Health Systems Development Programme

Neither robots nor angels: the 'dynamic responses' of health workers and the unintended effects on health systems functioning

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INTRODUCTION

> *"Outreach services, clinics and hospitals are only as good as the people who staff them. Health workers are the linchpin, the keystone, the pivot of all efforts to overcome health crises and to achieve the MDGs for health. Only when high-level initiatives, finance, and technologies are matched by an investment in people will the formula for better health for all be credible and effective." (Joint Learning Initiative, 2004, pp 32)*

The human resource crisis facing health systems in low- and middle-income countries is not new. Many health sector reform initiatives in developing countries paid insufficient attention to human resource issues (Martinez & Martineau, 1998; Hongoro & McPake, 2003) and it is only more recently that the global health policy community has seriously begun to focus on the problem. Human resource questions now feature prominent in the health systems development discourse largely because of the recognition that inadequate human resources are a major constraint to achieving global health priorities, such as meeting the health Millennium Development Goals (MDGs) and expanding priority health programmes (Kober & Van Damme, 2004; Victora *et al*., 2004; Wyss, 2004; Elzinga *et al*., 2004; Travis *et al*., 2004; Harries *et al*., 2005; Nullis-Kapp, 2005; Figueroa-Munoz *et al*., 2005).

Some progress has been made in describing the nature of the problem. The key dimensions of the health human resource crisis are now generally characterised as (USAID, 2003; Narasimhan *et al*., 2004; Chen *et al*., 2004; Marchal & De Brouwere, 2004; WHO, 2006):

- Global shortages: insufficient numbers of health workers, particularly in sub-Saharan Africa;
- Skill imbalances: an inappropriate mix of health workers;
- Maldistribution and migration: a mismatch between where health workers are most needed and where they are located;
- Poor working environments: the conditions under which many health workers work undermine their motivation and performance; and
- Limited knowledge: inadequate information systems for human resource planning and management.

Although the recognition and description of the health human resource crisis represents an important advance for health systems development, the identification of practical interventions for addressing these problems seems more far off. A fundamental obstacle is that a massive injection of financial resources is required and it is unclear how this could be funded (Jha & Mills, 2002). In addition, typical human resource interventions, such as increasing the training of health workers or introducing new cadres of health workers, generally have very long lag periods. But factors such as the massive increase in global labour migration and the HIV/AIDS infection of health workers mean that the crisis escalates every day (Joint Learning Initiative, 2004). The situation is deteriorating rapidly before we have really begun to address it.

Current formulations for dealing with the human resource crisis confronted by developing country health systems remain rather vague and generic. Most initiatives have focused on strategies to improve the planning and production of health workers at the macro-level and hope thereby to address the shortages, skill imbalances and maldistribution of health workers. Much less policy attention has been given to trying to improve the retention and performance of existing staff (Hongoro & McPake, 2004). Multi-dimensional interventions will be required to address the range of problems in human resources but there needs to be greater recognition that health worker motivation, incentives and responses at the local level are central to the current crisis.

This report summarises the findings of a number of recent research projects conducted as part of the DFID-funded Health Systems Development (HSD) knowledge programme. These projects focus on the experiences, behaviours and incentives of health workers at work in low- and middle-income countries, the *human* dimension – rather than the *resource* dimension – of the current human resource crisis.

HSD AND HUMAN RESOURCES RESEARCH

The Health Systems Development (HSD) Programme is a multi-country multi-disciplinary knowledge programme funded by the Department for International Development (DFiD). The main aim of the research programme is to understand the factors that constrain health systems in low- and middle-income countries from meeting the needs of the poor, and to critically assess alternative approaches to overcoming those constraints. The Programme consists of health system researchers from the United Kingdom, Uganda, South Africa, Bangladesh, and Russia, though research has not been confined to these countries. The main themes that HSD has been exploring are summarised in Table 1. HSD used a range of disciplinary perspectives and methodological approaches in exploring these contemporary health system issues, frequently focusing on specific health programmes or services as 'probes' of broader health system functioning (Sheaff *et al*., 2003).

Table 1: Main Themes of HSD Research Programme

1. Human resources
2. Health system structure
3. Policy processes
4. Organisational / Operations processes
5. Global and regional initiatives
6. Health service utilisation and access
7. Civil society
8. Methodology
9. Probes
    a) Maternal health[i]
    b) TB
    c) HIV/STIs
    d) Type I Diabetes
    e) Under-5 mortality

Human resource (HR) issues in health systems in low- and middle-income countries were a major theme of the HSD research programme. Table 2 summarises the main research projects related to human resources that were undertaken as part of the HSD programme.

[i] See HSD Synthesis paper on Maternal Health (Penn-Kekana *et al*., 2006b) for a summary of the findings in relation to the maternal health probe.

Table 2: HSD Human Resources Research Projects

Project Title	Countries	Main Research Objectives	Methodologies	References
1. Conceptualising health human resource studies in poor and transitional countries	Uganda Bangladesh South Africa Russia	▪ Review the literature on health human resources in poor and transitional countries ▪ Summarise the key human resource issues in the four countries ▪ Develop a conceptual framework for further research	▪ Literature review and analysis ▪ Country case studies	(Hongoro *et al*., 2003; Danishevski, 2005)
2. The impact of health sector reforms on human resources in health	Uganda Bangladesh	▪ Evaluate the impact of selected health reforms on the incentive environment of health workers ▪ Explore the impact of changes in incentive environments due to reforms on staff performance ▪ Make recommendations on how to improve health system performance through human resource capacity development	▪ Policy document review ▪ Key informant interviews with central officials and district managers ▪ Focus group discussions with different cadres of health workers ▪ Survey of district health providers	(Ssengooba *et al*., 2004)
3. Provider practices in labour wards	South Africa	▪ Understand the factors that influence the everyday nursing behaviour and practice in district hospital labour wards	▪ Ethnographic study of labour wards in two district hospitals (one urban and one rural) ▪ Included participant observation and detailed interviews	(Penn-Kekana *et al*., 2004; Penn-Kekana *et al*., 2006a)
4. Nursing staff dynamics in maternal health services	South Africa	▪ Evaluate maternal health nursing staff availability, workload, turnover and motivation ▪ Explore the organisational factors associated with these dynamics ▪ Document the impact of the dynamics on quality of care ▪ Review policy interventions aiming to address these dynamics	▪ Key informant interviews with national, provincial, facility and labour ward managers ▪ Site visits to selected hospitals and clinics ▪ Motivational survey of labour ward staff ▪ Discrete choice experiment (DCE) with labour ward staff	(Penn-Kekana *et al*., 2005)
5. Determinants of practice variation among maternal care providers	Russia	▪ Evaluate facility characteristics associated with poor perinatal outcomes in Tula region, Russia ▪ Explore the determinants of variations in practice among maternal care providers	▪ Detailed analysis of Regional statistical database of all births in Tula Oblast in 2000	(Danishevski, 2003; Danishevski *et al*., 2006)
6. Development of family practice in Russia	Russia	▪ Evaluate the implementation of reforms to introduce general practice in Russia ▪ Identify factors that have facilitated or obstructed this policy process	▪ Policy analysis ▪ Key informant interviews with senior health managers	(Rese *et al*., 2005)
7. Managing people in the health sector in Cameroon: personnel motivation, team-working and performance contracting in public and non-profit organisations	Cameroon	▪ Develop a detailed understanding of the context of primary health care worker practice in Cameroon ▪ Explore the factors motivating individuals and district health teams ▪ Estimate the income of district health care workers ▪ Evaluate three different types of performance-related revenue-sharing projects ▪ Identify factors associated with well-performing projects	▪ In-depth key informant interviews ▪ Survey of district health care worker expenditure ▪ Key informant interviews with personnel in different projects	(Ambegaokar *et al*., 2004a; Ambegaokar *et al*., 2004b; Chen & Hanvoravongchai, 2005)
8. Study on human resources for health in Europe	Europe	▪ Document how European health care systems are confronting existing challenges in relation to the health workforce ▪ Identify strategies that are likely to be most effective in managing health professionals in the future	▪ Literature review and analysis	(Dubois *et al*., 2005)
9. Human resources for disease control priorities in developing countries	Developing Countries	▪ Summarise the available evidence on financial compensation and non-financial incentives for health workers in developing countries	▪ Literature review and analysis	(Hongoro & Normand, 2006)

Project Title	Countries	Main Research Objectives	Methodologies	References
10. International labour markets and availability of human resources for infectious disease control	Global	▪ Analysis of the available statistics on the international migration of health workers from developing countries	▪ Literature review ▪ Analysis of existing data	(Pond & McPake, 2005a; Pond & McPake, 2005b; Pond & McPake, 2006)

KEY RESEARCH FINDINGS

The HSD programme's research on human resources was primarily concerned with understanding health worker motivation and behaviour as well as their responses to health system interventions. We sought to assess how key aspects of the health system (financing, regulation, bureaucratic structures, management systems, monetary and non-monetary incentives) influenced provider behaviour (Hongoro *et al.*, 2003). To do this, we gathered empirical evidence from five low- and middle-income countries of health workers' behavioural responses and adaptations in the face of different aspects of their working environment.

We utilised different disciplines in our studies of health system organisational behaviour including anthropology, industrial sociology, economics and social psychology. As we shall discuss, applying these different disciplinary approaches to the same phenomena resulted in similar findings of what matters to health workers and how they react to the array of motivational factors associated with their work.

In the following sections, we summarise the HSD programme's findings regarding health workers' motivations and behaviour under three headings. In the first section, we present findings from studies that observed workers in their current contexts in order to obtain a snap-shot of their behaviour in a given setting at a given time. In the second section, we describe studies that assessed the reaction of workers to general policy reforms. In the third section, we describe deliberate attempts to manage health workers by changing the incentive environment in which they work.

HEALTH WORKERS IN THEIR CURRENT CONTEXT: A SNAP-SHOT OF MOTIVATIONS AND BEHAVIOUR

Four HSD studies, in Cameroon, South Africa and Russia, began by analysing the behaviour of health workers in their everyday work settings. The objective was to develop a cross-sectional picture of providers' views of and responses to their current working environments. However, it is of course true that no organisational context is completely static, and our study settings are obviously influenced by on-going processes in each situation. The purpose of comparing these cross-sectional studies, however, is to describe the range of incentives faced by health workers and to identify the different motivational factors operating in different health system settings.

One study in Cameroon concentrated on primary health care and assessed the motivational context of health providers who make up the district team (Ambegaokar *et al.*, 2004a). Studies in South Africa examined nursing staff behaviour (Penn-Kekana *et al.*, 2006a) and human resource dynamics in maternal health services (Penn-Kekana *et al.*, 2005). Two studies in Russia assessed human resources issues in Russia generally (Danishevski, 2005) and in relation to maternal care in one Russian oblast (Danishevski, 2003; Danishevski *et al.*, 2006). These human resource studies in different countries were independently conceived, driven by varied government and donor interests, and conducted in very different settings. Nevertheless, the findings regarding health workers' responses to their work context reflect very similar human behaviours. We discuss these here in relation to a number of common themes that emerged from these projects.

Salary Levels

The most obvious motivational factor to which health providers respond is salary. In both Russia and Cameroon, doctors and nurses consider their salaries to be too low. In Russia, doctors earned 80% of the national average salary and all nurses earned salaries that were below the official poverty line (Danishevski, 2005). In Cameroon, salary cuts of as much as 57% in the 1990s during the economic crisis, combined with a 50% currency devaluation in

1994, resulted in a dramatic decline in the living standards of both doctors and nurses (Israr, 1996; Ngufor, 1999; Israr, 2000).

Not surprisingly, the responses of health workers in both these settings to low basic salaries is to engage in a range of income-generating activities. These include accepting informal payments from clients and engaging in parallel health sector consulting. In addition, in Cameroon, health workers are compensating for low salaries by earning income from a number of non-health businesses, particularly the commercial trading of consumer goods. For those with sufficient capital, these additional businesses actually operate on a fairly large scale. The need to earn additional income by running other businesses results in increased absenteeism from the health centres (Israr, 1996). Indeed, workers appear to make a calculated trade-off, choosing to work the number of hours for the health service that seems appropriate for the salary they receive, and then applying the remainder of their work time to another income-generating activity. The widely shared belief at all levels of the health sector that salaries are too low makes enforcement of working hours ineffective. When health providers' attention is diverted by the need to earn more income, patient care must suffer.

By contrast, in South Africa, salaries for nursing staff were not the only reason for dissatisfaction at work and salary levels are not accepted as a justification for being absent from work. When asked about work motivation preferences in a discrete choice experiment, nurses in South Africa preferred 'good facility management' and a 'fully equipped' facility to a 15% pay rise. The same study showed, however, that if offered double their current salary, nurses would choose to move to a new job.

Other Financial Incentives

In addition to salary, other financial incentives influenced the behaviour of health workers. In Cameroon, surplus revenue sharing schemes generate significant additional personal income for staff in the larger hospitals, but much less income in small or rural centres. Primary and preventive health care is thus less attractive to those workers particularly motivated to add to their basic salary. Therefore, many health workers actively seek to be posted to urban hospitals. As a result tertiary care benefits to the detriment of primary care. In Russia, a financial incentive scheme links facility funding levels to the number of beds. This results in the need to justify existing bed numbers and artificial changes in the patterns of bed use. Hospitalisation rates and average length of stay for common medical conditions are much higher than in other countries. In maternity wards, for example, where the number of existing beds reflects the higher birth rates of previous years, 76% of pregnant women in one zone were hospitalised before labour for an average of 15 days with no evidence that this was medically necessary. The financial benefit derived from maintaining bed occupancy results in inappropriate patient care.

Staffing Levels

The proportion of positions filled or vacant at a clinic or hospital affects the workload of each worker. Many low and medium income countries currently face staffing shortages in the health sector (Chen *et al.*, 2004). In South Africa, for example, an assessment of staffing allocation in three provinces showed vacancy rates of 20-25% overall for all nursing posts. The effect of these shortages is to increase the workload for those staff that remain. Overwork is among the reasons most frequently given by these nurses for seeking to move to another facility or to the private sector.

On the other hand, an over-supply of certain categories of staff can also create problems. Russia has disproportionately more specialist doctors than generalists and nurses. Overall, the ratio of doctors to nurses is 1:1.8. Although officially only 95% of posts for physicians are filled, the system appears to have more doctors than needed. The effect of this oversupply of doctors is two-fold. First, some doctors do the tasks which in other countries would be

delegated to nurses, while nurses take on the cleaning and non-medical support tasks. There is, thus, a shifting of roles and responsibilities as doctors find activities to fill their time. Second, patient care is increasingly over-medicalised. This trend, as we discussed above, is partly related to the financial incentives to keep beds full, but the tendency to over-treat is also linked to the excess numbers of specialists and their need to keep themselves busy.

Promotion Opportunities

Opportunities for promotion and advancement, or the perceived lack of them, were reported by health workers in South Africa and Cameroon as affecting motivation at work. In settings where promotion is more likely if workers are assessed as doing a good job in their current post, the opportunity to be promoted to a different job may, paradoxically, serve as motivation to work well in the current position. However, lack of opportunities for promotion was one of the reasons given by nurses in South Africa for seeking to change jobs, or migrating overseas in some cases.

Characteristics of the Posting

In both Cameroon and South Africa, health workers demonstrated preferences and behaviours in response to particular characteristics of the workplace to which they were posted. Aspects of the post itself could enhance or undermine motivation. Some of the key characteristics mentioned by health workers include:

i. Facility and supplies

A clinic or hospital that was not well maintained or not well equipped was considered by health workers to be a drag on morale in both South Africa and Cameroon.

ii. Opportunities for children/family

For many health workers with a spouse and children, a particular posting was considered more valuable if there were local opportunities for the children's schooling and the spouse's employment. In Cameroon, doctors, nurses and other health staff often mentioned the strain associated with commuting daily or on weekends to see their family because their family's education and work needs could not be met locally.

iii. Accommodation

The availability of appropriate accommodation for themselves and their family was another factor mentioned by health workers, especially in rural areas in both Cameroon and South Africa. Poor quality housing frequently compelled health workers to seek postings elsewhere.

iv. Community setting

In Cameroon, workers also described the importance of the local community to their motivation. Workers who felt they had the respect of the community and a good working relationship with local people expressed, not surprisingly, greater motivation. The relationship with the community was positively influenced by a match between the health worker and the community on characteristics such as language and cultural group. Workers who did not speak the local language were at a significant disadvantage and many struggled to build effective working relationships with community members.

v. Urban/rural setting

The location of the post in an urban or a rural setting also influenced motivation. Some health workers preferred urban settings because of the access to services, entertainment and opportunities for family members. Others disliked urban settings because of the greater cost of living and higher workloads. Some health workers also preferred rural settings because of the opportunities for farming, hunting and more peaceful living. In Cameroon, workers who had been posted by the civil service to a location that did not match their particular preferences were less motivated by the job and actively sought to be relocated.

vi. Relationships with co-workers and managers

Working relationships with colleagues, as well as the quality of team work and facility management, influence work motivation. As mentioned above, the South African discrete choice experiment showed that the second most important criterion for choosing a workplace (after being offered double their current salary) was the presence of good facility management. This was ranked as more important than a 15% increase in salary, working in a fully equipped facility, adequate staffing levels, or having well developed local social amenities.

Commentary

As briefly summarised above, the HSD programme cross-sectional human resource studies in Russia, South Africa and Cameroon identified a range of influences on health worker motivation. Salary levels and other financial incentives were certainly an important source of motivation and demotivation. When workers perceive themselves to be underpaid, the demotivating effect can result in absenteeism and poor quality of care. However, as we have shown, there are a number of other factors that motivate health providers. Staffing levels, posting characteristics and promotion opportunities are also significant sources of motivation and demotivation at work. We found, in other words, that the incentives of importance to health workers are not purely financial. Rather, these studies confirmed that the everyday practice of doctors and nurses, like workers in other sectors, is motivated by a complex range of economic, institutional and socio-cultural factors.

Figure 1 presents a conceptual framework for health personnel motivation used in one of our studies. The motivational *outcomes* considered in our research included health workers' self-reported work absenteeism, lower work quality and intention to leave their current employment. The results discussed so far have focused mainly on staff's perceptions of the *contextual factors* and how this might influence their motivation. That is because our primary intention was to analyse how aspects of the health system affect the work environment and behaviour of health workers and to explicitly identify those factors that lend themselves to managerial intervention. *Demographic* characteristics and other *individual* differences also influence motivation but were not explored in as much detail in the studies reported here.

It is obviously not surprising that health workers are motivated by more than just money. Research on work-place behaviour has repeatedly shown that it is not only the economic incentives that matter (Granovetter, 1985; Abell, 1995; Scheuer, 2000; Scott, 2001). It is also not unpredictable that health workers would respond by modifying their behaviour and practice according to the specific motivating and demotivating factors they face in their everyday work environments. Underpay results in extra income generation; targets for bed occupancy result in unnecessary and prolonged admissions; poor local opportunities for children's schooling result in increased commuting and eventual migration. What is surprising, however, is how seldom these incentives were considered by health policy makers and managers in their management of health providers. Many officials expected health workers to be motivated by improving care to patients and to do what they were told, believing them to be 'angels' or 'robots' rather than people with very human needs, motivations and responses. That health workers need to be paid consistently; or that they will respond when their job security is threatened; or that parents need to have schooling opportunities near to where they work seem obvious matters to consider when managing human resources and placing health workers in jobs.

We will return to the matter of managing health worker incentives in a later section of this paper. So far we have presented the findings from a number of descriptive, cross-sectional studies exploring the factors influencing health worker motivation. In the next section we consider how health providers have responded to intentional policy reforms.

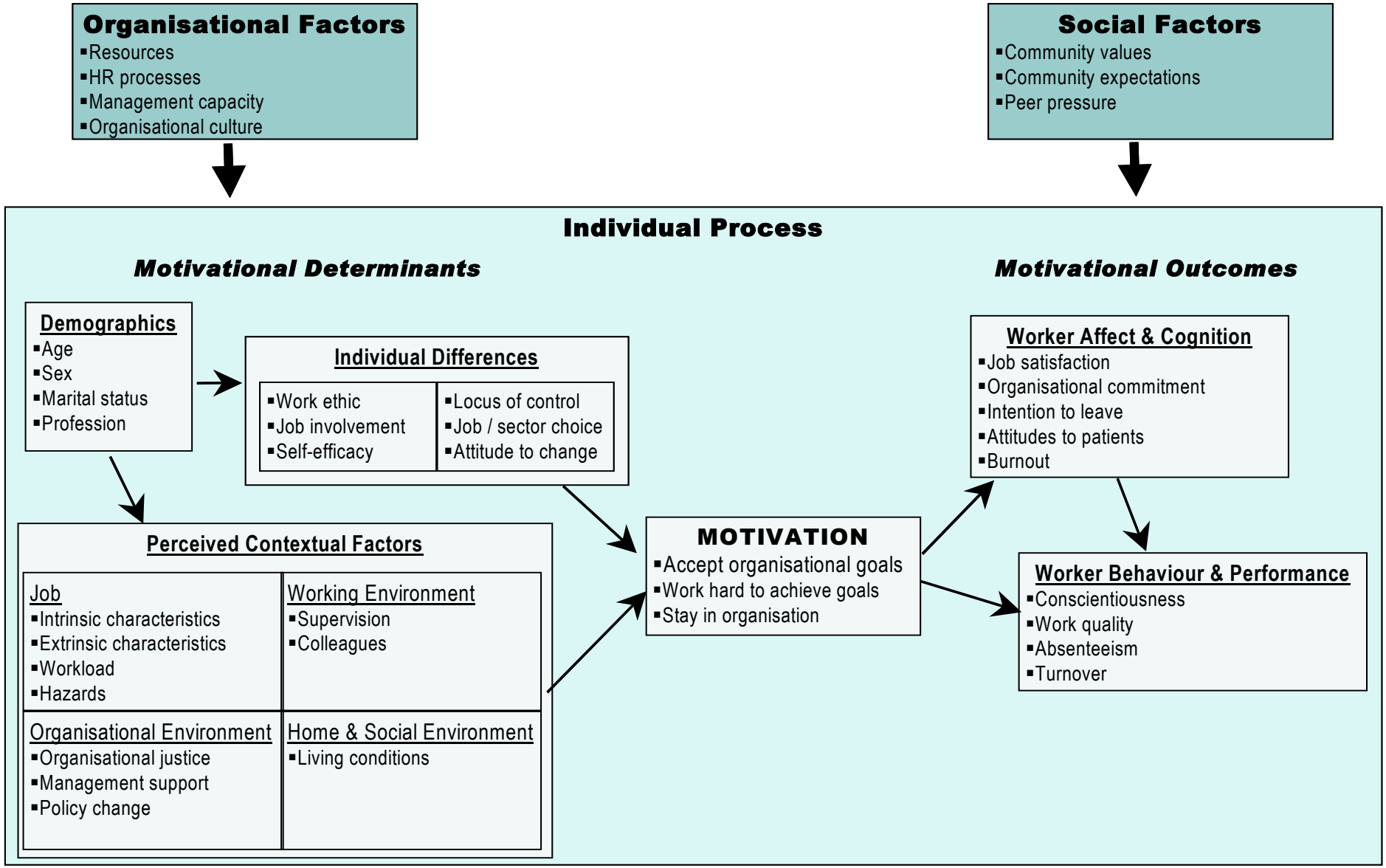

Figure 1: Conceptual framework of health worker motivation

[From (Penn-Kekana *et al.*, 2005), Adapted from (Franco *et al.*, 2004)]

HEALTH WORKERS' RESPONSES TO REFORM INTIATIVES

In addition to observing health workers in their current working environment, certain HSD projects also studied the behaviours of health providers in relation to particular policy interventions. We wanted to understand how health workers responded to deliberate attempts by policy makers to improve public sector or health system functioning.

As illustrated in Figure 2, it is possible to distinguish between broad public sector reforms which have an influence on all government departments including health, and more specific reforms affecting only the health sector. In addition, almost all policy initiatives have human resource implications, but there are also certain reforms that explicitly address human resource (HR) issues or human resource management. These different categories of reform are labelled Type 1 to Type 4 in Figure 2. Each of these different types of policy interventions may affect health workers and their behaviour at work in different ways.

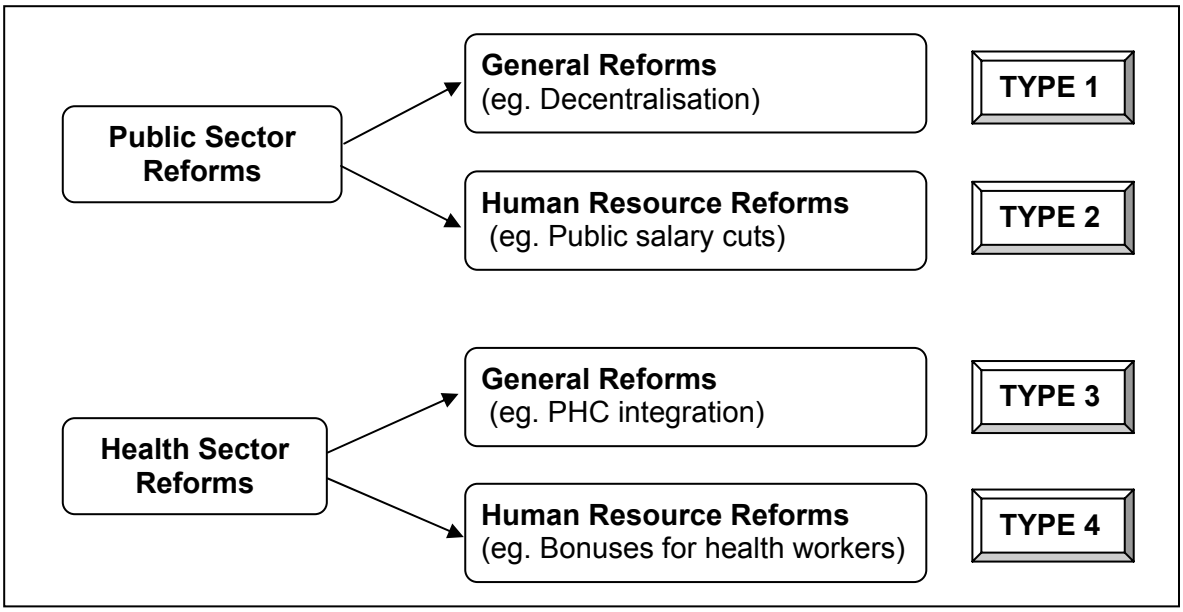

Figure 2: Typology of policy initiatives affecting health workers' behaviour

Using this typology, Table 3 categorises some of the policy reforms affecting health worker behaviour that were the subject of HSD studies. In this section, we discuss the studies that examined health worker responses to general public or health sector reforms (Types 1 and 3) whereas the next section deals with interventions directed more specifically at the management of human resources (Types 2 and 4).

Table 3: Examples of reforms affecting health workers' behaviour

CATEGORY OF REFORM	EXAMPLES STUDIED BY HSD PROGRAMME
Type 1: General public sector	1. Decentralisation in Uganda 2. Financial management in South Africa
Type 2: Public sector HR specific	1. Performance management in South Africa
Type 3: General health sector	1. Integration in Bangladesh 2. Introduction of general practitioners (GPs) in Russia
Type 4: Health sector HR specific	1. Surplus revenue bonuses in Cameroon 2. Rural and scarce skills allowance in South Africa

Four HSD studies observed the behaviour of health workers in reaction to general reforms. As shown in Table 3, two of these were Type 1 and two were Type 3 reforms. One study in Uganda (Ssengooba *et al.*, 2004) assessed the effect of public sector decentralisation on health workers. Another study in South Africa examined the effect of public sector financial management reforms on health sector personnel (Penn-Kekana *et al.*, 2004). In Bangladesh research focused on a health sector reform which attempted to unify two vertical programmes, health services and population services, at the local level (Ssengooba *et al.*, 2004). The fourth project studied a health sector reform in Russia which aimed to retrain specialist doctors as generalists and to create a new cadre of general practitioners or family doctors (Rese *et al.*, 2005).

These Type 1 and Type 3 reform processes were initiated for different reasons and in very different contexts, but, as we shall show, each influenced the incentive environment of health workers and resulted in behaviours and responses from health providers that were not necessarily intended by the policy reform. The general public sector reforms in Uganda and in South Africa, and the health sector reforms in Bangladesh and Russia, had effects on health sector personnel even though they were not human resource policy interventions. As we discuss in this section, these reform initiatives resulted in attitudes and behaviours on the part of health workers that influenced how they did their jobs. We begin with a brief summary of the changes and some of the reactions that were observed during our research.

Increased Local Management Responsibilities

One effect of the financial reforms studied in South Africa was to change the roles and tasks expected of health personnel, requiring that they take on managerial functions in addition to their clinical responsibilities. The introduction of the Public Finance Management Act (PFMA) decentralised accountability for budget management and budget overspends to nurses in charge of wards and clinics. Not only was the management of budgets a new task, but overspending was deemed to be a criminal offence. Health workers responsible for budgets became extremely concerned about the direct personal and professional risks implied by the reforms and the result was an excessive focus on cutting costs and eliminating wastage, rather than on the delivery of health care services. For example, some ward and clinic managers chose not to buy essential supplies when other less appropriate alternatives remained in stock. Others chose not to prescribe needed drugs - such as painkillers - for fear of overspending. Patients were also discharged earlier, and those who in the past would have been kept for observation were now sent home.

Changed Lines of Authority

In Uganda, public sector decentralisation reforms also changed lines of authority in the health system. After decentralisation, health workers became accountable to local authorities, and local communities had more say in the hiring and firing of health personnel. While still expected to perform their clinical and public health duties, workers had weaker connections to the national health system hierarchy, and a reduced authority over the ordering of drugs and supplies due to the new local authority oversight. The result was a conflict between objective performance evaluation, assessment of the quality and competence of health work, and the demands of local authorities. Health workers increasingly focused on what their local bosses expected of them to the detriment of health care service delivery.

Loss of Power

In Russia, the creation of a new category of doctor, the general practitioner, was viewed with suspicion by many. Whereas specialists were used to seeing patients directly, and providing a wide range of medical care, the advent of the new GPs threatened both the specialists' authority and their range of work. The resulting professional hostility and lack of cooperation undermined the collaboration needed for an effective referral system to work.

New Roles in Relation to Other Health Workers

In Bangladesh the attempt to merge parallel health care and family planning programmes at the local level also resulted also in competition between workers rather than collaboration. Conflict over turf, responsibilities and ranks between the two programmes undermined existing working relationships and compromised the interests of the communities being served. Differences in salary and official authority led to the perception that the reforms were inequitable and that the new system benefited one group more than the other. In the end, the health care reforms had to be reversed as a result of these conflicts, and the parallel vertical programmes were re-established.

Reduced Opportunities for Promotion

In Uganda, health workers were disturbed by the effect of the reforms on promotion and career tracks. The increased importance of local authorities in managing health workers after decentralisation meant that opportunities for promotion were now decided by local government managers rather than the national health hierarchy. Local patronage networks became extremely influential in determining promotions and health workers responded by seeking to influence these processes.

Insufficient Training or Support

In many of the examples discussed above, the reforms were not supported by the training or other resources required to implement the reforms. New skills in financial management, personnel management, team-building and change management are specialist management skills that health workers or their line managers needed for some of these reforms but they were seldom provided. In the Russian GP reform, the new doctors were trained and sent to their new posts, but then lacked basic equipment (including office supplies and telephones) to function successfully. Effectiveness, authority and enthusiasm were eroded, and the impact of the reforms was undermined by these failures to provide for the basic requirements of the changed roles.

Commentary

The reactions of health workers to the various reforms described above were not intended or expected by the policy makers who designed the reforms. The purpose of the Ugandan decentralisation was not to increase the importance of local patronage networks and decrease the role of professional oversight. The objective of introducing general practitioners in Russia was not to create an ineffective cadre of health workers or introduce barriers to collaboration among health professionals. In South Africa, the designers of the financial accountability reforms were not seeking to reduce the quality of health care services. The merger of the two vertical programmes in Bangladesh was not intended to undermine cooperation between the two services and decrease the services provided to users. Rather, in each of these settings, the policy makers had sound and laudable objectives to increase accountability, improve basic services, eliminate duplication, or decrease corruption.

In the design and implementation of these reforms, however, the fundamental issue of how health providers would respond to these reforms and the human resource interventions required to manage those responses was not considered. Each of the new reforms brought about changes to the motivational and incentive environment of health care workers. As we have shown the predictable reaction of health professionals to these changes resulting in unintended, and sometimes perverse, effects for the reform process. Some health workers actively resisted or undermined the implementation of reforms that threatened their interests, but in other cases they simply did not respond in the way that reformers had expected. In South Africa, for example, nurses interviewed about the financial accountability reforms felt that, rather than helping them, the reforms were being implemented at their expense and in the interests of managers higher up the chain of authority. They argued that the working conditions of frontline providers had deteriorated, and patient care had suffered, as a result of

the new policy, but that senior managers would benefit in terms of promotion or performance bonuses. As mentioned in the previous section, these health workers identified good facility management as critical to their job satisfaction and motivation, which is not surprising given the organisational and policy context in which they currently work. In Uganda, weak management and poor organisational support were also frequently cited as reasons for wanting to emigrate.

The reforms discussed in this section were not specifically focused on changes in human resources management. Nevertheless, the impact of the reforms was determined by the negative reactions of the health workers to the way the reforms were implemented and the perceived threats to their working conditions. In the next section, we consider some specific attempts to intervene in the human resources environment.

MANAGING HEALTH WORKERS: RESPONSES TO ATTEMPTS TO REFORM HEALTH HUMAN RESOURCES

Certain HSD research projects examined policy interventions explicitly intended to manage the incentives of public sector workers or health sector workers in particular. As attempts to reform human resources management, these are classified as Type 2 and Type 4 policy reforms according to the scheme presented in Figure 2. One research project examined the reactions of health workers to the introduction of general public sector performance management systems in South Africa (Penn-Kekana *et al.*, 2006a). Other studies on nursing staff dynamics in South Africa considered the implementation of specific health sector incentive payments to retain selected critical categories of health workers in the public sector and to encourage health providers to work in rural areas – the so-called 'scarce skills allowance' and 'rural allowance' introduced in 2004 (Penn-Kekana *et al.*, 2005). Another set of studies in Cameroon examined the use, in both hospitals and districts, of personnel bonus schemes under which the amount of the extra-salary financial payment received by a health worker depended on the measurement of his or her performance (Ambegaokar *et al.*, 2004b).

As discussed in the previous sections, there are a number of work-related factors that may encourage staff to emigrate, seek other employment, conduct parallel activities, or not cooperate with other health professionals. The management of health sector personnel might include interventions intended to encourage staff to arrive on time, work a full day, not take unnecessary sick leave, move to difficult areas, continue working in the public sector, remain in the country, or promote effective supervision and cooperation. In studying explicit attempts to manage health sector workers, these studies sought to understand what worked and what didn't in each context. We specifically wanted to evaluate if these types of reforms were more carefully designed to take into account the behavioural motivations and reactions of health providers; how health workers responded to these initiatives; and whether or not they had the impact that was intended.

Attempts to Retain Health Workers

The 'scarce skills allowance' in South Africa was a health sector-specific initiative intended to attract and retain health workers with identified crucial skills to work in the public sector (and also, thereby, keeping them in the country). The bonus was awarded to all doctors, dentists, therapists, radiographers, pharmacists and certain specialist categories of nurses (intensive care, theatre and oncology nurses) though different groups received different amounts[ii]. However, by distinguishing between different cadres of worker, one effect of the scheme was to discourage and demotivate those not identified as special in this way. The fact that all doctors but only certain nurses were eligible for the bonus, and that doctors got a larger percentage increase than nurses, angered nurses and sometimes soured the working

[ii] The allowance awarded to doctors, dentists and pharmacists amounted to 15% of their basic salary while all other groups got 10%.

relationships between nurses and doctors. Midwives and other categories of nurses not targeted for the 'scarce skills allowance' were especially resentful and discouraged. The fact that other nurses were being recognised while they were not, though all worked under the same difficult conditions, became yet another demotivating factor in their work and another reason to consider leaving public sector employment. A number of advanced midwives, a category of nurses both in short supply and critical to initiatives to improve the quality of maternal and neonatal care, spoke about retraining in a different specialist area that was on the scarce skills list.

Attempts to Get Staff to Work in Underserved Areas

A 'rural allowance' was also introduced in South Africa in 2004 to induce staff to take up employment in rural hospitals and clinics. Rural health facility managers interviewed as part of the research reported that the scheme had been successful in that it had made it possible for them to entice workers away from urban jobs. However, as with the 'scarce skills allowance', not all categories of health workers were eligible for the 'rural allowance' and the percentage increase differed by professional group. A particular problem was that professional nurses were awarded the bonus but lower categories of nursing stuff were excluded. Enrolled nurses and staff nurses that were not entitled to the increase, though they were often responsible for a large proportion of patient care in understaffed rural facilities, were discouraged and demotivated by the introduction of the incentive scheme. Relationships between different categories of nurses deteriorated in some facilities resulting in a general decline in staff morale. These developments meant that professional nurses, who had been awarded the bonus, also sometimes reported a decrease in motivation, an interesting phenomenon known as 'double demotivation' (Carr *et al*., 1996; McLoughlin & Carr, 1997).

Use of Rewards for Good Performance

In Cameroon, studies of a number of district-level and hospital-level performance motivation bonus schemes revealed some with characteristics that seemed to encourage greater adherence and engagement by workers, and others that didn't work well or failed to function at all. Our analysis suggested that success and failure were determined by the set of inter-related criteria summarised below:

1. *Transparency in accounting, finances and bonus-sharing*
   The performance measurement schemes that worked involved transparent finances. Those that failed relied on secretive managerial procedures surrounding the accounts.

2. *Marking of individuals for their work in a process that is transparent and involves persons beyond the individual health unit*
   Successful performance measurement of people's work was also transparent in the best schemes, so that everyone tended to agree with the assessment. In poor schemes, patronage by managers identified the winners, resulting in resentment and reduced team cooperation.

3. *Clear objectives for an individual's work, known to him or her*
   Transparency is assessing someone's work performance was linked to the importance of having clear objectives for their job. Measuring health workers on criteria they did not know about, or for work they did not know they were supposed to be doing, not surprisingly, was considered inappropriate and resulted in a lack of trust in the results of the performance assessment.

4. *Trust is not assumed and mechanisms for evaluating work and results are cross-checked and verifiable by others*
   Successful performance measurement schemes did not rely only on self-reported behaviour. Instead, mechanisms for verifying time-keeping or task-completion needed to

be in place. If cross-checking in this way was not possible, patronage and favouritism were assumed to be influencing the process.

5. *Those affected by the scheme are part of running it*
   Entirely management-led bonus schemes failed, in part because of the perception of patronage. Instead, in the more effective programmes, all workers were involved in some way in enforcing, measuring and rewarding the best performers among them.

6. *Sanctions against those who do not play by the rules are enforced*
   A rapid deterioration of a bonus scheme could result if individuals were allowed to break or bend the rules (such as by falsifying records or accepting illegal payments). The successful bonus schemes made an example of rule breakers and punished them publicly by removing their rights, for a time, to the bonus. This had the effect of reinforcing the sense among other workers that the scheme really was transparently and fairly run.

7. *A team leader who has the responsibility and authority to manage any performance system.*
   Good leaders who were good managers ran those districts or hospitals where the performance measurement scheme met all the other criteria cited above. They recognised the importance of these principles, without necessarily having been taught them. Weak leaders undermined their performance management and bonus schemes, by failing to ensure transparency and allowing a return to patronage.

The introduction of national and local performance management schemes in South Africa intended to identify and reward good worker performance were also studied. Some health managers reported that the performance assessment programme was successful, providing a way of recognising hard-working health providers and thus boosting their morale. However, the financial rewards were also sometimes a source of conflict, with un-recognised staff feeling resentful and complaining that the performance assessments were unfair and not transparent. In certain facilities, dissatisfaction with the performance scheme definitely undermined team work and cooperation, resulting in decreased health worker morale and motivation.

Commentary

We have described a number of reforms and initiatives intended to encourage health workers to work harder, work in less attractive areas, or remain in public service employment. These attempts to intervene in health worker performance and motivation were certainly not all completely successful. In some cases, the policies even had the opposite effect to what had been intended – decreasing health worker morale rather than improving it. Clearly these types of reforms indicate some awareness and acknowledgement of the incentive environment in which health providers work and live. Nevertheless, it is still surprising how little policymakers and managers seemed to understand about human motivation and behaviour, frequently failing to anticipate and manage predictable reactions of health professionals to the reforms. For example, it could have been expected that the design of the incentive schemes introduced in South Africa would cause dissatisfaction among excluded workers, but little was done to deal with or mitigate the fallout from these policy decisions.

Different dynamics operated in different contexts but the reactions of health sector workers to these human resource reforms were influenced by at least two common determinants: health workers' notions of fairness and equity, and the quality of local management. Firstly, an important theme in the examples discussed above relates to health workers' perceptions of the fairness of the incentive systems introduced. In both South Africa and Cameroon, health care providers were generally in favour of special allowances and bonuses, unless the reward system was considered unfair in some way. In the Cameroon, fairness and transparency were features of the more successful performance measurement and bonus schemes. Health

workers were most critical when decisions seemed to have nothing to do with their work performance but relied instead on patronage and favouritism. Transparent mechanisms for measuring, financing and identifying winners of the bonus schemes were important in persuading health providers that the decisions reached were just. In South Africa, health workers' responses derived from a very strong sense that different categories of staff should be treated equally. If there are to be rewards for working in under-served areas then all personnel working in such areas should qualify for the bonus, not only certain cadres selected by the central policymakers. Health providers also complained that the process of developing these proposals was not transparent, and that they had not been adequately consulted during the design of the incentive schemes.

A second key issue is the importance of local management. Skilled managers were those who could encourage transparency and fairness while juggling workers concerns with shifts, rotations, workload, assessment and rewards. In both South Africa and Cameroon, good management were identified by health workers as critical to the success of these policy interventions, and was associated with a greater inclination to stay in a particular job and to participate in the goals and objectives of the organisation or policy reforms. A fundamental observation from these studies is that the deliberate management of health sector personnel can succeed in encouraging greater enthusiasm and commitment to work, even in very difficult resource-poor environments.

DISCUSSION

We have briefly summarised some of the studies on human resources conducted under the Health Systems Development (HSD) Programme in three areas. The first of these contained cross-sectional views of the work context affecting health workers' motivation and behaviours. The second area focused on the behavioural reactions of health workers to general public and health sector reforms and their impact on policy implementation. The third set of research projects examined health sector interventions that explicitly attempted to address health worker motivation and performance and the responses of health personnel to these initiatives.

In this section, we present a heuristic framework, based on a synthesis of this research and analysis, that describes our understanding of the role and importance of human resources in health systems and health system reform. We derive support for this approach from current literature and then discuss the implications of our framework for future health systems development and health systems research.

THE HSD 'DYNAMIC RESPONSES' MODEL

Figure 3 presents the HSD *dynamic responses* model of human resources in health systems. This model attempts to summarise the central dynamics identified in the previous sections.

There is in any given country or setting the intended health system or the intended policy construct. We call this the *de jure* system and it is shown to the bottom left of the figure. The various organisational structures, management procedures, incentive schemes and training systems existing in a country (or set in place by a new policy) are the starting point of the model.

However, the implementation of the *de jure* system or *de jure* policy intervention is mediated through health workers. Not surprisingly, as human beings, health workers respond and react to the elements of the *de jure* system that affect their work life and personal livelihoods. These *dynamic responses* of health providers are generally expressed through informal mechanisms rather than the formal mechanisms associated with the *de jure* system. The studies discussed in the previous sections of this paper provided a number of examples of the informal

behavioural responses of health workers, such as demanding informal payments for health service provision in the Cameroon, or manipulating bed occupancy rates in Russia. We also mentioned the role of informal social networks and patronage mechanisms in determining the behaviour of health providers.

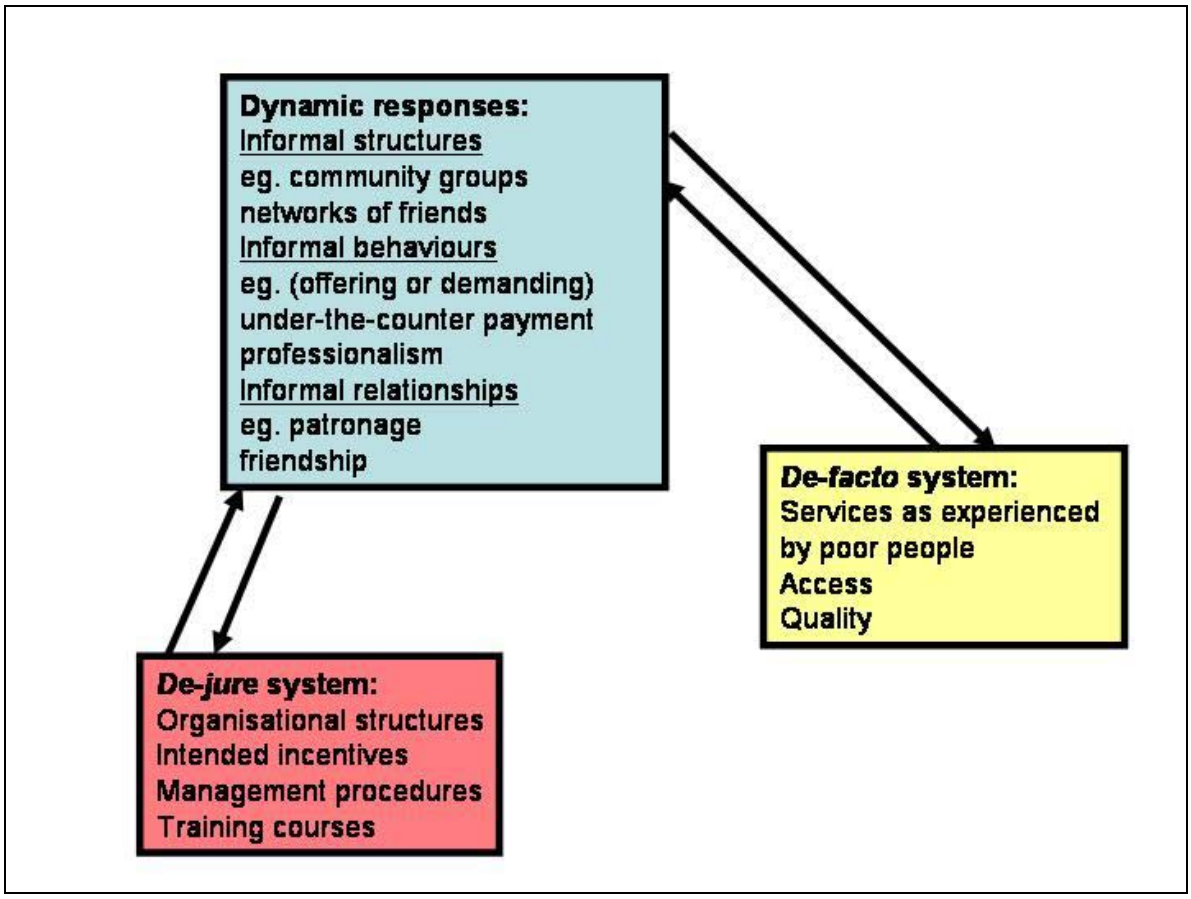

Figure 3: HSD *Dynamic responses* model

The research presented above has demonstrated that the responses of health workers are both *complex* and *dynamic*. Complexity derives from the multiplicity of individual and contextual factors that influence human behaviour and the unpredictable nature of individual or collective responses to particular determinants. These responses are also dynamic in that there is a constant feedback between the formal, *de jure,* system and health workers reactions to elements and changes of that formal system.

The result of these phenomena is that the *de facto* health care system experienced by users is compromised, especially for the poorest – those lest able to challenge the practices of health workers or able to find health care outside the established public system. There is a significant gap between what the health system and policy reforms intend, and what is experienced by users in practice. Policy interventions aimed at improving the access and quality of health care for poor people frequently threaten the status quo and are likely to be moderated and distorted by the *dynamic responses* of health workers and managers.

We have illustrated in this paper a variety of ways in which workers' *dynamic responses* have changed the nature of the intended process or policy. For example, if workers are posted to a location where their children are unable to attend school, they will react by getting their children into the nearest appropriate school and then using friendship and patronage networks to allow themselves to be absent from work in order to commute to see their family. If a new

policy holds them responsible for financial expenditure, they will protect their own interests (in keeping their job, or being promoted) by holding down costs rather than promoting the interests of patients. If a bonus scheme is introduced by management but is perceived as unfair by one professional group, that group will hold back from full engagement in work and set itself up in opposition to the cadres who are benefiting from the incentive scheme. Outcomes for patients must be effected by these *dynamic responses*. When staff are absent from work, do not have needed supplies, are actively in conflict with management, and don't cooperate with other health workers, patients' care will suffer.

This model affirms that health workers are central to the functioning of health systems. That now seems self-evident but has not always been recognised by health system reformers in developing countries preoccupied with system re-engineering (Martinez & Martineau, 1998; Hongoro & McPake, 2003). It is clear that reorganising and re-arranging the *de jure* system without paying attention to human resources is unlikely to result in improvements in health system performance. In addition, our framework attempts to illustrate a more fundamental point – that it is the reactions and behaviours of health workers, more than their simple availability, that ultimately determine how health systems function and the success of health sector reform initiatives. Producing adequate numbers of health workers and getting the skills mix right are obviously important but achieving those objectives, as with any reform, will only be possible if the interests, incentives and behaviours of health workers are considered.

All policy reform processes make assumptions, explicitly or implicitly, about the motivations of human behaviour (Blaauw *et al*., 2003). Many policy interventions seem to presume that health workers are either 'robots' or 'angels'. When seen as 'robots', health workers are expected to mechanically implement what they are told to do – there is no recognition that health workers have very human motivations, social connections and reactions. As 'angels', health providers are supposed to be entirely motivated by the vocation of helping other humans or achieving a better health system rather than satisfying their own needs or aspirations. Under these assumptions, central policymakers design commendable, and seemingly rational, health system and policy changes, and then expect health workers to implement the policies in the way that the policymakers intended.

Our research shows that health workers are neither 'robots' nor 'angels'. They are not passive actors implementing health policies. Nor, on the whole, are they primarily motivated by the 'organisational goals' of their facility, service, or the national health system. Rather, health workers react to health system or policy processes on the basis of the range of motivating or demotivating incentives inherent in their working environments and work experiences. The result of these *dynamic responses* is that policy processes seldom have the impact that policymakers intend and health systems fail to deliver quality care.

THEORETICAL AND EMPIRICAL SUPPORT

The argument presented so far is firstly, that the actual delivery of health care services, as experienced by end users, is influenced by the behaviours and practices of the health managers and health workers tasked with delivering those services; and secondly, that their behavioural responses are motivated by a complex and dynamic array of determinants, individual as well as environmental, financial as well as socio-cultural. These seemingly obvious observations are seldom acknowledged in the current literature and research on health systems in developing countries. However, they are supported by body of existing theoretical and empirical work from a variety of other disciplines. Some of these linkages are briefly highlighted in this section; beginning with the more general, non-health, literature before considering specific evidence from health systems researchers.

One of the founding assumptions of contemporary organisational theory is that organisations are made up of reflective, reactive, socially-connected human beings who generally have

different priorities to that of the organisation (Jaffee, 2001). Early empirical organisational research established the tensions between individual and organisational objectives (Barnard, 1938); the divergence between how organisations were supposed to function and how they actually worked in practice (Gouldner, 1954); and the unintended consequences of organisational interventions because of the human element (Merton, 1957). More recently, the so-called human relations theorists have explicitly focused on human responses within organisations with regard to a range of organisational issues including job design, motivation, leadership and organisational culture (McCleland, 1961; Vroom, 1964; Herzberg, 1966; Hackman *et al*., 1975; Schein, 1985; Hersey & Blanchard, 1988). Indeed, the three areas of research discussed in the sections above correspond to some of the key themes in current organisational studies (Jaffee, 2001), namely:

- The nature and determinants of organisational motivation;
- Worker responses to organisational change;
- Managing worker motivation and managing change.

Institutional economic theory is also predicated on the divergent interests and motivations of individuals within organisations (Coase, 1983; Perrow, 1986). Transaction cost economics explains the origin of organisations or firms on the basis of the high transaction costs that result from certain human behaviours (bounded rationality and opportunism); critical dimensions of the transaction (asset specificity, uncertainty and frequency); and specific environmental factors (small numbers and uncertainty) (Williamson, 1981). Similarly, agency theory, seeks to analyse organisational arrangements from the assumption that workers frequently act in ways that are contrary and opposed to the owner's interests (Ross, 1973; Pratt & Zeckhauser, 1985). In these perspectives, financial incentives and threatened self-interest are clearly a fundamental component of human behaviour and responses.

Policy studies is explicitly concerned with the responses to policy processes and their influence on policy development and implementation. It has long been recognised in public policy research that human reactions to policy change are more frequently political than rational, motivated more by self-interest than the collective good (Parsons, 1995; Dunn, 2003). There are also clear analogies between the HSD framework and Lipsky's (1980) notion of street level bureaucracy. Lipsky argued that it is the front-line providers who are ultimately responsible for the translation of policy into practice and that it is these street level bureaucrats, rather than the central planners, that determine the success or failure of policy interventions.

There is some evidence from the health literature that similar dynamics operate within health systems. Research on health systems in developed countries has focused much more frequently on organisational issues such as health worker behaviour, motivation, and reaction to change (Ferlie, 1997; Davies *et al*., 2000; Scott *et al*., 2003), and provide support for the claim that these dynamics are fundamental to health system functioning and performance. Less frequently, these insights from organisational theory and organisational studies have been explicitly examined by health systems researchers in developing countries (Aiken *et al*., 1997; Atkinson *et al*., 2000; Manongi *et al*., 2006). New institutional economics theory has been influential in recent approaches in health economics and financing (Mills *et al*., 2001; McPake *et al*., 2002) particularly in analysing the different motivations of principals and agents in health contracting (Dranove & White, 1987; Palmer, 2000). These studies have demonstrated that health workers and health managers do not always act in accordance with broader health system objectives. Policy making and implementation in the health sector is also often overtly political (Walt, 1994). Health policy researchers have confirmed that the interests and responses of key actors are critical to understanding the success or failure of health policy processes (Walt & Gilson, 1994; Reich, 1995), and that frontline health workers, in particular, play a significant role in determining the actual impact of policy interventions (Walker & Gilson, 2002).

Dynamic responses are features of both health system supply and demand. This paper has only focused on the *dynamic responses* of health workers but patients also respond in complex and unpredictable ways to health system components and changes[iii]. It is interesting that health systems researchers in developing countries readily accept that patients and communities drawn on a variety of economic, technical and social rationalities in deciding about when and where to access health care services but seldom acknowledge that similar dynamics and responses may operate among personnel *within* health care organisations.

IMPLICATIONS

So what then are the implications of our research and the HSD framework for health systems management, health sector reform and health systems research? If health workers in the real world are neither 'robots' nor 'angels' what does that mean for health systems development in developing countries? Given that health workers are motivated by a range of factors which may or may not include achieving health system goals, and it cannot be assumed that they will comply with health policy directives, how can the achievement of health system goals be enhanced? Some of the implications of our framework for health system development are outlined below. The significance of these insights for health systems research is briefly discussed in the next section.

Acknowledging Health Worker Behaviour in Health Systems

The key conclusions of the HSD model are that *dynamic responses* are at the centre of health system functioning and effectiveness, and that it will not be possible to improve health system outcomes for poor people in developing countries if we limit our interventions to changes in the *de facto* system. It is critical, therefore, that we begin to take these human behaviours and responses into account in health system development. Understanding human behaviour is complex and using these insights to manage people is even more difficult. Nevertheless, these phenomena are fundamental to the way that health systems work in the real world as well as the actual, *de facto,* outcomes produced by health systems, so it is necessary to incorporate this complexity into current health system models and approaches.

There are at least four possible approaches to dealing with *dynamic responses*:

- Don't accept that the human element is that critical and so continue to focus reform efforts on the *de jure s*ystem;
- Acknowledge that *dynamic responses* are important but believe that they are too complex to understand or manage, so there is no choice but to continue working with the *de jure* system;
- Accept that human responses are critical and so endeavour to achieve desired health system outcomes despite the human element by trying to ensure that health system interventions avoid conflict with individual motivations and incentives;
- Believe that *dynamic responses* are fundamental to health system functioning and seek ways to maximise the correspondence between individual and health system motivations and goals.

The key question underlying this continuum of responses is whether or not it is actually possible to understand and manage human responses. This question is explored further in the sections that follow.

Understanding the Determinants of Health Worker Behaviour

Although human behaviour is complex, there is a growing literature on the motivations and incentives of health workers, generally postulated as a combination of individual and

[iii] The HSD Synthesis paper on Access to Care (Balabanova *et al*., 2006) deals explicitly with demand-side *dynamic responses* in health care systems.

environmental determinants (Franco *et al*., 2002; Dieleman *et al*., 2003; Fort & Voltero, 2004). Environmental factors such as remuneration, working conditions and relationships with supervisors are more directly under health system control but individual determinants such as personal value systems and professional ethics may also be important long-term objectives for policy responses (Mackintosh, 2000; Gilson, 2003).

It is clear from the research presented here and the available literature that health workers are motivated by a range of determinants and that multi-factorial approaches are necessary to understanding the motivations, incentives and behaviours of health providers. Health worker salaries in developing countries is obviously one of the most important issues that needs to be addressed. Financial incentives are a key factor in the motivation and migration of health personnel and it is unlikely that there will much progress in improving health systems in low- and middle-income countries until salaries are improved. This will require significant increases in health care expenditure which will only be achieved through targeted external aid in most countries.

Nevertheless, there is still much that can be done in low-resource settings. Our research has confirmed that financial remuneration is not the only motivating factor and that people respond in complex ways to financial rewards. Pay increases are not enough when staff are also frustrated by increased workload, the lack of basic resources required to do their job, or the attitudes of senior managers. These other factors and relationships moderate, and may even completely distort, the impact of financial interventions. For example, financial incentives introduced in South Africa aimed at improving health worker motivation produced considerable dissatisfaction and demotivation, both for health workers that didn't get the increase but also, interestingly, for those that did. We have shown that a significant challenge for financial interventions, whether individual or collective reward systems, is to ensure that health workers accept that the allocations and distribution mechanisms as fair.

These points also highlight the importance of local *context* and *process* in human resource interventions. What matters or works in South Africa is not the same as in Russia or the Cameroon or Uganda or Bangladesh. We have shown how local histories, environments and dynamics differ significantly between these countries and how these aspects affect health worker responses. The standard categorisation of behavioural determinants seems fairly consistent across countries but the relative importance of different determinants varies between settings. Local knowledge is required to judge what combination of financial and non-financial incentives are required to effect desired changes in behaviour

Process issues are important in dealing with *dynamic responses* because people react as much to how they are told as to what they are told. Clear and open communication is critical from the start. It is difficult to get health workers to accept reforms, no matter how rational or potentially beneficial, once they decide that they have not been adequately involved in the development of those proposals. Although it may be difficult to influence health worker behaviour it is certainly possible to improve communication, participation and change management within developing country health systems.

Dynamic Responses Require Dynamic Management

One of the obvious implications of the HSD model is that *dynamic responses* of health workers requires *dynamic responses* in return from health service managers and health system policymakers. Health system development is not about static, once-off interventions but an adaptive, dynamic process. The search for a universal 'magic bullet' that will fix health system problems in developing countries is surely misguided. Dynamic management involves the active management of change processes rather than simply issuing instructions and expecting them to be followed. Reacting to health worker responses as they evolve is necessary not only to ensure that policy interventions have the impact they intend, but also to manage the unintended consequences as they develop. Policy analysts and researchers have

demonstrated that problem solving, flexibility and learning during implementation are fundamental to successful policy change (Brinkerhoff, 1996; Ogden *et al*., 2003).

The problem is that such active, adaptive management is difficult in many developing country health systems. Monitoring and evaluation systems, for general system performance and for policy implementation, remain weak in many low- and middle-income countries despite the fact that this has frequently been identified as a problem and that numerous initiatives have attempted to address the problem. For example, Mills *et al* (2001) in an analysis of health sector reform in Ghana, Zimbabwe, Sri Lanka and Thailand identified absent or poor information systems as a barrier to system reform in all four countries. They found that the information required for policy making was frequently not available or of poor quality, but also noted that health managers did not use the information that was available to them when making decisions. Similar problems have been identified in studies from other developing countries (Osiobe, 1989; Azubuike & Ehiri, 1999; Pappaioanou *et al*., 2003).

A further limitation is that government bureaucracies in developing countries do not generally support adaptive management. Few health service managers have the requisite change management skills, and those that do are often constrained from using them by bureaucratic hierarchies and procedures.

Strengthening Health Service and Health System Management

We have argued that effective health system development in the face of *dynamic responses* requires appropriate local knowledge, effective local monitoring, and ongoing local adaptation. Clearly a key implication of the HSD model for human resources is that the strengthening of local management is critical to improving health system *de facto* outcomes. Local managers have a much better understanding of local contexts, behavioural determinants and incentives, and are best located to accommodate and manage local human responses as they develop. But to achieve this will require changes at the local and systemic levels.

At the local level, health service managers need the ability, incentives and latitude to manage people and processes better. We have suggested that skills and expertise in areas such as human resource management and change management are a particular priority. However, local managers can only play such a role if the system allows and supports it. Some of the changes required at the systemic level include the decentralisation of management authority; shifts in the bureaucratic organisational culture; improved monitoring and evaluation systems; and a significant shift from personnel administration to human resource management. We are aware that these are not simple health system interventions, and that they will be subject to the same *dynamic responses* we have outlined above. Nevertheless, we would suggest that such developments are both necessary and possible.

Some implications of our approach for initiatives at the global level in support of health system development in developing countries would include:

- Emphasising health system development rather than health sector reform – supporting more long-term, incremental improvements rather than trying to identify the once-off, large-scale structural change that will fix the health system;
- Recognising that health system development may be as much about the processes required to get people to change as finding technical solutions;
- Trying to ensure that interventions strengthen the capacity for local problem-solving and adaptation rather than undermining it – as may be the case when reforms are determined by outside agencies and then driven by international technical experts;
- Prioritising the development of local health system and health service management capacity; and
- Strengthening policy monitoring and evaluation systems.

FURTHER RESEARCH

The HSD model emerged out of our first programme of research rather than informing it directly from the start. Clearly further work is required to evaluate the framework and the implications of these insights in more detail.

Some of the topics that the group will be taking up in future research include:

- Developing a more complex understanding of local motivational determinants. Comparing the relative importance of different motivational factors and incentives in different settings.
- Investigating examples of *dynamic responses* in different contexts in order to understand the repertoire of responses that health workers employ and the key drivers of their resistance to change (uncertainty, self-interest, concerns with procedural justice, or threatened resource networks, for example).
- Describing the temporality of change processes. Understanding the long-term dynamics of change, opposition and compliance.
- Examining what is really meant by local management. What skills and resources are required and how can they be developed? Interrogating whether adaptive local management is possible in current public sector systems.
- Evaluating how human resource management may be improved in developing country health systems. Investigating how human resource information systems can be strengthened to support human resource management.
- Observing and testing these approaches in practice. Evaluating what works and what doesn't in improving health worker motivation and performance in different contexts.
- Investigating whether policy initiatives informed by these insights are more effective and impact on health service delivery for the poor.

Investigating human behaviour in order to draw policy lessons is a fairly ambitious research objective. The HSD model also raises questions for current approaches and methodologies of health systems research. A central message of this paper is that many contemporary approaches to health system development make simplistic assumptions about robotic or angelic health workers. Rather, we have shown that health workers are motivated by a complex range of financial and non-financial incentives, informed by both individual and social value systems. There are a number of important implications of this for health system research.

Firstly, we would suggest that human behaviour needs to be explained rather than assumed. Instead of using theoretical or analytical frameworks that rely on assumptions about human behaviour, organisational behaviour should be treated as an important area of enquiry and research (Grandori, 2001). It is clear that the real human behaviour of health workers in health systems is influenced by a combination of factors, individual and communal, economic and social, rather than simply one or the other. We need to be wary of both 'under-socialised' approaches that limit responses to individual self-interest, as well 'over-socialised' perspectives where human behaviour is completely constrained by broader socio-political contextual influences or cleverly programmed by the internalisation of social norms (Wrong, 1961; Granovetter, 1985). People are also conscious, responsive, reflexive, self-referential and emotional beings so that any model of human behaviour needs to leave significant space for individual agency and unpredictability.

Secondly, this undoubtedly means that integrated inter-disciplinary research is essential for understanding the incentives, behaviours and responses of health providers. Different fields such as psychology, sociology, anthropology or economics provide important but different insights into understanding human behaviour. Both health systems and organisational studies are necessarily applied, multi-disciplinary areas of enquiry but true inter-disciplinary research is still extremely rare. New integrated approaches are required to develop more realistic understandings and predictions of health worker behaviour and responses.

A third implication of these arguments is that theory construction is more important in health systems research than has been recognised to date. Fields such as psychology, sociology, economics, politics and organisational studies, in distinction to epidemiology and public health perhaps, are rooted in theory development. The 'poverty of theory' in health systems research reflects both the limited application of theory from other disciplines, including those just mentioned, and the absence of new theory generation. The theory of how health workers behave in health systems in developing countries, for example, remains particularly rudimentary and fragmented.

The final inference is that new methodologies are required in health systems research. The HSD framework emphasises complexity and contextualised understanding but the current methodological approaches and tools are inadequate for investigating such questions[iv]. More intensive qualitative approaches such as participant observation or ethnography have been under-utilised in health systems research but provided significant new insights in the studies reported here. Innovative quantitative methods are also required. Our preliminary utilisation of conjoint analysis, in the form of a discrete choice experiment, produced useful information on the relative importance of different motivational determinants (Penn-Kekana *et al.*, 2005) and this work will be expanded to other settings in future research. Other novel quantitative techniques, such as social network analysis (Kilduff & Tsai, 2003), have seldom been used to investigate the supply side dynamics of health systems. Lastly, there may be significant insights to be gained from areas such as realistic evaluation (Pawson & Tilley, 1997) and complexity theory (Byrne, 1998; Plsek & Greenhalgh, 2001).

CONCLUSIONS

The human resource crisis is now clearly one of the most important challenges for health system development in low- and middle-income countries. Significant attention has focused on the planning and production of health workers but an increasing number of reformers and researchers have highlighted the importance of health worker motivation, incentives and behaviour in addressing the current crisis. This paper is intended to contribute to this developing initiative.

We have summarised some of the findings related to the question of health worker incentives and behaviour that emerged from our five-year, multi-country and multi-disciplinary programme of research on the factors that constrain health systems in low- and middle-income countries from meeting the needs of the poor. We provided evidence from a number of different studies in a number of different countries on the factors that influence the everyday practice and behaviour of health providers, as well as the reactions of health workers to various policy interventions.

One of the products of our research programme is a conceptual framework that we think is helpful in understanding why health systems and health sector reform has so far failed to improve health services for poor people. Our model suggests that the behaviours and practices of the health managers and health workers ultimately determine the actual delivery of health care services, as experienced by poor patients, and that much more attention needs to be given to understanding and managing these *dynamic responses* of health workers.

We have summarised the implications of our model for local, national and global initiatives in health systems development. We accept that understanding and managing health worker behaviour is not a simple task but have argued that it is both possible and necessary to develop the knowledge and capacities required for such an undertaking. Current conceptions

[iv] This issue is discussed in detail in another HSD summary paper (McPake *et al*., 2006) .

of health workers as either ‘robots’ or ‘angels’ are not consistent with the research presented here, nor are they supported by the current literature in fields such as organisational studies, institutional economics and public policy. Different frameworks are required that recognise the multi-faceted, reactive nature of health worker behaviour in health systems. Supporting the development of local knowledge, local problem-solving and local management seem critical in beginning to respond to these dynamics.

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