessing health services

Although we acknowledge that there is no universally accepted definition of access to health services (Oliver and Mossialos 2004), we use the definition by Peters *et al.* (2008) which implies 'the timely use of service according to need'. Utilization

Table 1 Barriers to accessing health services with specification of supply and/or demand influence

Dimension of barriers (Peters *et al.* 2008)	Barriers (Ensor and Cooper 2004)
Geographic accessibility	
• Service location (S)	• Indirect costs to household (transport cost) (D)
• Household location (D)	
Availability	
• Health workers, drugs, equipment (S)	• Waiting time (S)
• Demand for services (D)	• Wages and quality of staff (S)
	• Price and quality of drugs and other consumables (S)
	• Information on health care choice/providers (D)
	• Education (D)
Affordability	
• Costs and prices of services (S)	• Direct price of service, including informal fees (S)
• Household resources and willingness to pay (D)	• Opportunity costs (D)
Acceptability	
• Characteristics of the health services (S)	• Management/staff efficiency (S)
• User's attitudes and expectations (D)	• Technology (S)
	• Household expectations (D)
	• Community and cultural preferences, attitudes and norms (D)

Source: Adapted from Peters *et al.* (2008) and Ensor and Cooper (2004).
Notes: D = demand side; S = supply-side.

of health care is used as an operational proxy for access to health care. Access has four dimensions: availability, geographic accessibility, affordability and acceptability (O'Donnell 2007). Barriers to accessing health services can stem from the demand side and/or the supply side (Ensor and Cooper 2004; O'Donnell 2007). Demand-side determinants are factors influencing the ability to use health services at individual, household or community level, while supply-side determinants are aspects inherent to the health system that hinder service uptake by individuals, households or the community. The need to differentiate demand-side from supply-side barriers is related to the formulation of appropriate interventions, although O'Donnell (2007) notes that both sides have to be addressed concurrently. This is reinforced by James *et al.* (2006), who argue that access barriers may not always be mutually exclusive and may interact and influence each other.

Peters *et al.* (2008) provide a framework for assessing barriers along the four dimensions of access (each of them having supply-side and demand-side aspects) while Ensor and Cooper (2004) present a framework of supply-side and/or demand-side barriers. The two approaches are combined in Table 1, where Ensor and Cooper's barrier aspects are arranged according to the four access dimensions.

As Table 1 shows, there is considerable overlap between the two frameworks, though there are also some differences. The Peters *et al.* framework considers quality of care an integral component of each of the four dimensions. Service location and household location are considered separate barriers both by Peters *et al.* (2008) and by Ensor and Cooper (2004), but are here regarded as the same barrier, related to distance from the household to the place of service delivery. Waiting time and direct payment for services are considered mixed supply-side and demand-side barriers by Ensor and Cooper (2004), but are presented here as supply-side barriers. This is because long waiting times indicate a distribution of staff and equipment not in accordance with need, and the pricing of services is determined by the health facilities (supply side), meaning that both factors are outside the control of the public as users of health services (demand side).

Other aspects that impede access to health care appear to be missing from both frameworks, or at least are not explicitly mentioned in the published papers. They include:

- Unwelcoming staff attitude or poor interpersonal skills as well as complex billing systems at hospitals, as in Laos (Paphassarang *et al.* 2002).
- Lack of assertiveness and low self-esteem by users from among the poor, which increased the difficulty of accessing services, also in Laos (Paphassarang *et al.* 2002).
- Restrictions on the tasks that can be performed by various health staff, such as policies that favour the use of urban-based, hospital-affiliated obstetricians to assist deliveries in situations where midwives would be adequate (Mavalankar and Rosenfield 2005).
- The late referral or non-referral to more specialist care of patients who may report with a condition at lower-level health facilities (Kiwanuka *et al.* 2008).
- Stigma associated with a disease or condition, such as tuberculosis (Storla *et al.* 2008).
- Lack of time or opportunity to sell assets, even when available, to ensure the availability of cash at the time of seeking care (Khun and Manderson 2007); limited cash flow within the community is often correlated with seasonality, especially in agrarian societies.

Table 2 Overview of identified access barriers along supply and demand sides and four dimensions of access

Supply-side barriers	Demand-side barriers
Geographic accessibility	
• Service location	• Indirect costs to household (transport)
	• Means of transport available
Availability	
• Unqualified health workers, staff absenteeism, opening hours	• Information on health care services/providers
• Waiting time	• Education
• Motivation of staff	
• Drugs and other consumable	
• Non-integration of health services	
• Lack of opportunity (exclusion from services)	
• Late or no referral	
Affordability	
• Costs and prices of services, including informal payments	• Household resources and willingness to pay
• Private–public dual practices	• Opportunity costs
	• Cash flow within society
Acceptability	
• Complexity of billing system and inability for patients to know prices beforehand	• Households' expectations
• Staff interpersonal skills, including trust	• Low self-esteem and little assertiveness
	• Community and cultural preferences
	• Stigma
	• Lack of health awareness

- A lack of trust by users in health care providers or the intermediates who link the population with these providers, making people reluctant to use the respective services (Ozawa and Walker 2009).
- Failure to deliver integrated health services together with complementary programmes provided to a target group, such as overlooking the opportunity to check and update vaccination status or to administer Vitamin A when a child is brought to the health facility for other services (Victora *et al.* 2005).
- The effect of non-financial barriers, such as lack of health awareness, apparent unfelt need or lack of opportunity (defined as exclusion from social and health providers) (Ahmed *et al.* 2006).
- Other non-financial barriers, such as means of transport, private–public dual practice through which patients are siphoned off from public health facilities to health workers' private practices, where they may be subjected to more expensive, often irrational, treatments—evident for example in the implementation of health equity funds in Cambodia (third-party-payer mechanisms that reimburse public health providers for health services provided to eligible poor) (Bigdeli and Annear 2009).
- Staff absenteeism, limited opening hours that do not allow for dealing with emergencies or working times are not convenient for patients, especially working people.

A more refined overview of the identified barriers classified according to the four dimensions of access and according to supply-side and demand-side perspectives is presented in Table 2. Building on Table 1, this view reveals a relatively balanced distribution between supply-side and demand-side barriers, although the availability dimension includes more barriers on the supply side. Lack of opportunity is presented as a supply-side barrier since ultimate responsibility for the performance of a health system, including ensuring access for the poor and vulnerable, lies with the respective government (WHO 2000). Although costs of service delivery are an important factor, a significant part of the total cost of accessing services falls on the demand side, including indirect costs such as transport, patient food, carer accommodation (which must all be paid by the user) and opportunity costs derived from income foregone by the patient or carer due to care seeking (McPake *et al.* 2002).

Interventions to enable access to health services

Primary health care (PHC) was endorsed in 1978 by WHO member countries as a paradigm designed to reduce inequities in health, partly through enabling universal access to health services (Rasanathan *et al.* 2009). While universal coverage is the aim, imperfect health systems suffer from what is called the 'inverse equity hypothesis', which states that new health interventions initially reach the socio-economically more well-off, while the majority of the poor benefit only later in

time (Victora *et al.* 2000). Because of this time lag, especially in developing countries that are to a considerable extent dependent on donor funding for the health sector, targeting is often a preferred strategy (Victora *et al.* 2003; Ashford *et al.* 2006).

In the absence of universal coverage, there are two main targeting options for enabling greater access to health services for poor and vulnerable patients, namely to build the capacity of health care providers to target service provision on selected groups (a supply-side strategy), or to reduce the barriers to access and participation (a demand-side strategy) (Bornemisza *et al.* 2010). Both of these approaches to developing interventions to address barriers to health care are described and considered in this paper.

Interventions aimed at facilitating access to health services need to be implemented at district level, as this is known to constitute the most appropriate geographical situation for PHC (Ekman *et al.* 2008; Lawn *et al.* 2008; Rohde *et al.* 2008). However, Ekman *et al.* (2008) caution that due consideration should be given to the potentially limited capacity of district health managers in LIC. Moreover, because most barriers to care cannot be overcome by the health sector acting alone, inter-sectoral collaboration is called for (Braveman and Gruskin 2003; Ensor and Cooper 2004). Although considered the most neglected aspect of PHC (Walley *et al.* 2008), community participation should be built into interventions addressing access barriers as it 'reduces the power gaps between the population and health systems' (see also Van Damme et al. 2002; Rasanathan *et al.* 2009). Whatever interventions are developed, monitoring their service uptake should be an integral part of the strategy (Braveman and Gruskin 2003; Whitehead and Bird 2006; Peters *et al.* 2008).

Before presenting the analytical framework for analysing interventions to address supply-side and demand-side barriers to access, we present an overview of interventions that can be implemented at district level by the health sector alone or in collaboration with other government departments and non-government or civil-society organizations through the public and/or private sector. It is assumed that higher levels in the health sector, such as provincial and national health authorities, set out the broad policy framework, enforce legislation, ensure provision of a relatively steady supply of funds, goods and equipment, and conduct monitoring and supervision of the lower echelons in the health system.

Many proposed interventions take a monetary-incentive approach to addressing access barriers to health services. Often, these financial incentives are channelled through the demand-side, seemingly due to a donor reaction to governments' failure to deliver sufficient health services and a perception of inertia of authorities at all levels (Standing 2004). Despite the sizable amount of literature focusing on financial demand-side interventions, the highest number of interventions appears to be non-financial and supply-side based.

Although Standing (2004) indentified five interpretations of the meaning of 'demand side', we use the term here to mean the direct channelling of resources to a population group to obtain health services, in line with the definition used by Schmidt *et al.* (2010). Demand-side financing may be linked to output when providers are paid according to the number of services delivered. The objectives of this approach are: (1) targeting service delivery; (2) improving provider behaviour; (3) promoting competition and consequently improving quality of care; and (4) improving care-seeking by targeted groups (Ensor 2004; Standing 2004; Bhatia and Gorter 2007). Supply-side financing is considered a means for strengthening health service delivery based on the amount of financial input (Ensor 2004) and does not imply a particular method of provider payment.

In Table 3, interventions to enable access are classified as supply-side or demand-side and as monetary or non-monetary initiatives. We briefly describe the listed interventions to indicate how they may facilitate access to health services according to the four access dimensions.

Demand-side, non-monetary interventions

- Counselling and provision of consumer information on health services, including their availability, intention and associated costs, address barriers related to Lack of Information on Health Care Service/Providers (availability) and Households' Expectations and Health Awareness (both acceptability).
- Community participation is a cross-cutting intervention that addresses the four access dimensions. This works to help reduce transport costs, improve information about services as well as health aspects, reduce opportunity costs, enable access to sufficient cash within the community when needed, and address household expectations and community and cultural preferences. With empowerment strongly embedded in its features, community participation can lessen the effects of low-self esteem and limited assertiveness.
- Social marketing concerns the use of 'marketing tools, concepts and resources to encourage positive behaviour change among those underserved' (Price 2001). It has been applied to promoting condom use, enhancing uptake of impregnated bed nets and improving over-the-counter treatments for selected sexually transmitted diseases (Jacobs *et al.* 2003), amongst others. It also overcomes community and cultural preferences and stigma (acceptability), and enables greater availability of products through retailers (availability). Social marketing's influence on geographical accessibility is dependent on the product to be promoted as well as the intended retailers. For distribution of bed nets by shop keepers, geographical access will be increased, but this is unlikely the case if it concerns antibiotic treatment by private qualified health providers since they tend to reside in economically attractive places (Victora *et al.* 2003). Therefore, social marketing's impact on geographical accessibility is considered insufficient.
- Franchising is a way to promote goods through private retailers under a franchised brand. It is similar to social marketing and suffers from the same shortcomings as it can address only a limited number of health issues, tends to be urban biased and requires charges for the retailed products to assure customers of the products' value (Montagu 2002). Franchising is grouped together with social marketing in the analytical framework because both are conceptually similar (see also Peters *et al.* 2004).

Table 3 Overview of interventions to address supply- and demand-side barriers

Non-monetary interventions	Financial interventions
Demand-side barriers	
• Counselling and consumer information on health services (Ahmed *et al.* 2006)	• Health equity funds (Hardeman *et al.* 2004)
• Community participation (Manandhar *et al.* 2004)	• Vouchers (Bathia and Gorter 2007)
• Social marketing/franchising (Price 2001; Montagu 2002)	• Community-loan funds to pay for transport (Ensor and Cooper 2004)
• Community-based interventions (Haines *et al.* 2007)	• Health insurance subsidies for the poor (O'Donnell 2007)
• Accreditation to indicate better providers (Ensor and Cooper 2004)	• Conditional cash transfers (Lagarde *et al.* 2007)
	• Pre-payment schemes (Whitehead and Bird 2006)
Supply-side barriers	
• Provision of essential health care services (Ensor *et al.* 2002; Ahmed *et al.* 2006)	• Pay for performance (Janovsky *et al.* 2006)
• Regulatory approaches (Peters *et al.* 2008)	• Needs-based financing (Pearson 2002)
• Integrated outreach services (Victora *et al.* 2005)	• Abolishment of user fees
• Maternity waiting homes (Eckerman and Deodato 2008)	• Contracting (Loevinsohn and Harding 2005)
• Emergency transport with communication system (Ensor and Cooper 2004)	
• More staffed peripheral health facilities (Ensor and Cooper 2004)	
• Culturally sensitive health care delivery (Ensor and Cooper 2004)	
• Deconcentration of authority/decentralization (Janovsky *et al.* 2006)	
• Improved management, including supervision and feedback mechanisms (Oliveira-Cruz *et al.* 2003)	

- A range of preventive and curative interventions can be implemented by non-professional health workers, through so-called community-based interventions (Haines *et al.* 2007), which tackle issues related to service location, transport-associated costs and means (geographical accessibility), costs of service (affordability) and treatment availability. As these non-professional health workers are recruited from within the community, many acceptability barriers are reduced for health interventions they promote, although the range of health interventions that they deliver is limited (Haines *et al.* 2007).
- Accreditation involves the assessment of the quality of care provided by health providers according to defined standards (Nandraj *et al.* 2001). The respective certification can signal to the potential client that services of a certain quality are available at the facility, thus dealing with information availability on the demand side as well as availability issues on the supply side. Due to the tendency of qualified health providers to reside in more affluent areas, the impact of accreditation on geographical accessibility is deemed insufficient.

Demand-side, financial interventions

- Health equity funds are third-party mechanisms that reimburse selected health care providers for services delivered to eligible poor, as mentioned above (Hardeman *et al.* 2004). The benefits provided by these funds give eligible patients financial access to health services (affordability), often transport costs are catered for by the scheme (geographic accessibility) and the entitlements lower stigma and deal with low self-esteem (acceptability). On the supply side, the associated financial incentives motivate staff, and provider reimbursement tackles the lack of opportunity (availability) while there are no issues for the beneficiaries around complex billing systems (acceptability).
- Targeted vouchers for health services entitle the holder to use specific health services at selected health providers without paying the respective user fee, as the voucher is exchanged by the provider for a specified amount of money (Bhatia and Gorter 2007). Voucher users receive information on health providers and associated services (availability), health providers with the right skills are selected to deliver the specified services, lack of opportunity is addressed through targeting, staff are motivated by use of the financial incentive (availability), eligible voucher holders do not incur user fees (affordability) or face complex billing systems, health awareness is improved by accompanying information and education campaigns, and stigma is addressed (acceptability). Geographical accessibility may be improved if transport costs are catered for (accessibility).
- Community-loan funds provide the opportunity for people to borrow at zero or low interest to pay for medical care and/or emergency transport to the health facility (geographic accessibility). At least temporarily, services are made affordable. However, findings related to such funds for maternal and child health in Nepal found that the poorest were excluded from participating in them (Morrison *et al.* 2010).
- Pre-payment schemes spread the risk of health costs. While social health insurance covers only formal-sector salaried workers, community-based health insurance for the informal sector is non-inclusive of the poor (Ekman 2005). Government can facilitate enrolment of the poor in the risk pool by subsidizing their premiums (O'Donnell 2007), which

addresses the cost of services (affordability) and may lower stigma (acceptability). In LIC, social health insurance is mostly restricted to urban sites, where the private formal sector is concentrated, thus not improving geographical access. Aspects addressed by pre-payment schemes are affordability and acceptability, the latter indicated by its voluntary nature of enrolment.

- Conditional cash transfers are monetary transfers made to households over a certain time period when complying with certain health behaviours (Lagarde *et al.* 2007). Conditional cash transfers make money available for transport (geographic accessibility), often deal with low education (availability), address household resources and cash flow within society (affordability), specifically deal with health awareness, and can tackle low self-esteem, cultural preferences and stigma (acceptability).

Supply-side, non-monetary interventions

- Provision of an essential health service package. This consists mostly of cost-effective services delivered at the lowest echelon of the health system, including health facilities predominantly used by the poor (Ensor *et al.* 2002). The intervention deals with location of the service (geographic accessibility), ensures availability of drugs and other consumables and offers health services tailored to the knowledge and skills of health workers (availability), often involves free service provision (affordability), and mostly conforms with poor households' expectations as services are provided at sites most used by them (acceptability).
- Regulation by the health and non-health sectors of public–private service provision at district level may address issues related to cost (affordability). However, as with social marketing, qualified private practitioners are unlikely to reside in poor and remote areas, thus limiting the impact on geographical access.
- Provision of integrated outreach services tackles the issue of the location of the health care provider and transport costs for the household (geographic accessibility) and may increase availability, although the range of health services provided during outreach is limited.
- Maternity waiting houses are shelters built close to the health care providers where women can reside at no or minimal cost while awaiting contractions to start. They address issues related to service location and late or no referral (geographic accessibility), waiting time and lack of opportunity (availability).
- Emergency transport with an associated communications system is mainly concerned with having transport available in cases of emergencies (geographic accessibility).
- Establishing better-staffed peripheral health units addresses the geographic accessibility and availability dimensions by bringing services closer to the intended target group.
- Provision of culturally sensitive health care can be improved through specific courses or by employing members of the same ethnic groups as those whose concerns are to be addressed (acceptability).
- Deconcentration is a form of decentralization whereby authority and responsibility are shifted to lower echelons of the Ministry of Health. Deconcentration is thought to improve access to care by allocating financial resources according to local needs and making more money available by spending it more wisely (availability); to tackle lack of opportunity by targeting marginalized groups; and to enable accountability whereby providers are more responsive to preferences and expectations of the local population (acceptability) (Bossert and Beauvais 2002; Bossert *et al.* 2003).
- Improved management, including supervision and feedback mechanisms, potentially holds the greatest promise as it can effectively address all four dimensions related to access barriers and tackle each associated aspect, as long as sufficient resources are available. Management can comprehensively deal with issues related to human resources, finances, and service organization and delivery.

Supply-side, financial interventions

- Pay for performance involves a contractual arrangement with staff of a health unit to deliver certain health services to a specified target population in exchange for financial incentives. These incentives supplement mostly meagre salaries and their payment is commonly linked to quantitative output indicators but could also include qualitative indicators (Meessen *et al.* 2006). Performance-based financing is a strategy that potentially addresses all dimensions of access barriers but particularly affects quality of care through better-motivated health care providers.
- Needs-based financing is the allocation of financial or budgetary resources based on a formula reflecting population health needs, often incorporating the proxies of size, age and sex of the population and degree of poverty (Pearson 2002). Potentially, needs-based financing can address the dimensions of availability of services, affordability by reducing costs of services and geographic accessibility by reducing the distance to providers.
- Contracting encompasses contractual arrangements between the government and private providers (contracting out) or with government providers (internal contracting) (see for example Arur *et al.* 2010). The principal (government) provides financial compensation to the agent (the contracted entity) for the delivery of health services to a specified group. Different approaches to contracting for health services exist. In this document, contracting refers to management contracts whereby the government hires private agencies to manage existing government health entities (Loevinsohn and Harding 2005). Dimensions of access barriers that are thus tackled are similar as under 'improved management' above. It should be noted that contracting often entails pay for performance (Arur *et al.* 2010), although these two interventions are here considered separately.
- The application of user fees for government service provision is a contentious issue. In most countries, especially in Africa, health care utilization is inversely related to the amount of user fees charged. In some cases, however, notably in Cambodia, utilization has increased at health facilities where the introduction of official fees works to reduce informal payments (James *et al.* 2006; Peters *et al.* 2008). The experience in Africa and elsewhere indicates why user fees

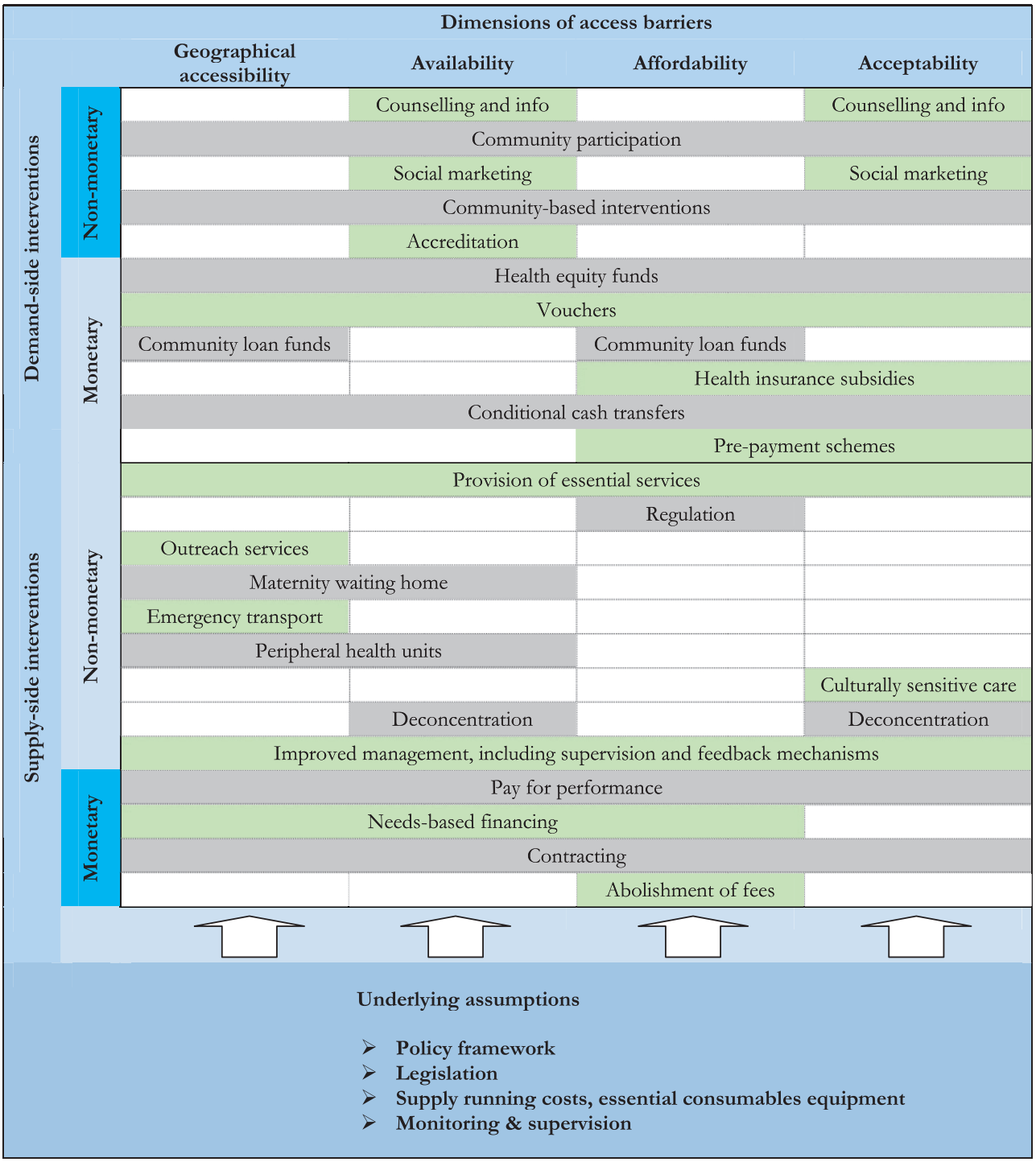

Figure 1 Analytical framework for interventions addressing demand- and supply-side barriers to health at district level

are considered a barrier to access. The removal of user fees or the granting of exemptions improves affordability, but if not accompanied by other measures (such as improved drug supply to the health facilities and management supervision) may actually reduce access due to drug shortages and increase informal payments (Yates 2009). As indicated by Pariyo *et al.* (2009), removal of user fees in Uganda increased utilization of curative public health services but distance from the facilities remained a considerable access barrier for the poor.

Based on the analysis so far, it is possible to develop an analytical framework that combines the four dimensions of access with the understanding of supply-side and demand-side interventions. The analytical framework, which is illustrated in Figure 1, is useful both as an analytical tool for the

investigation of access issues in various situations and as a means for policy development in response to a lack of adequate access to health services for poor and vulnerable groups. It is illustrated below by reference to two case studies from Cambodia.

Case studies from Cambodia

We will now use some experiences from two case studies from some rural districts in Cambodia to illustrate how monetary and non-monetary supply-side and demand-side interventions can work in a complementary way to ensure access to health services. The districts enjoyed external financial and technical support that focused on improving the quality of care by upgrading the skills of the staff members and provision of the necessary equipment while strengthening the management proficiency of the administrators. The objective is not to evaluate the described interventions but to apply the analytical framework to assess their influence in addressing access barriers. Facility-based deliveries are considered as the output variable to assess the effectiveness of these interventions since this is the most difficult amenable health-seeking behaviour (Loevinsohn and Harding 2005).

Contracting was introduced in five operational health districts (ODs) in Cambodia in 1999. An assessment after 2 years, with control groups, indicated that the approach was more successful than conventional supply-side interventions and that changes were most notable for uptake of preventive services other than institutional deliveries and contraceptive usage (Loevinsohn and Harding 2005). This was also the case at Kirivong OD where, by 2004, five years after the introduction of contracting, the uptake of preventive services was considerable: 97% of children were fully vaccinated, 83% of pregnant women had at least two antenatal care consultations and 34% of the mothers who gave birth in the preceding 18 months used contraceptives (Jacobs *et al.* 2010). Facility-based deliveries, however, were only 31% of total deliveries despite the presence of contracting, a considerable degree of community-participation (Jacobs and Price 2006) and a well-functioning health equity fund that also enabled access to health centre services (Jacobs *et al.* 2007). However, by 2006, when a performance management system was in place in addition to the aforementioned interventions, facility-based deliveries nearly doubled to 59% of total deliveries and kept increasing thereafter (Jacobs *et al.* 2010).

Ir *et al.* (2010) reported on the introduction of targeted vouchers for deliveries at three ODs in Kampon Cham province that hosted health equity funds as well as contracting and pay-for-performance. The health equity fund reimbursed only the hospital for facilitating deliveries by poor women; the voucher scheme complemented this by supporting institutional deliveries at health centres. The introduction of vouchers preceded an initiative by the Royal Government of Cambodia to stimulate facility-based deliveries by paying incentives to midwives with the objective of reaching Millennium Development Goal 5 to reduce maternal mortality. This nationwide initiative, which commenced at the end of 2007, involved a financial incentive for midwives of US$15 per assisted delivery at public health centres. In 2006, facility-based deliveries at the three ODs accounted for 16.4% of the estimated number of deliveries. By 2007, this figure rose to 24.9% and in 2008, when the five interventions were fully operational, it rose to 44.9%. Comparison with ODs that enjoyed only two interventions (contracting and government midwife bonus) or one (government midwife bonus) indicated that vouchers for deliveries provide the required impetus to attain the sudden increase in facility-based deliveries.

Figure 2 shows how the various interventions addressed different access barriers for the above case studies in Cambodia. At Kirivong, the additional value of performance-based management appears to be its effect on staff motivation and impact on private–public dual practices, two issues that were not addressed by the other interventions. At Kampong Cham, the voucher scheme's contribution to institutional deliveries seems to stem from enhanced access to health centres along with implementation of a referral system for emergency obstetrics, thus reducing geographical access barriers. By including access to health centres, both women's expectations and their cultural preference for delivery closer to home (Matsuaoka *et al.* 2010) were addressed, while the health education accompanying the voucher distribution increased awareness of the need for qualified assistance during delivery.

Discussion

As Ensor and Cooper (2004) observe, the number of identified access barriers is considerable but the literature on interventions to address these is disproportionally small. The analytical framework presented here provides a useful tool to enable policy makers and health planners to design or select interventions to tackle the different aspects and dimensions of access barriers to health services. Conversely, the framework can be used to assess the appropriateness of existing interventions where the barriers to access are known.

A number of interventions appear to address all four dimensions of access barriers. Such interventions include community participation and community-based interventions, health equity funds, conditional cash transfers, provision of essential services, improved management, pay-for-performance and contracting. However, these interventions do not necessarily affect all the aspects of the barriers to access within each dimension and often vary according to the comprehensiveness of services delivered. For example, contracting and community participation may tackle many demand-side and supply-side aspects and ensure access to a wide variety of preventive and curative health services, but may not specifically target the poor; health equity funds tend to focus only on curative care (often only hospital care); and community-based health interventions tend to be rather narrowly defined and limited to specific conditions.

Other interventions, such as social marketing, accreditation and emergency transport, touch upon only a few dimensions and aspects, are often related to a particular condition and tend to be successful in a specific context only (though this is not necessarily a disadvantage). None of the discussed interventions appear mutually exclusive. Although they were presented separately for the sake of developing the analytical framework, in reality most are used in combination, and their success may

Access barriers			Kirivong				Kampon Cham				
			Community participation	Contracting	Health equity fund	Performance management	Contracting	Health equity fund	Performance management	Midwife incentive	Vouchers
Access	S	Service location		X							X
	D	Indirect costs			X			X			X
		Transport means									
Availability	S	Health workers		X			X				
		Waiting time									
		Staff motivation				X			X	X	
		Drugs & consumables		X		X	X		X		
		Non-integration of health services		X		X	X		X		
		Lack of opportunity	X	X	X	X	X	X	X		
		Late referral			X	X					X
	D	Information on health care	X		X	X		X	X		X
		Education									
Affordability	S	Cost and prices of services			X			X			X
		Private–public dual practice				X			X	X	X
	D	Household resources			X			X			X
		Opportunity costs			X			X			X
		Cash flow									
Acceptability	S	Billing system			X			X			X
		Interpersonal skills	X		X	X		X	X	X	
	D	Expectations	X		X						X
		Low self-esteem									
		Preferences									X
		Stigma			X			X			
		Health awareness	X								X

Notes: S = supply; D = demand.

Figure 2 Impact of interventions on addressing access barriers to institutional deliveries

depend in fact on their particular configuration and joint implementation (Peters *et al.* 2004; Ashford *et al*. 2006).

As suggested by O'Donnell (2007) and De Brouwere *et al.* (2010), demand-side and supply-side barriers must be addressed concurrently to have the biggest effect. When aiming to increase health service uptake by the poor, it is necessary also to increase the service delivery capacity of health providers as they may otherwise be unable to cope with the increased demand (Ahmed and Khan, in press). Standing (2004) observed that a well-functioning, accountable bureaucracy is necessary for demand-side financing strategies to function effectively, though this is mostly lacking in LIC. De Brouwere *et al.* (2010) emphasized that the quality of care has to be developed before any other intervention can be successfully implemented.

The Cambodian case studies suggest that similar interventions in slightly different environments may produce diverse results, and that single interventions appear to be less effective than a combination of interventions. This contrasts with the prevailing trend to report on single interventions only. The myriad of existing, non-mutually exclusive barriers that concurrently impede access to health services render a single intervention less effective than combining several of them. The selection of interventions for effectively reducing barriers to access will thus depend on the dimensions and aspects of the barriers to be tackled, their political, cultural and geographical context, the human and financial resources available, and the historical development of the health sector.

Further studies are needed to assess the contextual factors that influence the effectiveness and efficiency of interventions designed to address access barriers, and to identify what combination of interventions may produce the optimum result. Factors that have to be considered for such assessments include: (1) administrative overheads, transaction costs and complexity of administration; (2) the effect of interventions on provider behaviour, including supplier-induced demand and moral hazards; and (3) potentially perverse incentives. For the analytical framework we assume that sound policies are in place for the health sector, that respective legislation is enforced while a steady supply of consumables and funds is provided, and that monitoring and supervision are regularly conducted. These principles should enable the public health sector to operate at a basic level. However, many interventions to enable access to health care have been developed because of a

suboptimal performing health system due to malfunctioning of these underlying factors. There is thus a need to consider the aforementioned underlying factors when assessing the feasibility of interventions to enable access to health services. While we focus on interventions with potential positive effects on overcoming access barriers in the short or medium term, ongoing efforts should be directed to address issues that require considerable time to tackle, including the lack of female autonomy, lack of social support or social capital, social exclusion and marginalization. However, removal of financial barriers addresses partially some of the short-term determinants of lack of social support and female autonomy.

Other outstanding issues include, on the one hand, the role of the private for-profit sector and, on the other, the capacity for scaling up to large geographical areas. The rationale for the integration of private sector providers into the interventions designed to reduce access barriers is based on the common fact that in LIC most outpatient consultations occur at these providers (Bustreo *et al.* 2003). However, most interventions implemented through the for-profit sector tend to focus on a limited range of health conditions and services. They often require the presence of qualified personnel who tend to reside in urban and more affluent areas while the poor, who live predominantly in rural areas, mostly consult private (un-certified) drug shops and other unqualified private providers. Integration of private with public services may be difficult to achieve in practice as these countries often lack the ability to enforce regulations and other legislative measures (Mills *et al.* 2002). There is also insufficient evidence on issues related to costs, benefits and the impact on equity of interventions implemented through the private for-profit sector (Bustreo *et al.* 2003; Patouillard *et al.* 2007).

While we focused here on the district as the geographical unit for implementation of interventions, policy makers and donors often focus on the process of scaling up interventions to wider geographic areas. Few interventions have, however, been scaled up to nationwide coverage (Janovsky *et al.* 2006). The framework has been developed for application in the Asian context. For other continents, the respective literature requires to be considered, although, apart from socio-economic and cultural aspects, barriers and interventions remain conceptually similar to a considerable extent. In areas, including Asian ones, where context-specific cultural aspects have a substantial influence on access to health care, the framework requires adjustment prior to application so that these cultural factors are fully captured. We did not select interventions according to their strength of evidence base, and many of the advanced interventions have not been subjected to rigorous evaluations, so policy makers may adjust interventions used in the framework according to the strength of respective evaluations. In this case we were not able to provide a 'ready to use' analytical framework. Instead, we offered an analytical framework on which to build a country or regional specific one.

Conclusion

There are many demand- and supply-side barriers that affect access to health services, especially for the poor. While interventions have been put forward to address these barriers, their individual effectiveness may be optimised when applied in combination with others, since none appears to concurrently address all dimensions or aspects of access barriers. The analytical framework can be used as a template to identify interventions, or a combination thereof, that can tackle specific access barriers, or to analyse why interventions do not achieve the desired result of increasing access. The framework may be adjusted to incorporate contextual factors that we did not capture or to consider only those interventions for which there is a strong evidence base, if any.

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