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Access to health care: taking into account health systems complexity

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Abstract

The paper contributes to the understanding of access to care in low and middle-income settings. It synthesizes findings from a linked series of studies on user and provider beliefs and practices. Existing theoretical frameworks often conceptualize access as a one-stop contact with the health system, obstructed by a range of obstacles. These fail to address the complexities involved in accessing health services; including non-linear relationships, continuums of time and skills needed in care provision, the role of communities in mediating member's access, and the dynamic interaction between patients and providers. We suggest an approach to conceptualizing access taking uncertainty and complexity into account - addressing the continuous nature of treatment, the diversity of barriers at each stage, and the dynamic provider-patient interaction in context.

Introduction

Access to effective care is at the heart of the discourse on how to achieve the health-related Millennium Development Goals. (United Nations General Assembly, 2000) Researchers have identified a range of simple and inexpensive interventions that hold the prospect of saving the lives of many of the infants, children and mothers now dying unnecessarily. At the same time, new global mechanisms, many developed within the framework of the Global Fund against AIDS, Tuberculosis, and Malaria, have brought once unaffordable drugs within the reach of those who need them. A crucial challenge is how to ensure access to these life-saving interventions.

Even in the poorest countries, some people, often those living in capital cities, are able to obtain care. Many more are not. The challenge is often seen as one of scaling up – addressing the question of 'How can the benefits available to the few be expanded to meet the needs of the many'? Greater provision of facilities that can deliver effective care is necessary but is not, in itself sufficient. In this paper we argue that progress requires a clear understanding of the concept of access that goes beyond many contemporary paradigms that are explicitly or, more often, implicitly, in widespread use.

Access to care: the dominant paradigm

Put simply, buildings and flows of people can easily be counted while the often messy behavior of individuals is much more difficult to quantify. Inevitably, therefore, analysts have frequently equated provision of facilities or numbers attending them with access to care, despite acknowledging that access and utilization are conceptually different. (Oliver & Mossialos, 2004) Utilization is thus a frequent proxy for access (Tipping & Segall, 1995) and one that is easier to measure (Kyomuhendo, 2003; Falkingham, 2004; Kunst & Houweling, 2001; Rosenstock, 1996; Yanagisawa et al. 2004).

The focus on utilization leads naturally to consideration of access as a function of supply and demand. Supply is characterized in terms of service availability (Gulliford at all, 2002), typically involving measures of staff numbers, facilities and activities. In some cases, an additional element, quality or acceptability of care, may be incorporated (Ensor and Cooper, 2004). It is, however, more difficult to capture the demand side of the equation. This requires some knowledge of who does or does not use services. Here, analysts seek to ascertain factors such as age, education, employment status, or distance from the facility that affect utilization. At this point the analysis becomes more complex as identifying under-utilization is essentially a technical exercise; explaining it is much more difficult. A service may be easily accessible from a purely technical perspective yet some groups may not use it (Mooney 1983, Goddard and Smith 2001).

Given the difficulties in engagement with the underlying determinants of utilization, policy interventions have focused mainly on the relatively simple notion of supply side barriers, for example by increasing the number of facilities, so reducing the time taken to reach the nearest one, an approach justified as an important first step (Goddard and Smith 2001). They have paid less attention to demand side barriers (Ensor and Cooper, 2004) yet there is extensive research documenting the importance of both in low-income countries, such as work on financial barriers created by user fees. (Morris & Flores, 2004; Ensor & Cooper 2004).

A further complication arises when one asks the question of why it is a good thing to increase access? The desirability of doing so is predicated on the premise that the care provided will be beneficial, leading to improved outcomes. This has led some to argue that the concept of access should distinguish between equity of ‘service availability’, ‘service utilization’; and ‘outcomes’, with access important only if it will result in equal and positive health outcomes. (Gulliford at all, 2002; Andersen, 1995; Davidson et al. 2004) This clearly introduces further complications. Even in ideal circumstances, what can be achieved by health services will be a function of many other factors, such as socio-economic status, nutrition, and smoking behavior. Even the most sophisticated models may find it difficult to differentiate these factors. Furthermore, while much health care does improve outcomes, such as the integrated management of childhood illness, emergency obstetric services, and integrated care for diabetes and its complications (World Health Organization 2002; St Vincent Declaration, 1989) it is clear that not all is beneficial (Aday & Anderson 1981) especially where there is 'overmedicalization'. Thus, as Florence Nightingale showed during the Crimean War, access to a hospital actually increased the chance of dying, primarily because of the failure to tackle the risk of infection (Nightingale, 1858). Over a century later, Illich introduced the concept of iatrogenic illness, arguing that much of modern health care was actually harmful. (Illich 1995)

Then there is the question: Does one define need for care as the presence of illness (with the attendant difficulties of ascertaining this fact where the illness can only be identified by means of a diagnostic process)? Or is it defined in terms of ability to benefit - an even more complex construct requiring knowledge of both the individual's condition and the existence of effective treatment. (Culyer & Wagstaff, 1991) Need may have little correlation with utilization (Oliver & Mossialos, 2004).

Moving forward, let us assume that an individual has a condition for which an effective intervention exists, and which can be provided effectively at a facility to which that individuals has, in theory, access (i.e. there are no explicit barriers). This leads to consideration of the processes by which it is decided to seek care. A variety of theories exist to explain this process, of which the 'health belief model' (Rosenstock, Stretcher, and Becker, 1981) and the 'behavioral' model (Aday & Andersen, 1974; Kaspar, 2000) are among the most widely used. The health belief model addresses an individual's assessment of risk, the trade-offs that he or she makes when balancing perception of the seriousness of the illness and benefits that might be obtained from treatment. This model helps to understand the individual motivations that play a central role in the decision to seek care, such as willingness to define oneself as ill, perception of stigma associated with illness, and disengagement from the treatment process. This model has, however, been criticized for not taking into account the influence of the broader context within which health seeking behavior is embedded (Rogers *et al,* 1999).

A distinction between 'potential' (opportunity to use care that is available) and 'realized' access (actual use of services) forms the basis of the widely applied 'behavioral model' (Aday & Andersen, 1974). This model was originally developed in the 1960s, exploring how essentially individual factors, such as socio-economic characteristics, cost and distance to care, social support, health beliefs, enabling resources available (e.g. presence of facilities), and health need acted to influence the use of health services. (WHO, 1998; Thaddeus & Maine, 1994; Ensor & Cooper, 2004; Kutzin, 1993) While these characteristics could be shown to predict utilization and identify groups that are likely to suffer sub-optimal access to care (Davidson et al. 2004), it was subsequently found necessary to expand it to incorporate features of the health care system and external environment (Anderson 1995). Others have focused on 'pathways' to care, examining the steps that an individual takes to obtain care and emphasizing the role of enabling and obstructing factors at each step of the process (MacKian, Bedri, and Lovel, 2004).

Incorporating complexity in an understanding of access

These approaches provide a useful starting point from which to understand access and decision making at the individual level. However, they fail to capture the inherent complexity involved in accessing appropriate health services.

Recent years have seen a surge of interest in the concept of complexity, from detailed mathematical treatises to popular guides for lay readers. (Lewin, 2001; Gribbin, 2005;

Pawson et al. 2005; Kernick, 2004). Complexity theory has been applied to phenomena as diverse as the behavior of sub-atomic particles, financial markets, and biological systems. (Gell-Mann, 1994) Its essence is that these systems, which include social systems such as those delivering health care, react to stimuli in ways that are complex and adaptive. These reactions involve multiple non-linear pathways which are highly susceptible to very small changes in the mathematical form of the relationships and, especially, the starting conditions. Precise measurement of these initial (baseline) conditions can be impossible (Kernick, 2004), and 'feedback loops' can exist whereby reactions to structures can in turn alter the structures themselves. As a consequence, the difficulty inherent in defining both of these parameters means that while the observed behavior of a system can be explained with hindsight, its future behavior cannot be predicted with absolute certainty. (ibid.) This contrasts with traditional determinist paradigms.

Health systems can be seen as dynamic interaction of different elements, 'where change in any one element can alter the context for all other elements' and can subsequently be influenced by them (Kernick, 2004). As such, health systems research must take account of this complexity, seeking to understand emergent patterns rather than cause-and-effect sequences (McPake, Blaauw, and Sheaff, under review). In practice, little research has sought to operationalize the elements of complexity in studying access to care. Although some models of access have incorporated feedback loops allowing for bi-directional linkages between stages in the process of accessing care (Andersen, 1995), other elements of complexity, such as 'path dependency', where the initial choices made will influence subsequent pathways, potentially reducing the number of choices at later stages (Tissot, 2002), have rarely been addressed.

Aspects of complexity

The nature of complexity set out above means that it is not possible to create a simple conceptual model of access; it is instead necessary to identify a series of mechanisms that should be taken into account in seeking to understand the complexity involved. These mechanisms can be thought of as ‘dynamic responses’ that sit between the *de jure* health services that are legislated and the *de facto* outcomes that are observed. (**Figure 1**). The dynamic response framework illustrates how the processes within a health system undertaken with the goal of improving health outcomes are often mediated through informal relationships and behaviors, with the interaction of multiple often competing incentives, leading to intended and unintended consequences that impact on the quality, availability and affordability of care. Such an approach avoids simple ’cause and effect’ relationships generalizations and instead attempts to show how official policy is interpreted at many levels, ultimately leading to either positive or negative results.

Applying such a framework to health care access highlights three key elements of complexity that need to be addressed. The first is the long-term engagement with services, rather than one-off events. The dominant model of access in the literature implies a situation in which care is obtained during a single episode or a sequence of independent visits. While many basic interventions involve a single encounter between an individual and a care-giver, for example, care for a minor injury or an episode of diarrhea, a growing share of health care involves a sequence of interlinked contacts, sometimes with a range of health professionals and other care-givers, over a lengthy period. This scenario is increasingly common given the increasing global burden of chronic disease, which requires complex packages of health care. There is also an emerging understanding that many single episodes of care are expressions of chronic underlying problems, such as inadequate occupational health provision, sanitation, or reservoirs of infection, that produce continuous recourse to the health system (WHO, 2002;

McKee & Healy 2002). It is therefore necessary to find a way to broaden that concept of access to capture the phenomenon of care over the long term.

A second aspect of complexity is that conventional models primarily focus on decisions by individuals, while failing adequately to acknowledge the complexity of the processes involved on the demand side. This includes the social embeddedness of decision-making, which can enable or impede access (Andersen, 1995). The afflicted individual thus confronts multiple choices, each involving tradeoffs and weighting of options, as they seek to respond to diverse incentives and transcend different barriers simultaneously. In contrast, many studies on access to care implicitly assume that individuals are rational decision-makers confronted by simple decisions, with sufficient information on the nature of their illness and the consequences of different courses of action. Furthermore, decisions to seek care are made in the context of a multi-layered intra-family and community discourse, drawing on formal and informal norms, networks and relationships. A failure to incorporate these complex influences while focusing on individuals will ignore an important layer of influence and thus limit understanding of how individuals access care (McKian, Bedri, and Lovel, 2004). This is especially important in relation to life events that are culturally embedded, such as childbirth. Thus, the use of health services by expectant mothers is shaped substantially by social norms relating to home birth, as well as the priority placed on women's health, or stigmatization of women who seek help during delivery (Kyomuhendo, 2003; Afsana & Rashid, 2000; Safe Motherhood, 2001; Mumtaz, 2005; Kutzin, 1993).

In understanding the decision to seek care, it is also important to consider the role of agency, whereby individuals, recognizing that the cost of obtaining the necessary information will be prohibitive, seek advice from those who have previously invested the effort required. This is a key element in the concept of gatekeeping, seen as a way of impeding access to specialist care but perhaps more usefully considered a mechanism whereby individuals can be helped to navigate a complex system in a way that gets them, with the least effort and delay, to where they can obtain most benefit (Saltman, Rico, and Boerma, 2005).

A third aspect of complexity is the dynamic interaction between provider and patient behavior that takes place on the front line of service provision but which is not captured by the dominant paradigms. Each counterpart responds to the behavior of the other, and future interactions can be shaped by feedback from these interactions. Norms of provider behavior will determine what is deemed to be accessible by patients. (Thiede, 2005) Continuing with the example of childbirth, although this is a common, distinct event, involving a well defined set of inputs (trained attendant, emergency referral etc.), the phenomenon of access can be complex. The decision to seek formal care will be influenced by how the services on offer are perceived. Providers may be motivated to offer particular services in particular ways because of the time available to them, the opportunity for financial gain, or perceptions of the user's social status. All of these are influenced, positively and negatively, by culture, accountability, and the structure of incentives. In response, users will often develop their own multifaceted coping strategies. Where the service is perceived to be inadequate they may forego care or may draw on voice (to complain), exit (to seek alternative providers), or informal exit (by making informal gifts, whether financial or in kind) (Gaal & McKee, 2004). The way in which individuals will respond will be influenced by many factors, including the choices previously made by others within their circle of acquaintance that were seen to 'work', highlighting the role of path dependency. Conversely, the incentives may be perverse, so that one side, typically the provider, responds to a situation in a way that maximizes their utility but reduces access. Each participant in the care process - providers, service users, and planners – would subsequently respond or change behavior based on the strategies of the others. Often complexity is compounded by information asymmetry, particularly affecting users with no previous experience of how the system operates (Rosenhead & Mingers, 2001).

A final aspect of complexity is the extent to which any model of access can be applied in settings other than those in which it was developed, given growing recognition that a package of care that works in one setting may not work in others (Pawson & Tilley 1997; McPake, Blaauw, and Sheaff, under review). From the perspective of complexity theory, this is because elements in the environment that differ between contexts have not been factored into the model adequately. It is important therefore to assess both the mechanism by which access occurs, as well as the enabling and constraining factors that are necessary for it to occur (Pawson & Tilley 1997; Pawson et al, 2005). A model that defines access as a progression by the individual through a range of barriers, towards the acquisition of necessary care, gives insufficient significance to context. Other models do consider context explicitly, but typically as something that has an indirect influence on access and utilization; in the form of the 'external environment' (Andersen, 1995). There is, however, a third approach, which argues that context is constantly changing in ways that impact on the factors affecting access, thus emphasizing its importance but also the difficulty in studying it. (Phillips et al. 1998, Davidson et al. 2004, McPake, Blaauw, and Sheaff, under review) Failure to account for the effects of context, which has been described as having political, social, cultural, economic, and external aspects (Leichter) may overlook essential determinants that help explain access to care. On the other hand, it would be wrong to argue that no model can ever be applied in a setting other than the one in which it was developed. Instead, there is a need to apply skills in pattern recognition to explore the likelihood that a new context may be sufficiently similar to allow transferability (Rose, 1993; McPake, Blaauw and Sheaff, under review).

These salient features of complexity may be especially pronounced in low-income countries with pluralistic, inadequately funded, and loosely regulated health systems. In high-income settings, formal health systems are expected to function within a clearly defined legal and regulatory framework, users are expected to be less likely to experience barriers to access or to be willing to accept inadequate access to care (as illustrated by citizens initiating legal action when denied treatment (Dyer, 2006), and provider's responses are expected to be constrained by societal norms, backed up by legal sanction. (Thaddeus & Maine, 1994) In contrast, in poor countries, the care received by relatively disempowered users may depend on the incentives of the frontline providers, who may have substantial discretion in their interpretation of regulations, who may face incentives to adapt treatment protocols creatively, and who are under few legal or regulatory constraints. To a greater extent, the determinants of what happens will lie outside the health system, relating to institutional capacity, the rule of law, and behavioral norms. These factors can be expected to be as powerful in determining utilization as are personal factors.

Moving forward – Access in low and middle income settings

Based on these theoretical understandings outlined above, this paper now addresses the understanding of access in low and middle-income settings by exploring elements of complexity and uncertainty that cut across a variety of settings. It draws together the lessons that have arisen from a series of projects conducted within the framework of the Health System Development Programme in 2003-05 investigating the role of health systems in protecting the health of the poor, mainly in Bangladesh, Russia, South Africa and Uganda.

The research program has utilized the concept of 'probes' as a tool to investigate the complex and cross-cutting issue of access in relation to different aspects of the health system and context within which they operate. The 'probe' conditions include maternal health care, diabetes, and tuberculosis, each of which has significant implications for health outcomes in particular settings. These provide different angles from which to study health systems and access to care due to the different requirements for their management within health systems and also help identify crucial cross-cutting issues which manifest in different ways. Promoting effective maternal health care, for instance, requires monitoring of all pregnant women, regardless of presence of illness. This typically relies on lower levels of health systems, but if complications arise, successful treatment often requires the services of higher levels of specialized care at specific points in time. Diabetes management, on the other hand, requires long term monitoring and follow-up at primary or secondary care; reliable drug supply, and immediate access to specialist care for complications. Tuberculosis management, especially following DOTS protocols, requires uninterrupted monitoring during treatment and adherence to drug therapies. All these conditions require multiple visits at different levels, involving different specialist skills, and requiring integrated management and clear responsibility for follow-up; with potentially fatal consequences where this is not achieved.

The process was theory driven, with initial assessments generating list of critical issues and hypotheses about how the system might work. This led to the selection of those methods most appropriate to the hypothesis being tested, with both quantitative and qualitative approaches being employed – including extensive use of in-depth case studies and narratives to elicit understandings of user and provider experiences.

Approaching the notion of access to care from the perspective of different probes has enabled the authors to engage with the various areas of complexity and empirically study the following key issues which will be discussed in turn: the need to look beyond available infrastructure and human resources as a proxy for access, the conceptualization of access taking place over space and time, the role of communities in mediating care seeking behavior, the interplay of different barriers to care, and the dynamic relationship between users and providers of care. The paper concludes with some suggestions for how to take forward the research agenda that emerges.

Expanding service provision may not enhance access

Expanding health system capacity, expressed as availability of staff, infrastructure and pharmaceuticals, is often seen as a critical element of improving outcomes in resource-poor settings. In Bangladesh, a national program was initiated to create a network of community clinics that would be easily accessible to those living in rural areas. Clinics would offer family planning, preventative services, and limited curative care to a population of 6,000, while incorporating previously outreach-based services such as contraception and immunization (Normand et al, 2002). Outreach services were especially successful in Bangladesh in the past, possibly due to social norms discouraging women from leaving their homes. Yet studies found that when seeking care, women would bypass the new local clinics, most of which were not functioning properly due to lack of personnel and operating funds. Instead, women traveled to sub-district health centers, which were perceived to deliver better quality services. Evaluation suggested that investments may have been better spent on strengthening the already underused low-to-middle level facilities, rather than building increased numbers of dysfunctional low level facilities (Normand et al, 2002).

Research in Russia has shown that even where there is extensive infrastructure and it is widely used, it may fail to achieve good health outcomes (Parkhurst, Danichevski, and Balabanova, 2005). This is because marginalized groups, who are in most need, face systemic barriers to access and services may not be responsive to their needs (Dimitrova et al. 2006). A further issue arises where the care being provided is ineffective. In Russia some treatments are contrary to available evidence on effectiveness and, at best, unlikely to be beneficial while, at worst, likely to be positively harmful. Examples include the almost universal hospitalization of pregnant women (Danishevski et al, 2006), the substitution of abortion for contraception (Zhirova et al, 2004), and the widespread use of inappropriate medication. This is compounded by administrative pressure to retain capacity and maintain clinical activity despite falls in funding, leading to inadequate quality of care. (Dimitrova et al, 2006)

The former communist countries of Europe also illustrate why availability of staff and facilities is insufficient to guarantee access to care as a shortage of operating funds has led to extensive out-of-pocket payments by users (Lewis, 2002; Pavignani & Colombo, accessed 20 June 2006; Xu et al, 2003).

The expansion of physical access to essential health care is accepted as a key policy objective in many middle and low-income countries but it is implicit that this access should be to ‘good quality care’. Yet, many widely used indicators, for example in the field of maternal care, in reality focus on quantity rather than on quality or appropriate use of services (Parkhurst, Danichevski, and Balabanova, 2005). This is exemplified by the use of ‘delivery with a skilled attendant’ as a proxy indicator to measure progress towards the Millennium Development Goal of maternal mortality reduction (United Nations, 2000), while authors have argued that the notion of ‘skilled attendance’ goes beyond the person performing the delivery and must take account of whether women actually get the care needed to manage complications (Hussein, 2004). Expanding infrastructure will only make a difference if the care that is provided is effective and acceptable to potential users.

Access as a continuum of time and skills

Utilization is often measured as a series of single discrete episode of illness or contacts with the health system, including diagnosis, treatment and follow-up. However, as previously noted, illness often consists of a continuum requiring prolonged, often lifelong contact at different levels of the health systems.

Specific challenges can arise at many different stages in this process, affecting different services and population groups. This was illustrated by a study of health seeking behavior by people with tuberculosis in Samara, Russia. While initial entry to the system was relatively uncomplicated, subsequent access to reliable diagnostic services, and patient retention during treatment were extremely problematic (Dimitrova et al, 2006). The different barriers that manifested themselves at each stage, prior to and during treatment, related to differing perceptions of risks and benefits and to patient expectations. These were socially patterned;

although most users faced few costs as clinical encounters were formally free and pharmaceuticals were highly subsidized, some marginalized groups experienced considerable costs. They included those who were not registered with the authorities, migrants, and former prisoners. Furthermore, while the immediate, direct costs faced by those outside marginalized groups (including travel, absence from work, hospital food and supplementary medication) were relatively low and physical availability of service was adequate, over the longer term affected households experienced a significant reduction in their financial resources because of inadequate social support, reduced employment opportunities, and even workplace discrimination. These factors combined to reduce the probability that the patient would complete treatment, illustrating how the decision to access care can vary over time with patients moving in and out of treatment, and be influenced by different factors at different stages of treatment. Persistent inequalities in access can reflect governance and bureaucratic inertia in the wider society as much as income and geography. In such contexts, simple universal solutions to promote initial access are unlikely to work and may require multifaceted political solutions.

Similar experiences can be seen with maternal health care in Uganda where a very high proportion of women visit health facilities for antenatal screening (over 90% make at least one visit), but skilled attendance at delivery is about one third of this level (Uganda Bureau of Statistics, 2001). The difference reflects in part barriers to physical access to facilities (if labor begins at night it may be difficult to travel), but additionally is influenced by perceptions of need and risk, with Ugandan women believing a home delivery should be possible if they were told the pregnancy was normal during antenatal care (Amooti-Kaguna, 2000).

A further level of complexity arises from the need for those with chronic disorders (such as diabetes and hypertension) to have access to the skills of different health care workers. The integration of different types of care provided at different levels of the system, coupled with a key role for patient self-management, is increasingly seen as critical to success in managing chronic disease (WHO, 2002). This involves not just effective communication between health professionals working at different levels of the system but also partnerships with other sectors, such as social services.

These issues are illustrated by a study of access to care for diabetes in central Asia (Hopkinson et al, 2004). While the health systems developed in the former Soviet Union were geared towards providing acute care and scaling up basic interventions, they face difficulties adapting to changing demands. In Kyrgyzstan, although most of the elements needed for care (such as trained staff, etc.) were present to some extent, and in some places, the overall system was weak and fragmented disrupting continuity of care and care for complication. (McKee & Healy, 2002) While the evident failures could easily be ascribed to a shortage of financial resources, in reality a greater supply of funds to a dysfunctional system would be unlikely to improve the situation.

Communities as intermediaries to accessing care

Many studies of access imply a health care seeking process in which individuals make discreet choices, based on their own assessment of the options available to them, but the influence of social norms, expectations, and networks is also increasingly recognized (Andersen, 1995). Decisions to seek care are often a result of negotiation between multiple members of a community, rather than simply an individual weighing up different course of action on their own (MacKian, Bedri, and Lovel, 2004; Tipping & Segall 1995).

This is illustrated by the uptake of professional care for childbirth in Bangladesh, where nationally only 9% of women deliver in a health facility (NIPORT, et al. 2005). While social norms favoring home delivery have been previously documented (Blanchet 1984; Afsana & Rashid 2000; Afsana & Rashid 2001), one study investigated the decision making processes involved in a group of rural women who delivered in a health centre. Many women visited facilities only after problems arose when attempting home delivery, with a complex network of actors involved in decisions to seek care, each weighing up factors such as cost, distance, and perceived quality of care. Family members were important in this process, but a large number of other individuals played roles – including traditional birth attendants and local unqualified medical practitioners. The latter were particularly influential in the decision to seek care, as were other community members of status or privileged position (Parkhurst & Rahman 2005). In these cases, the decision making process was mediated by, and decided through, engagement with the wider community. In Bangladesh as well as in Uganda, the decision to give birth with the assistance of a health worker is not a one-off choice about a particular pregnancy, but instead reflects a range of socio-contextual and historical choices, including norms of birthing, beliefs about complications and their management, previous use of services and perceptions of quality of care.

Many tangible access barriers, such as transportation or cost of care, were also mediated through social networks in both Bangladesh and Uganda. Individuals in Uganda were found to arrange transportation with neighbors, while in Bangladesh families often secured loans through extended family networks. Even poor quality of care – such as long waiting times or poor treatment – could be overcome though personal connections, as seen in both countries where families facilitated access through the use of known persons affiliated with facilities (Parkhurst & Rahman 2005; Parkhurst & Ssengooba 2005). On the other hand, community-wide beliefs and processes can also become obstacles to access, leading to acceptance of informal financial exchanges or alternative practices. Thus, in both Bangladesh and Uganda, social stereotypes and group perceptions of risk perpetuate pressure to 'endure' childbirth at home.

People who are well integrated into society are more likely to benefit from available resources, while marginalized and vulnerable groups may be further stigmatized. In Yemen, many communities were unanimous that members of the Akhdam minority should not have access to local health posts, despite the absence of alternative care (Al Serouri, Blabanova, and Al Hibshi, 2002). Similarly, in the Samara region of Russia, people regularly avoided treatment for tuberculosis because of the stigma involved and the loss of social status, even though no payment was required at any stage. (Dimitrova et al, 2006)

In summary, decisions to access care are not simply a function of individual decisions, but are shaped by community norms and networks. Whether a community will facilitate or obstruct access will vary, influenced by factors including the individual's position and power within it; as well as the level of community resources and cohesion.

The interplay of barriers to care

A range of studies has sought to identify barriers to care, most commonly including financial barriers (direct or indirect costs), perceived low quality and lack of benefit from treatment, lack of information, and social-cultural norms. Most continue to conceptualize overcoming barriers as distinct individual events (Tipping & Segal, 1995), and relatively few have examined how these different types of barriers interact with one another. This approach implies that they are independent from each other, with the impact on decision-making simply accumulating. The scale and nature of interactions pose theoretical and methodological challenges to understanding access – so while three separate barriers of cost, distance, and poor staff treatment may exist in a situation, it is unknown how changes in one barrier will affect user willingness to overcome or manage the others.

The interplay and relative importance of barriers have been observed in several studies showing willingness to travel greater distances or pay more to obtain what is perceived as high quality of care (Tipping & Segall 1995; Akin & Hutchinson 1999; Deininger & Mpuga

2004; Roh & Moon 2005), at times bypassing local services to do so (Parkhurst & Rahman, 2005; Parkhurst & Ssengooba, 2005).

Understanding phenomena such as bypassing usually requires more than superficial analysis. In Bangladesh, women were seen to bypass local facilities to deliver in higher level health centers which in theory were intended to be referral points for complicated cases. While most deliveries were not complicated, a frequent reason given by women for delivering in health facilities was self-reported ‘complications’, reaching much higher than expected rates (NIPORT, 2003). Using the term ‘complications’ may enable women to seek care without facing the stigma associated with delivery outside the home, while going directly to a higher level facility (bypassing local facilities) becomes a logical course of behavior, exemplifying the dynamic nature of the interaction between user and provider.

In summary, barriers that exist in low-income countries are multiple and interconnected and the combination of barriers is strongly dependent on context. Despite an imperative to increase utilization of essential services, such as child immunization and attended births, policy responses focusing on individual barriers to access are unlikely to be effective. Instead, an understanding of how barriers are overcome and the tradeoffs involved may help identify ‘crucial triggers’ for decisions to access care.

The dynamic interaction between provider and patient behavior

Often access to care is a product of interactions between provider and patient factors, rather than a simple culmination of two distinct sets of barriers.

Formal obstacles, such as distance or cost, often can be addressed only in the long-term, and are usually underpinned by less explicit ‘system’ characteristics which cannot be changed by a series of simple interventions. For example, payments for care can often have an informal component that stems from the incentive structure confronting health care workers, whereby they charge for what should be free care. Yet informal payments (charges for free care) are not always initiated by health providers, but sometimes by patients seeking access to care, a friendly attitude, or to maintain a good relationship (Balabanova & McKee, 2002b), often reflecting distrust in the formal system (Gaal & McKee, 2004). Personal connections may also be used in facilities typified by overcrowding and in political systems where patronage is a common source of access to goods and services. In both Uganda and Bangladesh, friends and relatives were used to expedite treatment for maternal care. (McPake et al, 1999; Ssengooba et al, under review) Individuals may, therefore, bypass formal channels by using mix of connections, paying fees, barter or alternative treatments (Balabanova & McKee, 2002a; Shishkin et al, 2003; Balabanova et al, 2004). Providers also react to situations of complexity and uncertainty by making complex choices about who should be asked to pay, in what circumstances, and what particular services to provide. The outcome is often non-intuitive – as seen in Bulgaria where wealthier patients were found to pay less, but in the expectation of future favors (Balabanova & McKee, 2002b); while in Russia younger and less educated women received more pregnancy-related procedures despite their lower ability to pay (Danishevski et al, 2006).

As discussed above, perception of quality can be an important determinant of access on the demand side. Yet this perception may be shaped greatly by provider behaviors and norms, which in turn may be driven by larger system structures. For example, in Bangladesh, women attributed, in part, avoidance of health facilities for delivery to concern that doctors would demand expensive, private, caesarean sections, even if not needed. In some cases women recommended to have the procedure after a brief consultation later had a normal delivery in a general labor ward. These provider behaviors may be rooted in the low pay of doctors and the widespread acceptance of dual practice, whereby doctors offer private care during their normal working hours (Parkhurst & Rahman, 2005; Parkhurst & Rahman, in press). Similarly, in South Africa, access to good quality care in maternity wards was found to reflect a provider's interpretation of rules and reforms. One study found that reforms intended to improve services using new financial regulations actually led to deterioration in quality of care. Workers interpreted measures designed to strengthen financial discipline in ways that led to reduced ordering of necessary supplies and of provision of pain relief, due to fears of punishment for overspending (Penn-Kekana, Blaauw, and Schneider, 2004).

Whether certain system or individual characteristics are seen as obstructive or enabling may vary according to the perspective of the respondent. (Dimitrova et al, 2006) Thus, in Samara, Russia, providing tuberculosis patients with opportunities to stay longer in hospital and enhancing notification procedures were seen by health professionals as improving access while the same factors were identified by patients as stigmatizing obstacles, as unnecessary hospitalization and loss of confidentiality during case notification often led to the patient losing their job. The physicians interviewed saw access to care as being determined mainly by characteristics of the patient (their willpower, adherence to medical advice, not drinking, and eating well) so enforcement and promoting patient responsibility were seen as crucial. Factors related to the health system or social context were rarely mentioned.

Recognizing the role of context in understanding access to services

That context is important, with similar problems leading to different responses, is apparent from many of the examples already mentioned. It is exemplified by maternal services in Bangladesh and Uganda, where health outcomes are reliant on having mechanisms to enable mothers experiencing health emergencies to reach appropriate facilities. Starting from a similar point in both countries (low overall use of maternal services including skilled attendance), specific local structures and social influences were found to lead to different perceptions of acceptable risk and of what constitutes appropriate care. In Bangladesh, home deliveries are widely considered best for 'normal' delivery, but many women contend that they have complications. Local facilities are then bypassed as tertiary facilities are seen as the ‘right’ place to be, even though the woman must then endure overcrowded conditions. In Uganda, most women still deliver at home, but facility users often make decisions in advance of delivery.

Contextual factors interplay. In Uganda, decentralization and community involvement in planning allowed local priorities such as drug availability to be identified, but local decisions were not binding, as the Ministry of Finance imposed budget cuts that led to drug shortages (Ssengooba et al, 2005). This frustrated workers and damaged their relationships with patients. Similarly in Bangladesh, an attempt to build low level ‘community clinics’, with land donated by local villagers, increased the expectations of community members that they would receive services that were then not provided due to financial constraints. Relationships deteriorated, leading to widespread staff absenteeism.

Understanding of risk and complications and the resulting beliefs about what constitutes appropriate care seeking behavior differ in each context, with consequences for use of services and maternal health outcomes.

Researching complexity: choosing appropriate methodologies

These examples, drawn from a range of contexts and settings, illustrate how access to care is a complex and multifaceted phenomenon, so that its understanding poses considerable methodological challenges. There is increasing support for the view that theory-driven hierarchical models may be more appropriate for studying access than data-driven approaches. (Phillips et al. 1998; Pawson et al, 2005). However, in practice, most studies of access to or utilization of health services are descriptive, seeking to answer specific policy questions, such as the impact on access of different financial or other non-monetary factors in a particular (often implicit) set of economic and social circumstances. Instead, a focus on factors acting ‘upstream’ (such as governance or attitudes to regulation) can provide important insights into the responses of providers and users that are missed by focusing on availability of services.

Yet even simple descriptive studies of access face significant difficulties. When there is repeated contact with the health system, it may be difficult to distinguish between initial and subsequent visits, for several reasons. First, there may be recall bias. However, there may also be genuine uncertainty about when an episode of illness began or when the first contact in that episode took place, especially when it was within the framework of a longstanding relationship between the user and provider. Approaches to understanding access which look at specific individual acts of health seeking miss such important elements of provider-patient relationships, trust, and past history. Studies of access may fail to capture sub-groups within the population that suffer disproportionate access problems, whether because such individuals are missed by surveys or the categorization used is insufficiently detailed to recognize their particular status. For example, categorizing potential users on the basis of nationality may miss problems faced by minorities within a national grouping, such as the Akhdam minority among Yemenis. Perceived quality may be correlated closely with the expectations and social status of the users themselves or the circumstances in which care is received. The choice of contextual variables and appropriate units of observation for studying community level variables thus poses major methodological challenges (Davidson et al. 2004)

Understanding the factors influencing access to and use of existing health services thus requires research tracing the interaction of different factors at individual, community and health system level. Access should be seen as a function of several factors: availability of services; characteristics of users; and outcomes (such as change in health status or uptake of interventions of known effectiveness), while taking into account the complex and non-linear relationships between these elements (Aday & Andersen, 1981; Pawson & Tilley 1997). No one method can hope to provide a comprehensive understanding of these diverse factors. A mixture of qualitative and quantitative methods, drawing on a variety of disciplines, is needed (Goddard and Smith 2001). However the issue is less one of methods, but rather one of focus – specifically orienting the studies to take account of contextual complexity. The quest for understanding of the explanatory mechanisms that link inputs and outcomes requires patience, understanding, and willingness to engage with complex relationships in lieu of simple solutions (Pawson et al, 2005)

Towards the development of a health systems approach

In this paper we have demonstrated how the complexity and uncertainty that are inherent in health systems should inform, and indeed frame, the understanding of access to health care. Research into a number of probe conditions from a health systems perspective has highlighted the ways that health care access is a function of supply of physical services and popular demand for them. Interventions are bounded by the multifaceted context, in which they operate, and therefore considerable care is needed in seeking to identify transferable lessons about what interventions have a credible capacity to produce particular outcomes, and what features of the particular context are relevant to those outcomes. As Pawson and Tilley (2007) have noted, it is important to understand that outcomes are the result of mechanisms working within specific contexts, rather than of a series of inputs.

Acknowledging the significance of context implies that only slight differences in initial conditions may lead to very different outcomes (Kernick, 2004). Complexity theory argues for the application of pattern recognition and the application of appropriate theories about how elements of context impact on mechanisms. By these means it is possible to identify credible candidate interventions which can then be introduced and evaluated, identifying how they work, for whom, and in relation to which key contextual elements. Intervention must recognize that the setting is continuously responsive, as implicit in the dynamic response framework described in this paper. (**Figure 1**)

So what types of patterns can be ascertained that may be important for the consideration of access to health care? One set relates to the evolving relationship between health workers and patients, understood as a long term relationship in which multiple episodes of care occur. In some times and places there are evolving relationships of growing trust and understanding. These need careful nurturing and can be undermined by a one-size-fits-all reform program applied dogmatically (Penn-Kekana, Blaauw, and Schneider, 2004). In other times and places, there are long term cycles of deteriorating relationships which have undermined access, such as the emergence of informal payment in many former communist countries.(Gaal et al, 2006) These will not be fixed quickly and require engagement with the modifiable factors that are undermining trust if appropriate measures are to be able to act.

Another set of patterns are those related to the formal (*de-jure*) characteristics of a system that create unintended incentives. In Russia, incentives associated with resource allocation mechanisms promote retention of physical capacity at all costs, resulting in excessive medicalization and long hospitalization of patients that has the effect of deterring them from seeking necessary care.

Such issues are all the more significant where there is a ‘dual society’ context, in which traditional authority structures co-exist with governmental ones (International Institute for Labor Studies, 1996), because the incentives can be isolated from the formal policy sphere. The resulting combination of weak formal institutions with relationships that might be deemed ‘paternalistic’ or ‘nepotistic’ impacts on the incentives that health workers face at the local level to facilitate or obstruct access to care for particular groups. Such relationships must be identified and understood, not ignored, in health systems planning. The phenomena of informal charges and of mistreatment of patients, both important barriers to access, reflect a weak capacity among users to assert their rights in such contexts. Informal relationships may be used to gain access to privileged status or resources within the system, excluding those without such relationships to exploit.

A third pattern set relates to those social relationships in which decisions relating to access are embedded. These, in effect, shape context on the demand side. Social networks can create positive momentum towards, for example, greater use of skilled attendance for delivery. The situations in Bangladesh and Uganda suggested dynamic and varied patterns of social response to the availability of services. Behavioral change programs need to ally themselves with social processes that support change. For example, in Bangladesh, they might engage with the flexible definition of ‘complication’, that may be allowing women to access services, and consider what that means for how and where services should be made available. This might be more effective than seeking to persuade women to plan to use basic services for ‘normal’ deliveries that few believe they will experience or need help with. The international goal of increasing skilled birth attendance is unlikely to be met by reducing cost and distance barriers to delivery care alone, if socially sanctioned preferences to deliver at home are not also addressed.

A fourth set of patterns relates to the configuration of access barriers and their inter-relationships, recognizing that barriers may not exist independently themselves, but may be linked to other characteristics of the health system. Mistreatment of patients may serve as an enforcement mechanism for informal charges (McPake et al., 1999). ‘Cultural preference’ may be the expression of a series of more tangible concerns. Distance may not be a significant barrier if services are valued and planned around. A detailed exploration of the underlying factors in health seeking behavior that goes beyond lists of reasons people give for staying at home is necessary before credible candidates for interventions that might trigger increased accessing of services can best be identified.

The contexts of de-jure structures, dual societies, the forces driving relationships between patients and providers and governing health seeking behavior within communities, and configurations of access barriers are all implicated in the analysis of these problems and their potential solutions. All are dynamic interactions between different actors and factors, not fixed characteristics of a given place. They can be influenced by policy but this is unlikely to be successful unless the complex adaptive nature of their interactions within the system are taken account of.

Operationalising this approach requires undertaking analysis engaging with a broader understanding of health systems. The work conducted within the HSD programme that informed this paper utilised an framework which emphasised the intermediary responses between a given set of health service inputs and the ultimate outcomes of service use. This was done by asking a series of questions that go beyond simply measuring numbers of services or rates of utilization (Table). Using multiple probe conditions, such as tuberculosis, diabetes, or maternal care, that encapsulate different aspects of the complexity of access in different ways, information on the experiences of users and frontline providers were collected through variety of methods, mostly in-depth interviews and explanative case studies. The way in which the system operates, facilitating or obstructing care, can then be determined by generating theories from the initial assessment and testing them by means of appropriate methods.

While noting the limits to generalizability in different contexts, it is important to maximize the scope for lesson learning. Analysis of the findings thus involves a search for commonality among mechanisms working within particular contexts, and moves away from the application of technical solutions to a range of barriers to care to one that seeks to understand systems interactions and deficiencies that are likely to perpetuate barriers to access and possible linkages to other problems more generally. (Rosenhead & Mingers, 2001) Such research needs to move beyond notions of individual health seeking for isolated events, to understanding the time and skill continuity required for integrated management of long-term illness requiring multiple care episodes and to balance provider and patient engagement with this process. Community resources, supportive networks and values as well as obstructive forces, should feature more prominently in policy strategies promoting access to care, as they influence how individuals and communities engage with health services.

Addressing population needs for access to care will be a complicated process, involving action and intervention at various levels. As such it demands a more rigorously and conceptually-developed approach to doing so.

Figure 1. Dynamic responses framework, HSD (McPake, Blaauw, and Scheaff, under review)

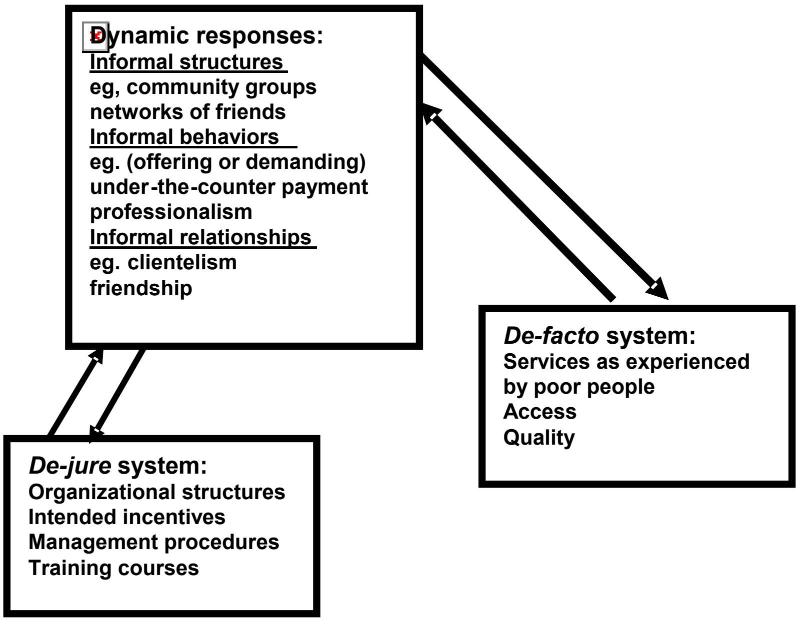

Table 1 Questions that can offer insights into access to care

What are the patterns of access and exclusion by different groups within a population for a given condition?
What aspects of the health condition shape individual need for care, and how people obtain access to that care?
What are the contextual factors that may be driving these patterns?
What mechanisms within those contexts mediate the key outcomes of interest?
What aspects of the contexts and mechanisms identified can be altered or addressed by different stakeholders (policy makers, communities etc.)?

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