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Producing effective knowledge agents in a pluralistic environment: What future for community health workers?

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Abstract

This paper is concerned with how poor populations can obtain access to trusted, competent knowledge and services in increasingly pluralistic health systems where unregulated markets for health knowledge and services dominate. The term "unregulated" here derives from the literature on the development of markets in low income countries and refers to the lack of state enforcement of formal laws and regulations. We approach this question of access through the changing roles and fortunes of community health workers over the last few decades and ask what kind of role they can be expected to play in the future. Community based health agents have been used in many settings as a way of filling gaps in service provision where more skilled personnel are not available. They have also fulfilled a more transformative role in broad based community development.

We explore the reasons for the decline of programmes from the 1980s onwards. Using the specific experience of Bangladesh, the paper considers what lessons can be learned from past successes and failures and what needs to change to meet the challenges of 21st century health systems. These challenges are those of establishing credibility and legitimacy in a pluralistic environment and creating a sustainable livelihood strategy. The article concludes with a discussion of four potential models of community based health agents which are not necessarily exclusive: a generic agent that is closely linked to a reputable supervisory agency; a specialist cadre working with particular health conditions; an expert advocate; and a mobiliser or facilitator who can mediate between users and health markets.

Keywords: Bangladesh; Health human resources; Health systems; Health knowledge; Developing countries

Introduction

This paper considers some of the 21st century challenges of providing access to appropriate health expertise, particularly in the context of pluralistic health systems characterized by many types of provider operating as private or semi-private agents in unregulated markets. The term "unregulated" here derives from the literature on the development of markets in low income countries and refers to the lack of state enforcement of formal laws and regulations. Changing markets and technologies confront populations with both new ways of obtaining knowledge and services and create new inequalities of access to competent agents. They also potentially offer new routes to training, contracting and supervising knowledge agents.

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The paper explores the question through the example of community health workers – both paramedical and volunteers – who have been seen for several decades as an alternative paradigm to complete professionalisation for developing countries in particular. We ask what lessons can be learned from that experience and what needs to change to meet the challenges and opportunities identified in other papers in this Special Issue. In doing this, we draw particularly on the experience of Bangladesh. Current concerns within international health agendas about human resource scarcities in poor countries have also revitalized the debate about community based health cadres. Human resources for health has come to the fore, particularly with the publication of the 2006 World Health Report (WHO, 2006) and the Strategy Report of the Joint Learning Initiative (Global Health Trust, 2004). It is important that any upscaling of training of such cadres does not become a repeat exercise of earlier failed programmes.

The development of community health worker (CHW) programmes

In the second half of the 20th century, most post-colonial countries and newly established command economies were committed to substantial increases in access to health services. There was a common pattern of health sector investment that included building a large network of basic health facilities and training different categories of health workers to staff them. The emphasis until the 1970s was on increasing the production of doctors. Subsequently, with the shift towards Primary Health Care (PHC), many countries invested heavily in other categories of personnel. This was often on the grounds that they could produce more appropriate types of health workers at lower cost than producing doctors. These personnel with titles such as "medical assistants" and "health assistants" received shorter training than full fledged professionals, with the understanding that they would provide a basic menu of services under the supervision of qualified professionals. Countries also trained community health workers, people with relatively little formal education, who were expected to lead public health campaigns and provide simple medical care.

All these personnel varied considerably in the amount of training they received and in their remuneration. Some were volunteers, perhaps with a small honorarium, while others became absorbed into the growing public sector health bureaucracies as regular paid personnel (Bloom & Standing, 2001). It is not always easy to distinguish between CHWs and formally employed paramedicals (Pinto, 2004).

Many CHW programmes originated in the optimism of the immediate post Alma Ata Declaration by the World Health Organization in 1979 to institutionalise primary health care (PHC) as the paradigm for health care and healthy communities (Hall & Taylor, 2003; Walt, 1988). This vision of PHC came from a critique of the inadequacy of existing health systems in reaching rural and poor populations. It was also greatly influenced by alternative ways of organising health and other services that were emerging in some post-colonial and socialist countries.

The critique focused on the way health systems were biased to tertiary care and urban elites. They were narrowly disease focused, top down and unresponsive. The emphasis was on training highly skilled professionals rather than on health workers who could deal with preventive care and routine curative interventions which were most needed in rural communities. At the same time, there was growing influence from more radical attempts to tackle the health of poor populations through community mobilisation, awareness raising and training of local agents to provide basic services. These included the barefoot doctors in China, developed during the 1960s in the period of the cultural revolution; and programmes in Latin America, Tanzania, Mozambique and other countries (Bennet, 1979; Hall & Taylor, 2003; Kan, 1993; Segall, 1977). They were particularly, though by no means exclusively, associated with socialist developing countries. Walt (1988) also notes parallels from other sectors such as the creation of agricultural extension and community development workers who would live and work in rural areas, passing on their skills to local populations.

The PHC movement thus incorporated two agendas, sometimes in the same agent. A pragmatic one has focused on how to create lower cost, workable alternatives to expensive metropolitan health systems and to deal with the shortage of health professionals (Walt, 1988). Mobilizing community health workers/volunteers as a strategy to bridging the human resource gap in health programme implementation has been experimented in many settings as diverse as India, Thailand, Cuba, Japan and US. It has also incorporated a much more transformative agenda which saw ill health as rooted in the poverty and inequality in people's lives. In this agenda, community based health agents were seen as also being political agents whose role was partly to create awareness of the social context of community health and work with communities

to tackle this through broader political means (Werner & Bower, 1982; Stark, 1985).

This latter vision of the CHW has been both inspiring and enduring and is epitomised particularly in the work of David Werner ("Where there is no doctor") which situates the CHW as a powerful moral agent putting service to humanity at the heart of his or her practice. Werner's eponymous handbook was first published in 1977 and has been reprinted about 24 times as well as published in several languages and adapted for different regions, testifying to the durability of the vision (Werner, Thuman, & Maxwell, 1993, [2006]). This vision is echoed in a number of studies of CHWs at work which have noted their particular advantages. As they are often chosen from the locality, they are much more likely to be embedded in their communities, to stay in post and to understand and empathise with their clients. They are often female and can work particularly with women. In turn, they are more likely to be trusted (Bastien, 1990; Bender & Pitkin, 1987).

However, it is probably the former agenda which has been most influential in the scaling up of CHW programmes in low income countries. Several studies (e.g. Frankel, 1993; Hall & Taylor, 2003; Lehmann, Friedman, & Sanders, 2004; Walt, 1988) note the widespread use of CHWs as an inexpensive way of doing PHC. Some have found that such workers not only provided basic health services to communities often unreached or ignored by formal health systems but also promoted the key principles of primary health care, viz., equity, intersectoral collaboration, community involvement and the use of appropriate technology, as enunciated in the Alma Ata declaration. But studies have also noted the sometimes considerable and contradictory pressures placed on them as they increasingly became agents of the state, frequently overburdened with directives and programmes and inadequately trained and equipped for these enhanced roles.

CHWs — the post Alma Ata experience

The literature on the implementation of CHW programmes and the experience of CHWs presents at best a mixed picture. Most authors concur that programmes went progressively into decline from the 1980s onwards. At the same time, there is acceptance that some kind of CHW role is a continuing need in poorly served rural communities in particular (Frankel, 1993; Kahssay, Taylor, & Berman, 1998). The reasons put forward for failures in many CHW programmes are diverse and complex but fall broadly into two kinds. The first are extrinsic structural and economic factors which affected health and other social sectors generally from the late 1970s. The second are institutional constraints which have been intrinsic to the experience of CHWs in many parts of the world.

The extrinsic case is put very clearly by Walt (1990) and contributors and supported by Cueto (2004) and Hall and Taylor (2003). CHW programmes were victims of global economic recession in the 1980s. Along with health systems more generally in many poor countries, they went into decline due to increased political and economic instability, conflict, external and transnational migration and neo-liberal economic policies. Externally driven health sector reforms in the 1980s and 1990s, focused on supply side bureaucratic and financial reforms, also played a role in further undermining or neglecting community level, service delivery based initiatives. The World Bank's World Development Report 1993 (which focused on health) and the World Health Organization's World Health Report 2000 both marked a turning away from the language of PHC within which CHW programmes have been embedded (Hall & Taylor, 2003).

A major issue has been the financing and resourcing of programmes. The comprehensive review by Berman, Gwatkin, and Burger (1987) of efficacy and cost effectiveness of CHW programmes notes that as they were often regarded as low cost ways of delivering PHC, consequently planners allocated few resources to them. They point out that the apparent success of China's barefoot doctors in supporting the great improvements in population health which occurred under the Peoples Republic of China contrasts significantly with other CHW experiences in terms of the resources which went into them. Barefoot doctors received substantial training and supervision and operated with an average of only 500 people per worker. Their livelihoods were secured by allocations from commune based production.

This links to the more intrinsic institutional factors which have compromised many programmes. Walt (1988) refers to the politically contentious space which CHWs may occupy. CHWs are often ambiguously situated in terms of their accountability and financing. Which bodies should they be answerable to? Are they community or health system agents? The tension between the CHW as a moral agent often giving their services free to a community or for a small honorarium, and their increasing use as a low cost bureaucratic servant for delivering government services has also resulted in struggles over definition and identity. Volunteers have fought both successfully and unsuccessfully for absorption into regular government service and for salary recompense. This tension also affects existing paramedical

cadres who frequently contest and renegotiate their own status in the medical hierarchy.

Relationships between CHWs and other health workers, particularly professional staff, who are generally in a supervisory role, may be ill defined. CHWs are often poorly supported in terms of follow-up training and regular supervision (Friedman, 2003; Lehmann et al., 2004). Frankel (1993) argues that programmes tend to work well on a small scale but that scaled up programmes ran into problems as a consequence of these kinds of intrinsic factors. Berman et al. (1987) argue similarly that the potential of CHWs has not been achieved in large routine programmes because of a lack of training, management and logistical and supervisory support. However, it is also the case that the decline and in some cases collapse of public sector health care delivery systems in many poor countries have affected all front line health workers, with lack of equipment and pharmaceuticals and collapse of supervisory systems affecting performance and motivation (Stekelenburg, Kyanamina & Wolffers, 2003).

Other factors implicated in failure are overblown expectations of what CHWs can achieve (Walt, 1988); the difficulty of establishing the cost effectiveness of CHWs and lack of any evaluations of health outcomes from CHW programmes (Berman et al., 1987; Walker & Jan, 2005); insufficient attention to financial sustainability (Kahssay et al., 1998); and tensions between preventive and curative roles – CHWs can lose credibility if they have no curative role or skills, particularly in settings where there is a large market of curative services on offer (Leonard, 2005).

CHWs in the context of pluralistic health systems

While the considerable diversity both in the nature of the roles played by CHWs and other locally based health agents and in the contexts in which they are operating, is acknowledged, studies have placed less emphasis on the impact of the increasing importance of provider pluralism and unregulated health markets in many low income and transition countries. However, arguably, this has had a major impact on how CHWs operate (Bloom & Standing, 2001).

First, systems of distribution and sale of goods have expanded greatly and people can increasingly obtain most commodities, including drugs, from private suppliers. People have greater access to health-related knowledge through a variety of media and this has provided opportunities to gain health-related skills which can be supplied in the market. Studies in many countries report the use of a wide variety of health service providers including by the poor (Bloom, 1998; Chernichovsky & Meesok, 1986; Leonard, 2000; Lucas & Nuwagaba, 1999).

Second, the number of personnel with health-related skills who offer services for payment has increased greatly as public systems of provision have decayed. These include a wide spectrum of areas of expertise from highly trained medical specialists to drug peddlers and a variety of semi-qualified practitioners (Pinto, 2004; Reynolds Whyte, Van der Geest, & Hardon, 2003). While some localities continue to find difficulty in attracting and keeping qualified personnel, others are oversupplied and an unregulated market has developed. Leonard (2005), for example, looking at how households in urban Chad manage illness, found that there were 32 sources of licensed health care and 18 sources of informal (unregulated) health care within a 15 mile radius of the households surveyed. Boundaries between public and private providers are frequently blurred. Systems of quality assurance, regulation and supervision have suffered and skills have also decayed. In South Asia, unregulated markets have increased pressure on all providers to shift to overmedicalised curative procedures such as injections and pharmaceuticals which may be inappropriate and expensive.

Third, there have been important shifts in knowledge. The boundaries of where professional expertise begins are shifting as a consequence of marketisation and the spread of health-related knowledge. Households and communities are now better regarded as eclectic consumers of many different sources of information rather than as repositories of "traditional" knowledge or skills. People get information from pharmacies, personal links to providers, social networks and the media. Both literacy and communications have improved (Bloom & Standing, 2001). This alters their relationships with providers and lays down new challenges for establishing or re-establishing trust in front line health agents and in creating a consensus on service quality.

CHWs have also become part of this changing landscape, often either competing by marketing their own skills, or becoming marginalised into failing prevention programmes. In this kind of environment, the social contracts between these agents and local populations and the associated roles, responsibilities and rewards, need rethinking. While the need for such agents will remain (Frankel, 1993; Walt, 1988; Walt, 1990), it is by no means clear what they should look like. The following section examines the experience and emerging models in one country before we return to reconsider this theme.

Bangladesh – new needs and new ways forward?

Bangladesh has a long history of engagement with these issues and of experimentation with different kinds of community level health agents. This section discusses that engagement. It draws on the experience of BRAC (formerly Bangladesh Rural Advancement Committee) and other national innovators to ask what kinds of models have potential for future health systems. How are current experiences different from previous ones of training community health workers? What kinds of knowledge should they have and how can they be appropriately supervised and regulated in contexts where there is a high degree of informalisation and marketisation? What kinds of social contract with users are desirable?

Bangladesh is an example of a low income country that has made considerable progress in the last decade in improving the health and nutritional status of its citizens. But the health sector still faces multiple challenges in improving the health status of the poor and vulnerable and in dealing with the impoverishing effects of ill health. High levels of preventable morbidity and mortality from communicable diseases, poor maternal and child health and malnutrition remain to be tackled. At the same time, there are new challenges from the rising rate of non-communicable diseases, from environmental hazards such as air and water pollution and from behavioural causes such as tobacco use, accidents and violence (Ministry of Health and Family Welfare, 2003).

On paper, Bangladesh has a three tier service delivery system with a comprehensive network of public facilities at tertiary, secondary and primary levels. In practice, the health system is pluralistic with all the characteristics of an unregulated market. A mix of public, private, NGO, and traditional providers operate with variable population reach and quality. It is estimated that the public sector provides less than 20% of the curative health services consumed. A wide variety of non-state providers, including traditional healers, semi- and unqualified "doctors" (quacks), qualified doctors working privately, and NGOs deliver health services. Many practitioners prescribe and sell through the numerous pharmacies across the country. The boundaries of the public sector are very porous with many private doctors having links with publicly owned medical facilities, and public sector providers working privately (so-called dual practice). The non-state sector is the major provider of curative services for both poor and rich, in both urban and rural areas (Begum, Hossain, & Nadiya, 2001).

The public sector suffers from the kinds of endemic problems which beset service provision in many low income countries. The sector is underfunded yet has poor absorptive capacity. There is a strong urban bias in the distribution of qualified staff and difficulties in retaining them in rural postings. Governance of the sector is poor. Many health workers are not actually in their posts – the so-called ghost worker problem (Hammer & Chowdhury, 2002). Informal payments and poor provider attitudes are common and quality is very variable. A mushrooming private sector produces complex challenges for regulation. The professional medical associations play an obstructive rather than a facilitating role in broader health sector development. They are particularly opposed to any attempts to tackle the human resource deficit in rural areas, such as by addressing the skills of semi-qualified providers who are major sources of resort for the poor and for rural populations (Peters & Kayne, 2003).

The experience of CHWs and CHVs in Bangladesh

There is a long history of use of community based workers in Bangladesh. They form the base of the government primary health care structure in all districts and sub-districts. In Bangladesh, health and family welfare (meaning family planning services) are organisationally separated at the level of service delivery. These staff are called Health Assistants (HAs) and Family Welfare Assistants (FWAs), respectively, and each covers a population of approximately 5000 in four to five villages (Khan, Chowdhury, Karim, & Barua, 1998). HAs and FWAs mostly have 12 years of schooling and receive 3–4 weeks basic training to provide services at home and in satellite clinics. However, conflict between the sector's two wings has led to under-utilisation of their potential contribution to the health sector (Chowdhury, 1990).

Alongside this structure, major national non-governmental organizations such as Gonoshasthaya Kendra, BRAC and others have used community heath volunteers (CHVs) to deliver health services to rural communities. Recently, there has been a revived discourse in Bangladesh on the potential of CHVs to fill critical gaps in human resource availability.

BRAC was among the first to set up a CHV programme. Its health programme has evolved over time based on experience and learning (Rohde, 2005). BRAC began experimenting with CHVs from its formation in the 1970s and the programme has since been progressively scaled up. BRAC initially set up a curative health care programme with four clinics

staffed with doctors. In line with the then *barefoot doctors* approach of China, it trained locally recruited men to work as paramedics. Many of these were high school graduates. They were trained by BRAC doctors to treat minor illnesses for a small fee and to refer complicated cases to the clinics. In order to make the system self-sustaining a health insurance system was tried which ran smoothly with about 30% cost recovery from the premium (Briscoe, 1978). It was, however, discontinued when evaluations found that the programme was not reaching the poor as they did not find it attractive to invest in something that provided 'future' benefits. Recently, BRAC has again started to experiment with health insurance with better response from the poorest groups due to concessions in their premiums.

In the mid-1970s, in its programme in the Sulla District of Sylhet, BRAC recruited another group of local female workers to provide family planning services. This preceded the development of the government programme. BRAC doctors provided support particularly for dealing with any side effects. Contraceptive continuation rate, a key indicator of success, reached the highest level for the period in Bangladesh in this district with more than 50% of the women continually using oral contraceptives at 18 months (Chowdhury & Chowdhury, 1978).

A number of problems emerged with the early CHV programme in Bangladesh similar to those discussed above. Issues of remuneration, supervision and unclear accountability meant that not all paramedics worked as intended. Some started behaving like 'mini doctors' and practicing as such. Neither the village cooperative nor BRAC were able to exercise any control over them. Rather than abandoning the programme, it was rethought. Frustrations particularly with the performance of paramedics, a view that women would be more effective at this level in their own communities as the clients are mainly women, and BRAC's potential for going to scale led to the recruitment and training of a new cadre of female health volunteers in rural Bangladesh. This transition took place over several years during the late 1970s and early 1980s.

By this time, BRAC had a well established community development programme based on the concept of the village organisation (VO). When BRAC moves to a new village to set up its poverty alleviation programme, it identifies poor women who are willing to join in a VO to undertake selected activities to improve their lives. This typically starts with awareness and empowerment exercises through weekly meetings followed by compulsory savings and then provision of micro-loans. When a new VO is formed the BRAC workers ask the VO members to suggest names of prospective candidates to receive training as a poultry worker, a paravet, or a health worker. Women from poorer households belonging to VOs are selected to become *Shasthya Shebika* (community health volunteers or CHVs). Whereas the paramedics were all male and had some education, the CHVs are all women and many are illiterate. The male paramedics were chosen by BRAC and received a salary but the CHVs are chosen by the community, they belong to and are volunteers. The criteria for being a CHV are being female, endorsed by their community, aged between 25 and 35 years, married with no children under the age of 5 years, motivated, preferably having some schooling, and not living near a health care facility or big *bazaar* to avoid competition from pharmacy-based practitioners.

The CHVs are given 4 weeks basic training by BRAC at the local field office. They are trained on the following common illnesses: anaemia, angular stomatitis, common cold and cough, diarrhoea, dysentery, gastric ulcer, peptic ulcer, ringworm, scabies and worm infestations. A subset of CHVs is also trained to treat specific diseases such as tuberculosis (TB) and Acute Respiratory Infections (ARIs). A critical element of the programme is monthly refresher training which is conducted in an interactive and problem solving way. This serves several purposes: it keeps the knowledge of the CHVs updated; it gives an opportunity to discuss with BRAC and fellow CHVs the problems that they face in the village; it facilitates BRAC to keep regular and formal contacts with CHVs; it allows CHVs to replenish their drug and other supplies from the BRAC office; and most importantly, it gives CHVs the motivation to continue the work.

A CHV works part-time, usually in the afternoon, and is assigned an average of 250 households (but with an upper limit of 300). During monthly household visits she provides education on general preventive and promotive health including safe delivery, family planning, immunizations, hygiene, water and sanitation. She also uses this opportunity to sell health products. In case of an illness that she is not trained to manage, she refers it to the government health centres or to a BRAC clinic. BRAC doctors and programme organizers directly supervise CHVs through field visits.

Mindful that many volunteer programmes have failed due to lack of incentives, measures were taken to ensure that they can obtain a livelihood and "compete" in a pluralistic health system. They are given a small loan to create a revolving fund for drugs which they sell to the villagers with a small mark-up. BRAC markets selected health products through the CHVs.

These include contraceptives, iodized salt, oral rehydration solution, soap, safe delivery kits, sanitary napkins, sanitary latrines, and vegetable seeds. As they are part of the BRAC-organized VOs, they are also eligible for micro-loans for other income generating activities.

BRAC has now extended its CHV training to its programmes in Afghanistan and has so far trained and fielded over 3000 of them in several provinces (Chowdhury, Alam, & Ahmed, 2006). It is planning to train CHVs in its expanded programmes in Tanzania and Uganda. Consideration is also being given to developing the capacity of the VOs and their CHVs to act as local pressure groups to monitor local providers and improve their accountability to users.

A study carried out in the late 1990s found a relatively low annual dropout rate for BRAC CHVs of 3.2% (Khan et al., 1998). The causes of dropout were related to inappropriate selection, not enough income to sustain interest in the work, competing work pressures at home, and adverse social attitudes towards women as health workers.

Although BRAC had been training the CHVs since the late 1970s it did not begin to scale up until the 1990s – just as many other CHV programmes were in decline. BRAC was aware of the mixed experiences with CHVs in other countries and wanted to be certain that the strategy was effective and efficient. Fig. 1 shows the growth of CHVs in the BRAC health programme. While the number of CHVs in 1990 was 1080, it has now grown to over 70,000 spread over a population of nearly 90 million people in reach of BRAC programmes. The programme is low cost at approximately US$24 to train a CHV (Khan et al., 1998). It is likely to grow further in the coming years with the expansion of existing programmes, particularly the new maternal, newborn and child health (MNCH) initiative which has started in one district and expansion of TB Directly Observed Therapy (DOTS) coverage.

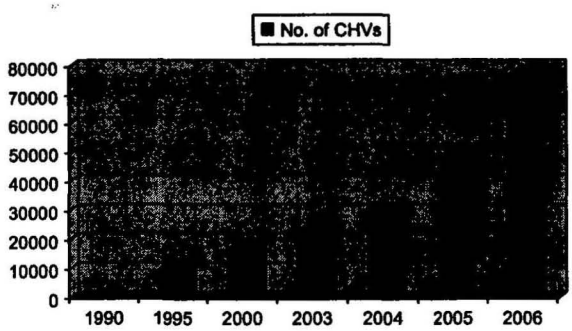

Fig. 1. Number of CHVs working over time at BRAC.

By training CHVs, BRAC responded to the critical principles enunciated in the Alma Ata Declaration, viz., equity, appropriate technology, community participation and intersectoral collaboration. But BRAC has also responded to immediate and acute health problems by training cadres of CHVs for specific conditions (so-called selective primary health care). For example, Bangladesh has a high case fatality rate from acute respiratory infections (ARIs). In 1995, nearly 400 children were dying every day from ARIs (Government of Bangladesh, 1995). About a quarter of newborn deaths are from pneumonia.

In line with the approach suggested by the World Health Organization, BRAC developed a simple and sustainable model for ARI control in Bangladesh with trained CHVs as the nucleus. They visit each household to diagnose and treat minor cases of the infection and refer severe and very severe cases to clinics and hospitals. An evaluation was carried out comparing the performance of the CHVs in diagnosis with the diagnosis of the same cases by trained physicians ('the gold standard'). Table 1 shows the comparison. The CHVs identified 18.9% of children as having ARIs of any kind compared to physicians' 22.6%. The overlap between CHVs and physicians for different classifications suggests that correct diagnosis of ARIs by CHVs was 12.5% for 'very severe' cases and 45.8% for 'severe' cases. Overlap was highest in mild cases (65.5%). In terms of sensitivity and specificity, the estimated sensitivity of CHV diagnosis was 67.7% and the specificity 95.2%. The study concluded that the performance of community health volunteers in identifying cases of ARI was high in comparison with that reported by other studies on the performance of CHVs elsewhere (Hadi, 2003).

Similarly, TB is a major scourge, particularly for the poor. Since the mid-1980s, BRAC has been training CHVs in identifying and providing Directly Observed Therapy (DOT). This has now been scaled up to reach

Table 1
Proportion of cases of ARIs as assessed by CHVs and physicians, by severity

Diagnosis	CHV	Physician	Agreement
All ARIs	221 (18.9)	263 (22.6)	NA
Very severe	4 (0.3)	8 (0.7)	1 (12.5)
Severe	20 (1.7)	24 (2.1)	11 (45.8)
Mild	197 (16.9)	231 (19.8)	152 (65.8)

Values are numbers (%).
Source: Hadi (2003).

nearly two-thirds of the country with a treatment completion rate of over 90%. The BRAC programme also had a measurable impact on TB prevalence. A study found that the prevalence of TB in the BRAC areas was half the rate in areas where there was no such programme (Chowdhury, Chowdhury, Islam, Islam, & Vaughan, 1997). It has also been found that the DOTs programme implemented with CHVs is more cost effective than the programme without CHVs – the cost of curing a TB patient through a BRAC CHV is US$64 compared to US$96 in other programmes (Islam, Wakai, Ishikawa, Chowdhury, & Vaughan, 2002).

CHV programme successes and limitations

The CHVs trained by BRAC are in many ways the prototype of community health workers idealised by the World Health Organization (WHO, 1989) in that they are:

- Members of the communities where they work
- Selected by the communities
- Answerable to the communities for their activities
- Have much shorter training than professional workers
- Supported by the health system (BRAC in this case, and government to some extent) but not necessarily part of its organization.

However, the BRAC programme encountered many of the problems which brought about the demise of CHV programmes elsewhere. It dealt with them by addressing the key challenges of supervision, livelihoods, accountability and focus. This meant providing regularly training, systematic supervision and logistic support, and a formal link to a functioning local health service delivery system for referral when needed. These are the criteria identified by the World Bank (World Bank, 1993) for a successful community health worker programme.[1] Additionally, for BRAC, the CHVs are an essential part of its community development programme which works for social and economic empowerment in over 60,000 villages and their accountability is therefore clear. But they are simultaneously supported and monitored by a large, well resourced organisation which is free to innovate to meet any new challenges. The government has also been supportive to this programme as it has filled major gaps in coverage at community level, for government health workers are not village-based. CHVs refer clients to them and report new births. Unlike their counterparts in government sponsored programmes, CHVs cover quite small numbers of households with a modest range of preventive and curative services or a specific disease mandate.

In an unregulated market, enabling CHVs to earn a livelihood is critical both to retention and motivation. BRAC therefore introduced opportunities to earn an income by selling essential drugs and other health products which are high quality and sought after by clients, and access to collateral-free micro-loans for other income earning activities involving their families (Chowdhury et al., 1997). One CHV noted:

> The earning as CHV has helped me to become economically independent. From this I meet the expenditures for my children's education. Once I ran my whole family with this income when my husband was bedridden due to an accident

However, despite their embeddedness in the community, CHVs can still struggle for legitimacy in a pluralistic environment with a high level of resort to marketised health care. Studies have documented problems with villagers' perception of these workers as second rate: they are not *doctors* but do deliver health services. In some areas there may be an excess of providers, and CHVs in such places may not have much of a market. As an all-female cadre in a conservative society, while they may find it easier to gain access to women and children, they are more disadvantaged by their gender as they have less access to social and commercial public spaces. Another CHV said:

> At the beginning people did not pay any heed to us. They did not even allow us to enter their houses. The young men teased us. They thought our drugs were spurious. Sometimes they challenged our treatment practice. Some people ask me to show my 'license' and to them I show my bag (Mahbub, 2000).

BRAC's decision to switch to an exclusively female cadre of CHVs also exemplifies many of the complexities and contradictions about the often gendered nature of CHV programmes. In a conservative social context, the choice reflects a strong cultural need for female health workers to provide basic

[1] In these respects there are interesting parallels with the experience of the Mitanin programme in Chhattisgarh, India which is a relatively successful attempt to develop a scaled up CHV programme in poor areas through a state-civil society partnership (PROD, 2006). One fundamental common denominator for success seems to be systematic monitoring and supervision.

services to women, while BRAC's transformative agenda has simultaneously focused on developing the skills and public roles of poor women through a longer process of community development via the VOs. Empowerment in this public sense is linked both to this long term process and to the significant scaling up of programmes. The aim is to create new norms around gendered competence and public visibility.

Equally, entrenched gender norms and assumptions may risk some reinforcement of women's roles as unpaid or under-remunerated bearers of labour for under-resourced health systems. The issue of payment for services exemplifies this dilemma. The amount of money made by CHVs through the sale of products has not been systematically documented but informal discussions with programme staff and CHVs themselves reveal that they make an average of Taka 200 per month (about $3) depending on how active they are. This is modest but should be set beside the very limited income earning opportunities for women in rural areas. BRAC is in fact a major provider of remunerated local opportunities for women in its health and education programmes. For instance, its CHV supervisors (*Shasthaya Kormi*) earn Taka 900 per month (about $14) for 4 h daily work.

But gender is not necessarily the defining factor. As an NGO, BRAC pays less than comparable jobs in government services (when all non-salary benefits are considered), relying on individual and community motivation to serve. However, BRAC also has to operate within the realities of markets for services and the changing opportunity costs of women's labour. A debate is taking place within BRAC currently on whether CHVs should be paid a salary. The dominant view is to retain them as volunteers but to find performance based ways of remunerating their services. This is an increasingly urgent issue for BRAC to tackle as it expands its health programme into urban areas where recruiting and retaining female CHVs comes up against the much greater employment opportunities available to poor women.

The BRAC experience exemplifies both the pragmatic and transformative agendas of CHV programmes and illustrates some of the tensions that can arise from this. The drivers were both the acute shortage of health human resources in rural Bangladesh and empowerment of the poor, particularly women. This meant that the programme developed in the context of its broader community development organisation and objectives.

The VOs to which the CHVs belong do provide an institutional challenge to traditional power structures. BRAC has risked a backlash from different social forces by training very large numbers of women in this way but this has not generally materialised. The approach has been determinedly to attempt to provide both actual and perceived quality of services and products, backed by the "brand" that is BRAC. A study looked at their influence in the health power structure in a village by comparing the influence of different providers before the CHV programme was introduced and several years later. It revealed that the CHVs replaced some of the traditional healers in the village such as homoeopaths and herbalists over time, apparently without major challenge (Chowdhury & Bhuiya, 2004).

The result is something of a hybrid which is not free of tensions but which has managed to retain legitimacy when substantially scaled up. As the CHVs are not part of the national public sector bureaucracy but are supported and supervised by a large organisation, there is scope to innovate, such as through attention to livelihood strategies which acknowledge the increased role of markets in health care and thus reduce the chance that CHVs become autonomous quasi-medical agents. The BRAC experience shows that CHV programmes can be successful if certain conditions are met. These include careful selection, training and supervision of local agents to enable them to establish legitimacy in a pluralistic system, and providing them with a livelihood strategy that is sustainable in a marketised environment.

Conclusion

What is the future for community based knowledge agents in the pluralistic landscape of health systems in many countries? The experience of BRAC and more generally across the developing world suggests that the model of the generic, predominantly voluntary agent with very short term training may not be over but that such agents need to evolve to fulfil changing needs and expectations and to retain or create a niche in increasingly pluralistic health systems. The issue is therefore not so much absolute scarcity of health human resources, but relative scarcity of competent agents who are fit for a range of purposes. The experiences reviewed here and in this special issue suggest up to four possible different models, or templates, for community based health agents of the future. These are not mutually exclusive – there will be contexts where the approach will combine elements from more than one, or the approach may evolve from one into another as local needs change.

The first is the generic worker of the kind that BRAC has been training for more than a decade. These will continue to be needed in contexts where there are

serious shortages of qualified staff locally and there is a need to fill basic gaps in health prevention and limited curative care. To be effective, their legitimacy needs to be established through means such as larger community development and transformative programmes and continuous organisational support. Ways also have to be found to enable them to sustain a livelihood which does not depend on selling services of dubious value and quality. BRAC's model of regularly resourcing their agents with quality, sought after health supplies which also gives them a livelihood provides useful lessons.

Part of the enduring appeal of the community based health agent lies in the fact that there are forms of trust and legitimacy in health care services which do not derive from the professionalisation model but are much more firmly embedded in local social relations, and such agents – where successful – embody this. As Bloom, Standing, and Lloyd (2008) argue, in contexts where the compact between the state and its citizens and associated formal institutions is fragile, people use other means to meet their needs for services such as health care. In countries such as Bangladesh, this has led to high levels of use of private, including semi-qualified "quack" practitioners whose advantage is that they are firmly embedded in local realities. They offer service out of hours, are often prepared to defer payment and their livelihood depends on being respectful to their clients. But this kind of embeddedness is a double edged sword. Practitioners may be trusted by locals. They may also be enmeshed in local patron–client relations which discriminate against the more disempowered, and they also may be providing incompetent treatment.

Any approach to training and placing community health workers, whether paid or voluntary, must therefore also offer and be acknowledged to offer better quality and equity of provision than other competing local agents in a pluralistic system and to be sustainable over a long time.

The second model is the more specialist agent of the kind also trained by BRAC to focus on specific conditions with high prevalence and public health need such as the ARI or TB approaches described above. Studies in Gadchiroli, Maharashtra in India indicated the potential of CHVs for improving newborn care. Training and follow-up by them reduced newborn mortality by 62% (Bang, Bang, Baitule, Reddy, & Deshmukh, 1999).

These specialist cadres of workers are less likely to face direct market competition once their legitimacy at community level is established. However, clear prerequisites for this model to succeed are well designed training and consistent supervision, both to ensure and maintain competence but also to prevent diversification into other marketable areas of health care.

A third model is the expert patient/advocate approach. Van Damme (Van Damme, 2008) offers this as a viable alternative to managing the treatment of AIDS in the context of ARV rollout in countries with severe human resource constraints. The concept of the expert patient emerged particularly in Britain and other developed countries as a recognition of the fact that people living with non-communicable diseases such as diabetes often have considerable knowledge and capacity to manage their own condition and support others in doing so. Programmes for expert patients are now provided in some countries (Donaldson, 2003). A project in Cambodia has been using this concept in training peer educators to empower people with diabetes living in a poor area of Pnom Penh to manage their condition more effectively (personal communication: Mauritz van der Pelt). Preliminary results suggest that this is a highly effective approach. Developing countries are experiencing a growing rate of non-communicable diseases, particularly among urban populations and this model has potential for improving their management by empowering those affected to take responsibility for their health.

The fourth is the community mediator type of agent. Again, there is a long history in community development of local facilitators who are not "experts" but who are trained in enabling people to develop solutions to problems and access resources. Examples include the *sangha* model used by the Mahila Samakhya Women's Empowerment Programme in India for Dalit (untouchable) women (Jandhyala, n.d), where local women become brokers or mediators between communities and service bureaucracies, facilitating users to become aware of their rights and using social mobilisation to gain better access to services, including health care. In health, increasingly, community mediators also need to be able to support users to negotiate pluralism and the market, to work out how to locate trusted forms of expertise and find health commodities that are genuine rather than fake.

These different models are all in operation to some extent. An important agenda for future research lies in determining how successfully they can establish legitimacy, trust and competence in rapidly changing, pluralistic health systems.

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continuous improvement of the body is possible and desirable. Beauty can thus be both 'for' and 'against' health. 'Beauty and Health' in its many varieties, is a theme that prompts reflection from several focus points, not only anthropological, but also psychological, medical, sociobiological and historical.

Anna Aalten and Alexander Edmonds, symposium organizers

Obituary Pieter Hendrik Streefland (1946-2008)

Pieter Streefland, professor of Applied Development Sociology and core member of the Medical Anthropology and Sociology Unit of the University of Amsterdam, died on the 3rd of January 2008 after a long illness. He was only 61. He was a gifted teacher and writer and an excellent organizer who initiated several teaching and research programmes in the field of health and development. The focus of his work was always on the intertwinement of poverty, politics and ill health, particularly in Southern Asia and Africa.

He studied sociology at the Free University of Amsterdam, specializing in the sociology of non-Western societies. In the early 1970s he did research among sweepers and scavengers in Karachi, Pakistan, focusing on social conflicts within this outcast community. The study resulted in his PhD dissertation and later on in a book *The Sweepers of Slaughterhouse* (1979). Several articles on the social organization of urban sanitation followed. His description of the work of sweepers and cleaners is one of the first examples of sanitation ethnography. He discussed both the monetary aspect of the work, such as options for relative high income for private cleaners, and the stigmatization that accompanied the work.

After returning from Karachi, he joined the South and Southeast Asia sub-department of the University of Amsterdam to teach the sociology of South Asia. He went to Bangladesh to study the role of non-government organizations in the development process, which resulted in various articles about the plight of the rural poor. He continued to be involved in applied research in Bangladesh and in 1987, jointly with the Centre for Social Studies of the University of Dhaka, published *Different Ways to Support the Rural Poor*. Professor Mushtaque Chowdury of BRAC Bangladesh has written his personal memories of working with Pieter Streefland in a separate tribute, following this obituary.

In 1978 he joined the Royal Tropical Institute (KIT) in Amsterdam where he headed the newly erected section of Primary Health Care, which consisted of public health doctors and social scientists. His focus was on problems of health, health care and development, particularly in South Asia, and later also in Africa. He conducted related