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Making progress in reducing maternal mortality and morbidity – need to conceptualise approach to health systems

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Introduction

In this article we argue that part of the explanation of the failure to reduce maternal mortality and morbidity globally is the way that the health system is conceptualized and addressed in much of the maternal health field. We will argue that there is a need to move from an implicit mechanistic approach to health systems towards a conceptualization of health systems that recognizes the fundamentally social and dynamic nature of health systems and health policy interventions "where everything depends on how people interpret and implement policy, and how users respond to new programmes and services" (McPake, Blaauw et al. 2006). We will use data from a range of studies carried out looking at maternal health services from a health system perspective in two middle income countries (South Africa, Russia) and two low income countries (Bangladesh, Uganda) to illustrate our argument.

How health systems are conceptualized in maternal health services

In response to increasing alarm in maternal health circles that progress is not (with a few notable exceptions[1]) being made in meeting the Millennium Development Goal of reducing maternal mortality by 75% by 2015, there have been a considerable number of papers and reports that have been published that have suggested what needs to be done to address this lack of progress (UN Millennium Project 2005; WHO 2005; Campbell, Graham et al. 2006; Filippi, Ronsmans et al. 2006).

Access to contraceptive services to prevent unwanted pregnancies; delayed first pregnancy; access to safe abortion and post abortion care; targeted ANC care and post-partum care have all been widely acknowledged as important (WHO 2005; Filippi, Ronsmans et al. 2006) . However central to any attempts to substantially reduce maternal mortality is a focus on the care of women in the intrapartum period (Campbell, Graham et al. 2006). Although packaged slightly differently, with slightly different emphasis, there is general agreement that the focus of attention should be on ensuring that care by skilled attendants is provided at the primary health care level, 24 hours a day, for all women during the intrapartum period - with back up accessible comprehensive emergency obstetric care (Freedman, Waldman et al. 2005; UN Millennium Project 2005; WHO 2005; Campbell, Graham et al. 2006).

With these requirements well known, the challenge is how to ensure that good quality intrapartum care is available to women. Political commitment at all levels, as well as the broader health and non-health strategies that reduce poverty inequalities and increase the status and rights of women, are important (Freedman, Waldman et al. 2005; UN Millennium Project 2005). Huge financial inputs are also needed, with vast numbers of health care professionals needing to be trained. The WHO Report 2005 entitled "Make every mother and child count' estimated that it would cost US$39 billion to get first level and back up care for 101 million mothers (some 73% of expected births" by 2015), working out at a cost per head of US$ 0.22 –

[1] Malaysia, Thailand, Sri Lanka, Honduras, Bangladesh, and Egypt have all reduced maternal mortality by 75% in less than 25 years.Filippi, V., C. Ronsmans, et al. (2006). "Maternal health in poor countries: the broader context and a call for action." Lancet **368**: 1535 - 1541.

1.18. It also estimated that 334,000 additional midwives were needed, alongside upgrading the training of some 140,000 health care workers, and 27,000 doctors (WHO 2005).

The delivery mechanism of maternal care is a functional health system. Unlike some other interventions "maternal health services are dependent on the functioning of the entire health system" (Graham et al., 2001). (Graham, Bell et al. 2001; UN Millennium Project 2005; WHO 2005). But despite the fact that it is now widely acknowledged that maternal health services are fundamentally 'embedded' in health systems, there is relatively little maternal health literature that explicitly explores the interactions between maternal health and health systems, or engages with debates in the health system, and health sector reform literature (Parkhurst, Penn-Kekana et al. 2005). Campbell et al used the work of Roemer to highlight the importance of various larger health system components such as resources, organization, management and economic support for the delivery of services. Others have looked at the impact of various health sector reforms on maternal health services, with user fees being a key issue that a number of authors have engaged with (Schneider and Gilson 2000; Goodburn and Campbell 2001; Borghi, Ensor et al. 2006). Baily et al have argued for the importance of an indicator of health systems capacity to measure progress towards the MDG goals, calling for availability of emergency obstetric care to be added to the two indicators of skilled attendance and MMR (Bailey, Paxton et al. 2006). Freedman et al emphasize the need to transform health systems to improve the lives of women. They argues that health systems should be seen as key social institutions and, following on from this that concern for 'equity and human rights' should be guiding principles when attempting to improve health systems (Freedman, Waldman et al. 2005). The UN Millennium Report suggests an approach to improving health systems starting with an integrated primary health care approach with a focus on the district level – i.e. "community up through first referral facility level" approach (UN Millennium Project 2005).

Related to the recognition of the importance of health systems, is the increasing attention being paid to human resource issues. Reflecting a movement in the general human resource literature, there is a recognition in the maternal health field that it is no longer sufficient to just think about numbers of health care workers, how they are trained, and where they are deployed, it is also important to consider issues around motivation, retention and the quality of care that health care providers are providing (Hongoro and McPake 2003). More recent maternal health literature recognizes that although having skilled attendance is important, just having a skilled *attendant* present (the actual person) does not guarantee skilled *attendance* (the required care) (Graham, Bell et al. 2001; Bailey, Paxton et al. 2006) . The WHO report for example suggests that to reverse the problems of demotivation, dual practice, under the counter payments, and brain drain, minimum salary levels had to be doubled or even tripled and that even this might not be sufficient (WHO 2005). The UN Millennium Project report calls for revision of laws and practices to enable mid-level provider to play a bigger role, and to substantially increase salaries and improve career paths and working conditions of health care providers. Other articles acknowledge the importance of 'good management', attention to the working conditions in which health care workers are forced to work so as to improve staff motivation and hopefully treatment of patients (UN Millennium Project 2005; Bailey, Paxton et al. 2006; Koblinsky, Mathews et al. 2006).

Two of the authors of the present paper published work in 2005 suggesting that a whole range of health system organization factors such as finance reforms, the role of the private sector, informal private care, and wider health sector reforms can all impact on maternal health outcomes and that more work needs to be done to look at the wider health system issues, as well as suggesting that this might provide insights into the disappointing results of many attempts to improve maternal health services (Parkhurst, Penn-Kekana et al. 2005). This article takes the argument one step further by proposing a conceptual model for theorizing a way of understanding how health systems, and the health care workers that work within the health system, function and respond to policies and programmes that aim to improve maternal health outcomes.

Health System Development Programme

The Health System Development Programme is a 5 year multi-country multi-disciplinary knowledge programme funded by the UK Department for International Development (DIFD), which aims to understand the factors that constrain health systems in low and middle-income countries from meeting the needs of the poor, and to explore ways of overcoming these constraints. Researchers from the UK, South Africa, Uganda, Russia and Bangladesh participated in the programme.

Within this programme maternal health services were a focus of research in recognition that improving maternal health is an international priority; that maternal health outcomes reflect some of the biggest discrepancies between poor and rich countries, and because maternal health services are depended on a many different aspects of the health system functioning. This makes maternal health services a useful probe to understand how the health systems as a whole are functioning and serving the interests of the poor (Parkhurst, Penn-Kekana et al. 2005)

In South Africa, Uganda, Bangladesh and Russia a situation analysis of maternal health services from a health system perspective was carried out between 2001-2002. Following on from this a range of different studies, described in Table 1 were carried out to explore key issues that emerged from the situation analysis. In Russia and South Africa the focus was predominantly on health care workers and their practice, while in Bangladesh and Uganda follow up studies focused on issues of user's perceptions and utilization of services.

Table 1. Maternal Health Studies Carried Out During The Health System Development Programme 2001 – 2006..

Country	Study	Methodology
South Africa	Situation Analysis of Maternal Health	Grey & Published Literature Review Secondary data analysis Key informant interviews
	Provider Practice In Two Maternity Wards	Long terms ethnography of two maternity wards including participant observation & interviews in 1 rural and 1 urban district hospital

	Nursing Dynamics Study In Maternal Health	Key informant interviews with national, provincial, facility and labour ward facility managers Site visits to hospitals and clinics Fax questionnaire Motivational survey of midwives in labour ward Discrete choice experiment with midwives
Uganda	Situation Analysis of Maternal Health	Grey & Published Literature Review Secondary data analysis Key informant interviews
	Study on Access to and Utilisation of Professional Delivery Services	Qualitative interviews with women who recently delivered in a facility in one rural district Review of facility records from one district and census data
Bangladesh	Situation Analysis of Maternal Health	Multiple studies? Lit review, provider views, facility observations etc? AZIZ?
	Study on Access to and Utilisation of Professional Delivery Services	Qualitative interviews with women who recently delivered in a facility in one rural district
Russia	Situation Analysis of Maternal Health	Published and grey literature review Key informant interviews Secondary data analysis
	Tula Oblast Maternal Health Care Study	Secondary data analysis In-depth interviews

Brief Summary of Research Findings In Russia

The Russian situation analysis explored why Russia had an MMR rate of 40 considering almost universal skilled attendance at delivery. Two explanatory factors were identified. One explanation was that although abortion was legal and widely used back street abortions were still a common cause of maternal deaths. Much maternal mortality in Russia (25% according to official statistics) is associated with abortion, 80% of those deaths, are associated with illegal abortions taking place outside the formal health system. It is not altogether clear why illegal abortion is so widespread in a country in which access to abortion is in principle free, and not highly stigmatised but the choice to avoid the formal system is most likely related to the provider behaviours that lead to the generation of fear of contact with the formal health system among some groups of users - particularly the young and those without full citizenship - confidentiality problems, and informal charges (WHO reference in Zhirova et al., 2004), and the implementation of regulations concerning abortion in the second trimester of pregnancy (Danishevski, Balabanova et al. 2002) . A second set of factors identified which may influence overall levels of mortality is that, despite the high levels of skilled attendance, there is a great variance in the practice between facilities, which will have an impact on quality and practice. Many facilities were also not implementing evidence-based practice in ways typically conceptualized in the West.

Explanations for the great variance in practice, as well as failure to adopt internationally accepted evidence-based practice, were the focus of the follow up study in Russia. This study focused on delivery care in the Tula region, which is located 200km south of Moscow. The region has a population of 1.7 million people, 18.5% of which live in rural areas. The region generally has poor health statistics, for example infant mortality is 19.5 per 1000 life births, compared with 15.3 for Russian overall. Tula has a computerized obstetric information system that provides uniquely detailed information on all aspects of obstetric care in the region. The study involved analysis of this database, as well analysis of the regional administration data on each facility providing obstetric care with the number of beds with different designations and numbers of funded posts and whether they are filled. Structured interviews with heads of all stand alone maternal facilities and obstetric departments were also carried out that explored issues around the range of medical practices at the facility, decrees and local guidelines on maternal health services, and comparison was done with internationally recommended practices.

The variation in the care that women received was extreme. For example cesarean section rates varying in one district form 3.3 to 37%, episiotomy rates ranging from 9 to 80%, and amniocentesis from 0 to 51%. The study also found that increasingly large percentages of women were hospitalized for what is termed 'pathological pregnancy' with some facilities hospitalizing 100% of women, often staying for up to 28 days (Danishevski et al, 2006). Although officially maternal health care is free in Russia payments were reported in 11 out of the 19 facilities in which the study was carried out, although it was explained as fees for hotel services. Key informants argued that although national policies had been developed, these were often not implemented partly because they did not recognize the reality on the ground for most doctors.

A range of factors were identified as shaping practice which included the distinct traditional Russian scientific paradigm, the process of fragmentation and decentralization that took place after the break up of the Soviet Union, and changes in the way that the public health system and facilities were funded. The falling fertility rate, coupled with funding based on bed usage, had led to a lowering of the threshold for hospitalisation.

Although there were a number of national policies that aimed to set national clinical standards, based on the latest internationally recognized evidence based knowledge these documents often got stuck at regional offices. Even those clinical practice guidelines or acknowledged by many physicians who argued that "physicians actions were limited which clinicians were aware of, they argued that they could not be implemented due to resource constraints, and the "availability of resources having a strong influence on clinical decisions"(Danishevski, Balabanova et al. 2006). Personal experience and previous training seemed to shape this practice more than the assessment of the evidence base for different interventions (Danishevski, Balabanova et al. 2006).

Research findings in South Africa

South Africa is another middle-income country that despite high level of utilization of delivery services (around 92%[2]) still has a worryingly high maternal mortality ratio at 150 per 100,000 live births. The situation analysis of maternal health services carried out in this country (Penn-Kekana and Blaauw 2002) found that health inequalities, and the HIV/AIDS epidemic partly explained poor outcomes. However poor provider practice was also an important explanatory factor. Poor provider practice has been identified as contributing to over half of the maternal deaths in South Africa, the vast majority of which occur in facilities (Department of Health 2006)

Following on from the situation analysis two studies were then carried out looking at issues around motivation and retention of midwives working in maternity services, as well as factors that influenced provider practice in two maternity wards. The first study explored nursing staff dynamics and motivation in midwives. It adapted the model developed by Franco et al (2004) to look at range of different motivation determinates and outcomes. (Penn-Kekana et al, 2004). 147 midwives working in 15 hospitals and 26 clinics completed a self-administered questionnaire that asked 52 motivational determinate and outcome questions. Multivariate regression analysis found that unhappiness with their vocational choices, stress at work and not being able to cope with change was significantly associated with burnout and motivation. Younger nurses, those working in hospitals, those with children under 18, and those working in urban areas were more likely to be thinking about leaving. Concerns about stress, pay, promotion, and relationships with co-workers were also significantly associated with intention to leave. Facility management, relationships with supervisors and doctors, as well as workload were important in determining organizational commitment. Over 90% of midwives agreed with the statement that policy makers did not consider the implications of policies that they made.

The study also incorporated a discrete choice experiment where midwives were asked to make hypothetical choices about facilities in which they would like to work (Penn-Kekana, Blaauw et al. 2004). This found that both financial and non-financial factors influence nurses' choices about where to work, with good management and adequate equipment influencing nurses' choices more than a 15% pay increase. Rural nurses were particularly concerned about facility management. Qualitative work in this study found that staff were very unhappy about the quality of facility management and that management were confused about their roles, and unhappy about the performance of staff. Performance management systems that had been put into place to try and improve the quality of care and reward good work had caused tension and were widely regarded as unfair and divisive. A number of incentive schemes that the government had put in place had demotivated nurses. For example the rural allowances given to some grades of nurses and not others had sorely affected the motivation of nurses who did not get the allowance, but also had a negative impact on nurses who did get the allowance who had to deal with colleagues who had not, and were resentful.

[2] This figure is from the 2003 South African Demographic and Health Survey.

The second study was a long-term ethnography, carried out in two district hospitals, one urban and one rural. The study found a considerable gap from practice set out in national policy documents, and what was happening in the labour wards in terms of patient care. Midwives were emerged in a hierarchical system, where they and their managers were struggling to implement a huge range of new policies mostly unrelated to maternal health. Faced with huge demands, they prioritized policies that they believed their managers cared most about, that they would be penalized for not implementing. Aspects of new policies that were easy to implement – for example putting posters up on walls – were implemented. More complex or difficult changes, particularly if they impacted on the culture of the facility, were left. The intention of policies was rarely explained or discussed with managers or staff, but were seen as a list of tasks that had to be done. This was particularly noticeable with a range of policies that attempted to empower patients, and improve patient provider relationships. For example nurses had to wear name labels, and were penalized by managers if they did not, but it was not clear (or regarded as important by the same managers) if this improved relationships with patients. One nurse ridiculed patients for not being able to read the name labels to the researcher, and in numerous interactions, patients were never observed to use nurses' names. Suggestion boxes were up on the wall in both wards. In one hospital there were no slips. In the other hospital patients were asked to fill in slips, monthly reports were made and these were submitted to provincial government, but the actual complaints that patients made were not dealt with.

Midwives were generally demotivated, considering going overseas, and grappling with conflicted ideas of what it meant to be a nurse. They had complex attitudes about their patients, which were partly shaped by a professional notion that they were the patient's champions, and partly shaped by judgmental attitudes about appropriate behaviour of women, and attitudes around who should be having children. (i.e. not teenagers, unmarried women, poor women, and women who already had a number of other children). Midwives called for good management, but what good management exactly meant was contested. Many midwives argued that good managers should treat staff fairly and equitably. In many of the nurses' minds that meant for example that promotion should be based on length of service and not in recognition of achievements, or hard work or how they treated patients.

Poor relationships between staff, and between staff and management meant that a number of policies and programmes aimed at improving maternal health were fundamentally undermined. For example although maternal and perinatal mortality audits officially took place at both hospitals, they were not well attended (particularly by doctors) and often became a venue for airing old grudges and blaming each other. Training initiatives were undermined by the fact that staff were rotated through the maternity wards so the nurse who received training on some aspect of maternal health care, would then be transferred to a different ward. Allocation of who went on training was largely decided on the basis that all nurses should have a turn, and not on who would be the most appropriate. Those who did go on training – for example advanced midwifes who had a years extra training in maternity – when returning from training were often accused of being 'full of themselves' and their colleagues would often be resistant to their attempts to implement what they had learnt and improve practice (Penn-Kekana 2006).

Research findings in Bangladesh and Uganda

Reviews in both Uganda and Bangladesh identified a fundamental problem with high maternal mortality and low rates of skilled birth attendance across the population. MMR estimates are 505 in Uganda, with 39% skilled attendance (Uganda Bureau of Statistics 2001) and 320 in Bangladesh with 12.1% skilled attendance (National Institute of Population Research and Training, Mitra and Associates et al. 2001; National Institute of Population Research and Training, ORC Macro et al. 2003). In both countries, however, several studies have been conducted which have identified barriers to the use of professional delivery care, or delivery in a health facility – such as distance and transportation problems, low perceived quality of care in facilities, direct and indirect costs involved in facility use, and socio-cultural norms against use of medical care for childbirth (Blanchet 1984; Nahar and Costello 1998; Afsana and Rashid 2000; Amooti-Kaguna and Nuwaha 2000; Afsana and Rashid 2001; Musoke 2002; Afsana 2004).

Much of this past work has identified barriers to care by focusing on women who were non-users of services. As such, the study carried out in this programme was a primarily qualitative one that instead explored the pregnancy and delivery experiences of some of the minority of women who did deliver in a health centre, so as to identify which barriers appeared more or less important, and to learn what factors may have enabled facility use. The study aimed to understand the processes of decision-making and engagement of these women with the health service by interviewing 30 recent facility users in a rural district of each country.

Several differing dynamics of understanding and engagement with health services were seen across the two countries. Notably, in Uganda, most of the women interviewed had planned to deliver in a health facility in advance, whereas in Bangladesh, it was typically only after 'complications' were perceived to have arisen during home delivery, that women sought help from the formal health sector. Bangladesh facility users expressed higher levels of apprehension about facilities, or less trust than women in Uganda who often saw their use as insurance in case of a problem.

The lack of trust in professional services could be seen in Bangladeshi women's views on caesarian delivery. Some women alleged that caesarean section was used when not medically indicated. Women considered that doctors recommended this procedure in order to channel patients to private clinics or to claim high fees for the procedure. Although such claims are unconfirmed by clinical assessment, women recounted instances of recommendation of caesarean section after minimal examination and consultation time. In one such case, a woman related an instance in which, assisted by a non-qualified local healer, she negotiated with the midwife to assist in a normal vaginal delivery after a caesarean had been recommended (without adverse result). The factors determining whether or not caesarean section took place or not seemed at times to encompass the financial incentives for doctors to do them, and reversed financial incentives for midwives - who were often given tips for successful vaginal delivery - and the relative levels of control over service delivery of the two groups.

Also discussed by women in Bangladesh was a common practice of midwives providing injections. Some women believed that these had been used to speed up the process of delivery.

There may be incentives to attempt to speed the progression of labour in such settings, when delivery wards are over-crowded, where women often present with prolonged labor, and where midwives receive tips for delivery. Yet if labour is induced prematurely, this could increase the risk of uterine rupture with direct implications for risks of mortality.

While Bangladeshi women attempted delivery at home, and saw this as a social norm, several women who had delivered in a health facility in Uganda expressed the view that their friends similarly delivered in facilities. Given that interviews took place in a rural district in a country in which the national uptake of SBA is only 39%, this was surprising, and seemed to identify a possible clustered pattern of health seeking behavior, in which groups of women connected through a social network may have higher then average rates of use of facilities, suggesting a set of key responses among service users within networks. An alternative explanation, however, could be respondent bias, if women felt this was the 'correct' answer to give when asked about their friends' practices.

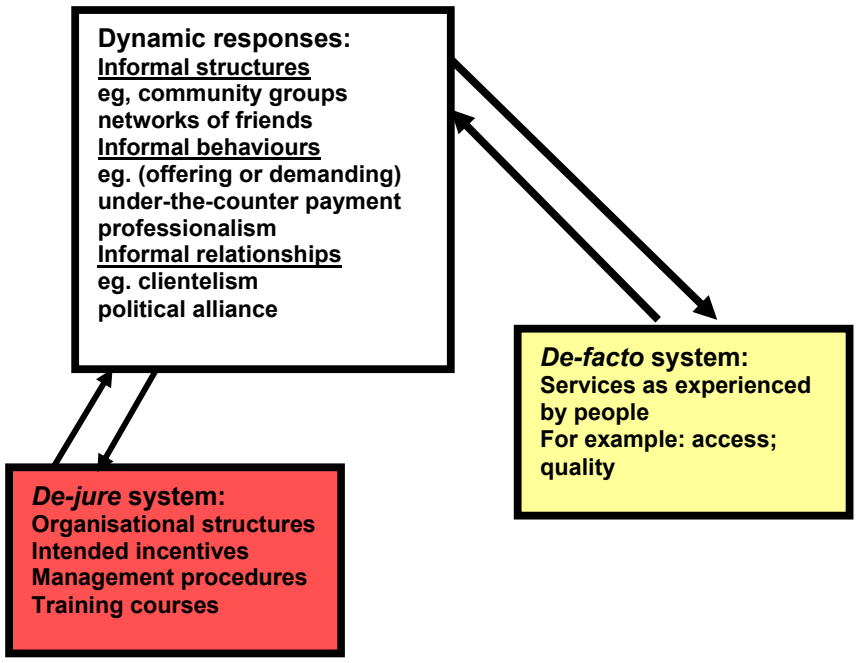
Interestingly, in Bangladesh mortality is lower than in Uganda, despite a third the level of skilled attendance. The MMR estimate of 320 is also much lower than would be predicted by the rate of SBA according to other low use countries. It is difficult to explain this discrepancy, but the use of services particularly in the presence of complications, even if broadly defined, might imply some degree of targeting of use according to medical need, even if that targeting is still quite imperfect and leaves an unacceptable rate of MMR by overall international standards. Nevertheless, if, indeed, it is predominantly the complicated cases which are attended by skilled birth attendants, this would imply that each instance of use of SBA has a greater chance of averting a maternal death. In contrast in countries such as Uganda, where service use may instead reflect prior decisions, then facility delivery will unlikely be predictive of medical need. To the extent that such groups may be better educated and better connected to formal systems, there may be an inverse relationship with medical need, if such women were better nourished in childhood for example. These findings further emphasise the importance of looking beyond national statistics and simple technical inputs (such as the absolute level of skilled attendance), to understand the dynamics of how attendance is used, by whom, and in which circumstances.

Dynamic approach.

What emerges from all the studies discussed above is the complex and dynamic nature of maternal health services, and the health systems in which they are embedded. Where what is officially meant to be happening, is different from what is in practice happening in the facilities where women are accessing services. For example women in the Tula Region of Russia are charged for services despite the fact that services are meant to be free, and getting admitted for 'pathological pregnancies' as a way for facilities to ensure that they were not faced with too many empty beds. The rural allowance instead of motivating staff in rural areas in South Africa, caused tensions between those midwives who get the allowance, and lower ranks of nurses who didn't, and doctors who got a higher percentage income supplement. Doctors may have recommended unnecessary c/section in Bangladesh to supplement their income , and midwives may have induced deliveries in maternity wards. Patients and their families consequently lost trust in the system and the advice of those skilled attendants who worked within the system.

These findings on dynamic complex responses shaping maternal health services were not unique to the maternal health research that was carried out within the health system development programme, but were part of a set of findings that emerged across the work that was carried out in the programme, including studies of issues of human resources, access and decentralisation (Balabanova, Parkhurst et al. 2006; Blaauw, M et al. 2006).

Resulting from analysis of the findings across the programme a new approach to health systems emerged that moves away from the mechanistic approach that is implicit in much of the development thinking about health systems, including in maternal health. The traditional approach views the health system as an output producing machine, whose failure to deliver can only be explained by inadequate inputs, or organisation of inputs. The argument of this paper is that we instead need to have an understanding of health systems that is truly is *systemic*. Where 'context' is not seen as peripheral but recognized as fundamentally shaping how local health systems operate, and the success or lack of success of new policies and programmes. It requires the recognition of more complex processes of determination, and the social nature of the functioning of a health system, which involves interaction between human actors. Such an approach also acknowledges that health care workers are complex human beings, motivated by a range of different financial and non-financial incentives, steeped in cultural and professional value systems, As Blaauw et al have described, health workers are not robots, who blindly implement whatever they are told, nor are they angels who think of nothing but the good of their patients (Blaauw, M et al. 2006). How they behave and how they react to policy, cannot be comprehended outside this framework. A model that seeks to capture this systemic perspective is described in figure 1 (McPake, Blaauw et al. 2006)



(Figure 1: dynamic responses model)

In this model, dynamic responses of the health care workers and managers are the lynchpin between formal arrangements (the *de-jure* system) i.e. what is meant to happen, and the *de-facto* system i.e. what is actually happening in facilities and experienced by people who use health services. Whilst formal arrangements offer the entry point for intervention, the ability of people to access services responsive to their needs, crucially depends on how health care workers and managers implementing the *de-jure* system respond. As such the relationships and contexts that exist on the ground are seen to be as important as the set of inputs, and must be addressed accordingly. The development of programmes and policy that improve outcomes for users therefore requires direct engagement with context and with how formal organizational structures, intended incentives and management procedures interact with informal structures, behaviours and relationships.

The model characterises the elements of dynamic responses as being 'informal' behaviours, meaning to describe those behaviours that are not governed by the rules of the formal system, which take place in the *de-jure* box. The bi-directional arrows between the two left-hand boxes represent the equally dynamic interaction between formal and informal behaviours.

The critical feature of the model is that it draws no direct link between the *de-jure* and *de-facto* systems, and therefore no necessary link between the provision of inputs and the organisation and management of these inputs *de-jure*, and the outcomes that emerge. The only health system that can be experienced by its users is the one that emerges from multiple human interactions.

Policy implications for maternal health services

Incorporating this dynamic approach into maternal health policy and programme implementation requires a different way of thinking about planning, implementing and evaluating policies and interventions aimed at improving maternal health services and reducing maternal mortality and morbidity.

Making and implementing policies and programmes differently

The development of programmes and policy that aim to improve maternal health outcomes requires direct engagement with the local context where the policy and programmes are going to be implemented. With particular attention being paid to how formal organizational structures, and management procedures interact with informal structures, behaviours and relationships that exist on the ground. Once this context is known the dynamic responses model requires an approach that theorises what strategies will work and won't work, and why, in that particular context.

For example in South Africa when implementing a training programme it is essential to take account of the fact that in many hospitals (70% of the ones who returned a faxed questionnaire in the nursing staff dynamics study) nurses are regularly rotated through the labour ward every 3 months. Also that in many hospitals staff shortages mean that management might not release

staff for training, logics of who goes on training are complex, and nurses may struggle to implement what they have learnt due to resistance from colleagues.

Policy makers and programme officials need to develop flexibility and a grounded approach that allows them to engage with the specific dysfunctions of the specific maternal health services and systems in which they work. Instead of having an international model to apply to the local context, the local context and the social nature of the health system must themselves shape what policies and programmes are implemented. It is necessary to recognize that the health system and health workers responses are never static and that what initially appears to be a minor problem can become a major distraction that derails policy interventions. Policy makers and programme officials need to have feedback loops in place, and be able to make changes if differences between what is intended and what is actually happening become fundamental.

Another key component of successful implementation inevitably lies with good management. Koblinsky et al suggest that good managers need to be able to "ensure correct co-ordination and organization of services, including supplies, training, and communication"(Koblinsky, Mathews et al. 2006). Arising out of this work we would argue that a good manager also needs to recognize that change does not come about as a response to static one-off interventions, but instead requires an adaptive, dynamic process (Blaauw, M et al. 2006).

The MDG report calls for, among other things, the creation of mid level providers (UN Millennium Project 2005) - and this is certainly a policy options being explored in many developing countries which are losing staff abroad. The questions that must then follow are: what level would these mid-lever providers be trained at, and how would the mid level provider fit into the complex social relationships as well as supervision and management systems that exist in facilities? Also what would be the career structures for these midlevel providers, and who would be recruited to be trained and how would this impact on other ranks of staff?

Evaluate Differently

We would also suggest that the dynamic response model implies a different way of evaluating the impact of maternal health interventions, by explaining what worked and what didn't, exploring the processes involved. We would argue programmes and policies that aim to improve how maternal health care is delivered are social and not technical interventions. Therefore instead of trying to repeat the randomized control trial model that has worked well in clinical sciences, methods of evaluation need to be developed that enable learning to take place, and patterns to emerge, while also acknowledging the role of the reflexive complex dynamic responses of the staff to any policies and programmes. (McPake, Blaauw et al. 2006). In social interventions we would suggest that focusing on understanding the mechanism of the effect (positive or negative), rather than only measuring the effect itself, can provide information that is useful for policy makers in other contexts (Pawson and Tilley 1997). Programs work by introducing new ideas and/or resources into an existing set of social relationships. A crucial task of evaluation should be to include (via hypothesis making and appropriate research design) investigation of the extent to which these pre-existing structures 'enable' or 'disable' the intended mechanisms of change. This would then enable policy makers in other countries

to look at patterns that develop across countries, to learn from mistakes, and problems experienced, as well as successes.

Conclusion

As others have already noted, progress in preventing the unacceptable levels of maternal mortality globally will "ultimately be dependent on strong health systems, ensuring high coverage of midwifery services supported by timely and competent hospital care" (Ronsmans, Graham et al. 2006). To achieve this, especially in the countries which bear the biggest maternal mortality burden, and often have the least functional health systems, is a considerable challenge. Huge levels of political commitment and financial investment are needed at national and international levels, to improve health systems, and also to improve the status of women. In the event that political commitment and the financial resources are mobilised, we would suggest that adopting the dynamic responses model as a basis for understanding how health systems operate would inrease the likelihood that interventions being planned and implemented will make a real difference - not only to what is officially happening in health systems and maternal health services - but also to the reality experienced by health care providers and women using the services.

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