

Final Report

1. Background Information

Title of Research Programme:

Consortium for Research on Equitable Health Systems (CREHS)

Reference number:

HD105

Period covered by report:

1 April 2005 to 31 March 2010

Name of lead institution and Director:

Health Economics & Financing Programme, London School of Hygiene & Tropical Medicine;
Dr Kara Hanson

Key partners:

Indian Institute for Technology (Madras), India; KEMRI-Wellcome Trust Research Programme, Kenya; Health Policy Research Group, University of Nigeria (Enugu), Nigeria; Centre for Health Policy, University of Witswatersrand, South Africa; Health Economics Unit, University of Cape Town, South Africa; Ifakara Health Institute, Tanzania; International Health Policy Programme, Thailand.

Countries covered by research:

CREHS Core: India, Kenya, Nigeria, South Africa, Tanzania, Thailand;
CREHS-related: Ghana, Benin, Cambodia, Vietnam, Laos

Start date:

1 April 2005

End date:

30 September 2010

Total Cost:

£3,750,000

2. Summary [maximum 3 pages]

The purpose of the Consortium for Research on Equitable Health Systems (CREHS) is to apply health systems strengthening knowledge to policy and practice in low and middle-income countries in ways that preferentially benefit the poorest.

The programme was designed around three core outputs:

- (1) Implementation of a systematic communications strategy, aimed at health systems policy and programme decision-makers
- (2) New knowledge on recent health sector reform, financial risk protection, health workforce performance, and scaling up health interventions and services
- (3) Strengthened capacity to generate and use research findings.

Substantial achievements have been made in all three output areas.

A **communications strategy** was developed at the start of the programme, and was revised following the appointment of a Communications Manager in July 2008 to reflect best practice in research communication. Implementation of the strategy was further supported by the identification of communications focal persons in most of the consortium partners, who have demonstrated their commitment to this process by allocating their own resources to pay communications staff. As a result, outputs are now better tailored to specific audiences and particular policy debates; and all consortium members have increased their awareness of the importance of relationships between researchers and policymakers, and invested time in developing and nurturing these relationships.

CREHS research has been presented in more than 150 face-to-face meetings with key stakeholders to share and debate key findings build relations, and feed into policy discussions. Our media presence has grown, with newspaper coverage of CREHS and related research in Nigeria, Thailand and South Africa. There have been more than 40 presentations of CREHS research in international and national scientific meetings and conferences, including the International Health Economics Association (2007 and 2009); the European Congress of Tropical Medicine (2007); the Global Forum on Health Research (2008); the Multilateral Initiative on Malaria (2005 and 2009); the inaugural meeting of the African Health Economics Association (2009); and the West African Health Economics Association (2009). To date, 13 research reports, 16 policy and research briefs are available on our website; 50 papers have been submitted or accepted for peer review from core CREHS work, and a further 100 papers from CREHS-related work. In the final year of the consortium we have focused particular efforts on communicating key research findings and policy messages. In addition to country level activities, we held a conference in London in collaboration with two other RPCs which was attended by over 160 participants from research organisations, NGOs multi-lateral organisations and bi-lateral donors, and journalists based in the UK and Europe.

Over the past 5 years CREHS researchers have produced a rich body of **new knowledge** about how health systems can be strengthened to better meet the needs of poor people in low and middle-income countries. Research on *financial risk protection* has contributed substantially to the evidence base around:

- The high levels of catastrophic health expenditure occurring among the poorest and most vulnerable groups
- The inequitable distribution of benefits and financing burdens in a range of low income settings, reflecting supply side constraints and policies that fail to address the needs of poor people
- The effects of a novel approach to supporting user fee removal/reduction by channelling funding directly to health facilities in Kenya

- Further documentation of the processes and equity outcomes of the Thai health reforms, demonstrating how a comprehensive approach to health financing reform, addressing both demand and supply side barriers, can support an equitable and efficient health system.

Overall, the research produced through CREHS has demonstrated the critical role of pooled, public funding in protecting the poor from financial catastrophe. Expanding insurance schemes to protect the poor is on the policy agendas of many low income countries, including Kenya, Tanzania, South Africa, and Nigeria. However, CREHS research has also shown how supply side problems must be addressed if financing reform is to have positive impacts. The Thailand experience provides an excellent example of how a comprehensive approach to health financing reform, incorporating both supply and demand-side measures, has created a system which is both equitable and efficient. The main lessons for lower income countries emerging from the Thai experience include:

- The need to explore different options for expanding insurance to the informal sector
- The importance of investment in public health infrastructure, including district level PHC services and close-to-client services, together with equitable distribution of human resources, to reduce access barriers and provide adequate quality
- The need for effective purchasing strategies within UC schemes to secure efficiently provided services
- The importance of both the breadth and depth (benefit package) of public health insurance coverage in protecting against financial catastrophe
- The value of effective implementation strategies to secure equity gains.

CREHS research on *health workers* sought to generate new knowledge about the motivations and preferences of health workers, with the aim of informing strategies to improve the supply of health workers in rural areas. Using a longitudinal study design, in which were nested experimental economic games and discrete choice experiments to measure health worker attitudes and preferences, our findings demonstrate the importance of trying to attract individuals to the health profession who have a positive attitude towards rural areas. Further, they show that locally designed non-financial incentives can be powerful interventions to redress the geographic maldistribution of health workers in low- and middle-income countries.

In the area of *scaling up service delivery*, CREHS resources were used to catalyse the communication of existing work being undertaken by the broader community of CREHS-linked researchers. A review paper and accompanying commentaries traced the evolution of strategies for scaling up, and identified a number of key issues including the challenges of estimating the resources required, the constraints to scaling up, concerns about equity and quality, novel approaches to service delivery, and the importance of strategic management of scaling up processes. CREHS-related research is contributing new insights into how malaria interventions such as insecticide-treated nets and new antimalarial drugs can best be delivered to achieve high and equitable coverage, with a particular focus on the role of the private sector.

A final stream of research has examined the role of *policy implementation*, recognising that the translation of well designed policies into effective action remains an important challenge for health system strengthening. Our work focused on policies which are specifically aimed at addressing the needs of the poor. The key lessons from this work include:

- The critical importance of frontline providers in mediating policy implementation and access for patients
- The varied influences on health worker practices, including whether they see the policy as a threat or something to support; by the broader organisational culture in which they work and how this affects their willingness to effect the changes requested by their managers; and by wider community influences.

- The influence of health sector managers
- The positive and negative roles that can be played by higher level (national and international) influences.

Our research identified the need for better management of the implementation process, including closer attention to the ways that policies are developed, framed and communicated; strengthened capacities to manage relationships throughout the system; and a greater recognition of the ways that power is distributed and used by those who are responsible for translating policy into action.

CREHS research has influenced policy and practice in a number of different ways, including informing specific policy change (such as the decision to scale up direct facility funding to national level in Kenya, and the new national PHC strategy in Thailand); changes in health sector practices (such as the earmarking of budgets for mobile health units in Tamil Nadu state, India; and the introduction of new indicators for routine equity monitoring in Thailand); influencing decisions NOT to change current policy (maintaining existing funding levels for the UC scheme); and finally contributions to broader discussions and debates around new policy directions (as in the case of health financing reforms in Nigeria, Tanzania and South Africa).

At the regional and global levels, CREHS research has contributed to:

- international debates about health systems and equity, e.g. through contributions to the work of the Health System Knowledge Network of the Commission for Social Determinants of Health which has helped to shape the current policy climate in favour of equity and critical role of health systems in achieving equitable health outcomes.
- global debates on health financing, providing evidence in support of the international movement in favour of universal coverage.
- the growing use of discrete choice experiments as a policy tool to inform decision-makers about what types of incentives are likely to have the greatest effect on health worker location and retention.
- debates about how to scale up malaria interventions, with CREHS research helping to inform the design of antimalarial drug distribution programmes in Cambodia, Nigeria and Benin, and acting as Independent Evaluators of the Affordable Medicines Facility –malaria (AMFm).
- international discussions about the methods and focus of health policy and systems research (HSPR), demonstrating the value of a variety of different research approaches, the recognition of health systems interventions as “complex interventions” requiring specific approaches to evaluation, and the importance of investigating policy processes as well as technical design in order to understand impact.

The main beneficiaries of these outputs have been:

- (1) **Vulnerable populations** in different settings who benefited from improved health services or reductions in exposure to health-related financial risk.
- (2) **Policymakers and health system managers** at the international and national levels, who benefited from an improved evidence base for decision making, and strengthened skills and knowledge of how to use evidence.
- (3) **Health policy and systems researchers** in low and middle income settings who benefited from increased capacity to undertake and communicate research.

3. Highlights of the research

Over the past 5 years CREHS researchers have produced a rich body of new knowledge about how health systems can be strengthened to better meet the needs of poor people in LMICs, and engaged actively with decision-makers at national and international levels to communicate these results. The research programme addressed 4 main themes: financial risk protection, health workforce and accountability, service delivery at scale, and policy implementation. In addition, a number of insights related to the methodology of health policy and systems research (HSPR) have been generated. Research highlights are summarized here.

a) Financial risk protection

Research undertaken directly through CREHS, and related research undertaken by our broader circle of collaborators, has contributed substantially to the evidence base around:

- The high levels of catastrophic health expenditure occurring among the poorest and most vulnerable groups
- The inequitable distribution of benefits and financing burdens in a range of low income settings, reflecting supply side constraints and policies that fail to address the needs of poor people
- The effects of a novel approach to supporting user fee removal/reduction by channelling funding directly to health facilities in Kenya
- Further documentation of the processes and equity outcomes of the Thai health reforms, demonstrating how a comprehensive approach to health financing reform, addressing both demand and supply side barriers, can support an equitable and efficient health system.

CREHS researchers have demonstrated that powerful insights into both demand and supply side constraints can be gained through the methods of quantitative equity analysis. In addition, we have developed new methodologies, including an approach to calculating variable thresholds for measurement of the incidence of catastrophic expenditures.

Core CREHS work on financial risk protection has included 2 main activities: First, CREHS provided support for a writing workshop that drew together and finalised a set of papers on household experiences of ill health and of risk protection mechanisms. These were published together in a special issue of the Journal of International Development in 2009. The insights provided by this collection of papers from a variety of country contexts in Africa and Asia help to cast light on the types of policy measures needed effectively to protect poor households from risks associated with health expenditure.

- Where exemption policies existed on paper to protect the poorest from user fees (e.g. Lao, Nigeria, S Africa), these rarely functioned effectively. Only in India did it seem that exemptions were reasonably well-targeted, though here the data collection instrument did not collect information on informal payments. Poorly functioning exemption systems reflected problems of lack of additional resources to finance exemptions (Nigeria), or difficulty in dealing with procedures needed to establish eligibility e.g. documentation, travel costs (South Africa). Governments should consider removing user fees altogether as a means of reducing one barrier to health service use.
- Three studies (South Africa, India and Lao) identified physical distance as a barrier to health service use among the poor. The evidence presented shows it is important to improve the reach of primary health care through extending the network of facilities as well as through the outreach activities of comprehensive primary health care

- Four papers discussed the role of broader social protection mechanisms, including the use of cash transfers in South Africa, and informal social protection in Nigeria, Kenya, Lao, and South Africa. The beneficial impact of cash transfers in South Africa is limited by restricted eligibility excluding those that are simply poor. Informal social protection provided through social networks (Lao, South Africa, Nigeria), including shops (Kenya), makes a significant contribution in mobilizing resources to pay for health care. However, such networks are vulnerable to depletion through repeated demands and the poorest have less access to these networks (South Africa). Synergies between formal and informal mechanisms, such as cash transfers and social networks, can both extend the reach of available funds, and enable additional resources to flow to households in need. But those with limited social networks do not benefit from such complementarities (South Africa).
- Two papers drew attention to the challenges for households experiencing on-going 'chronic' illnesses (South Africa and Kenya) and the barriers to use of health services when care is required over an extended period of time. There is a need to document more fully the financial burden that these conditions place on households and their social networks, and for policies to recognize the different social protection needs of such households.
- Finally the papers drew attention to the various challenges to policy implementation, including addressing several access barriers in combination, and the perceptions of actors throughout the health system. The Nigeria study points to the need to find ways to persuade policymakers that the current system of relying on out of pocket payments is inequitable and inefficient. In Laos the perception of households and village leadership that the exemption system is for the "destitute", not the merely poor, needs to change so a wider a group of households in need can benefit. This illustrates that specifying and implementing the eligibility criteria for any social protection mechanism has to be negotiated at both a national and local level. .
- In addition to methodological and substantive contributions, one paper provided important new insights for the practice of multi-disciplinary research when biomedical and social science disciplines have different approaches to ethics. It highlighted the importance of the moral (as opposed to the legal) aspects of ethics guidelines, particularly in low income settings where the disparities between researcher and respondents are considerable.

These studies were complemented by new data from Nigeria showing the degree of financial catastrophe to which poor households are exposed. Drawing on data from a 2-month expenditure diary and a cross-sectional household survey, CREHS researchers found that nearly 25% of households in the lowest socioeconomic quintile incurred catastrophic levels of health expenditure, when measured against a threshold of 40% of their total non-food expenditure recorded over a 1-month period. Both the level of catastrophic expenditure in the lowest quintile and the degree of inequality in the incidence of financial catastrophe were more pronounced when the threshold for catastrophe was allowed to differ for different socioeconomic groups, recognising that financial catastrophe can occur at a much lower level of health expenditure for the poorest households. Using this variable threshold, which set the level at 5% of non-food expenditure for the poorest quintile, the incidence of catastrophic expenditures in the lowest quintile could be as high as 45% of households (Onoka, Onwujekwe et al. 2010).

Catastrophic health expenditure was also the subject of research and policy development by IHPP researchers in the area of universal access to Renal Replacement Therapy (RRT). A number of policy options for rationing RRT services were provided to the National Health Security Office, and eventually the Cabinet Resolution in October 2008 adopted universal access to RRT for UC members. Although IHPP analysis had found RRT to be cost-ineffective, with huge long term fiscal implications, the government included RRT in the UC benefit package on ethical grounds - as two other insurance

schemes (CSMBS and SHI) fully cover the costs of RRT, and IHPP research showed that UC members needing this treatment faced catastrophic spending and impoverishment.

As part of the path towards universal coverage systems, there is increasing interest in how best to extend insurance or other risk protection mechanisms to cover the informal sector. CREHS researchers in India studied the Employees State Insurance Scheme (ESIS), created in 1955 to protect those in low-wage employment (currently set at less than \$250 per month) against the financial risks of health care use and other shocks. The degree of financial protection provided to members was limited by weaknesses on the supply side, as well as design features which meant that the scheme failed to meet the particular requirements of low wage formal sector employees. Despite a relatively comprehensive benefit package including both inpatient and outpatient care, only 14% of outpatient visits, and 66% of inpatient admissions were to ESIS providers. Seeking care outside the insurance plan exposed households to substantial out-of-pocket expenditure (>USD15 / outpatient visit). A familiar set of quality-related reasons were cited for failing to use ESIS providers (poor quality drugs, impolite staff, long waiting times). Of particular importance to this population were the inconvenient opening times (requiring them to leave their place of work during the day to seek care) and the fact that many were migrant workers living away from their families, who were therefore unable to use the ESIS designated providers.

Quantitative equity analysis methods, including benefit incidence analysis, have been used in CREHS and CREHS-related research to investigate the distribution of the benefits of public health spending. Studies in both Tanzania (SHIELD Benefit Incidence Analysis (BIA)) and India (CREHS utilization incidence analysis) have demonstrated the capture of public subsidies by better off socioeconomic groups. Data from Nigeria, which further disaggregate utilization by type of public facility, show that this can partly be explained by greater use of hospital level care by the non-poor, while utilization of PHC units, more frequently located in rural areas, tends to be more pro-poor. These results contrast sharply with the equitable pattern of utilization in the Thai system, which demonstrates the effects of a comprehensive approach to health financing reform (albeit one which is underpinned by a much higher level of economic development, and a well-developed health system infrastructure) (Prakongsai P, Limwattananon S et al. 2009).

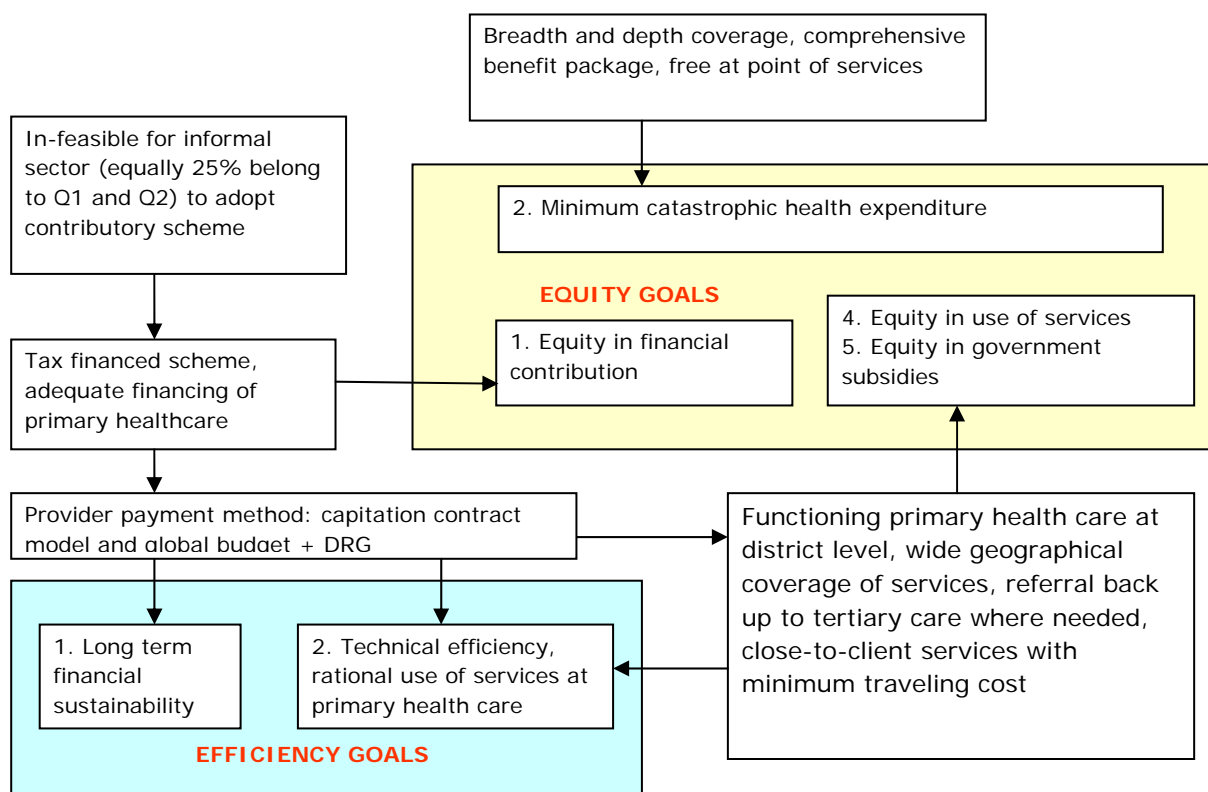
The CREHS-related SHIELD study, funded by the EU and led by researchers at the Health Economics Unit, has been investigating the distribution of the burden of financing health care, and of the benefits of public health services in South Africa, Tanzania and Ghana. The results from this study have re-confirmed the findings from other parts of the world that out-of-pocket payments are a highly regressive method of health financing; and that with some exceptions (e.g. the fuel levy in Ghana) tax financing and mandatory public insurance contributions are generally progressive. In seeking to move towards a universal coverage system, therefore, countries have a number of options for increasing financial protection of the poor: they can expand coverage of existing insurance schemes to cover a greater share of the informal sector; or they can fund the “premiums” for these people through tax contributions.

In September 2009 the UK government committed to support countries to implement progressive health financing mechanisms and to remove user fees (<http://www.number10.gov.uk/news/latest-news/2009/09/pm-calls-foraction-on-healthcare-20721>). Core CREHS and CREHS-related studies have generated new insights into some of the practical challenges involved in user fee removal. One problem when user fees are reduced or removed is the loss of health facility revenue. While this revenue is often small in absolute magnitude, it has sometimes been shown to play an important role in improving service access through outreach and referral, as well as improvements in quality of care, where these locally controlled discretionary resources are used for these purposes. CREHS researchers studied a pilot project in Kenya which experimented with Direct Facility Funding (DFF), a mechanism to compensate health facilities for user fee reduction by channelling money directly to

health facilities. DFF was perceived to have been an important means of increasing access, improving quality and working conditions, and findings supported the decision to scale up this system to national level (gazetted in 2008, and implementation planned for mid 2010).

Overall, the research produced through CREHS has demonstrated the critical role of pooled, public funding in protecting the poor from financial catastrophe. Expanding insurance schemes to protect the poor is on the policy agendas of many low income countries, including Kenya, Tanzania, South Africa, and Nigeria. However, CREHS research has also shown how supply side problems must be addressed if financing reform is to have positive impacts. The Thailand experience provides an excellent example of how a comprehensive approach to health financing reform, incorporating both supply and demand-side measures, has created a system which is both equitable and efficient. CREHS researchers in Thailand have undertaken a series of studies of the UC scheme including an update of Benefit Incidence Analysis (BIA) and Financing Incidence Analysis (FIA); a study of risk protection provided to diabetes and cancer patients by the UC and SHI schemes; and a study of the purchasing arrangements for the UC and SHI schemes. The main lessons for lower income countries emerging from the Thai experience include:

- The need to explore different options for expanding insurance to the informal sector
- The importance of investment in public health infrastructure, including district level PHC services and close-to-client services, together with equitable distribution of human resources, to reduce access barriers and provide adequate quality
- The need for effective purchasing strategies within UC schemes to secure efficiently provided services
- The importance of both the breadth and depth (benefit package) of public health insurance coverage in protecting against financial catastrophe
- The value of effective implementation strategies to secure equity gains.



Source: Prakongsai et al. 2009

b) Health workforce and accountability

Overall, the findings from the CREHS cohort study, conducted in Kenya, South Africa and Thailand, provide evidence of the importance of trying to attract individuals to the health profession who have a positive attitude towards rural areas, and that locally designed non-financial incentives can be powerful interventions to redress the geographic maldistribution of the health workforce in low- and middle-income countries.

Firstly, across countries our research provided encouraging results regarding the attitude of future nurses towards rural areas and jobs there. Although the nursing students that were surveyed felt that working in rural areas is challenging due to professional difficulties (for example in all three countries, for a large majority of nurses working in rural areas means being isolated and without much support) and challenges in their personal lives (particularly in Kenya and South Africa where rural areas often lack infrastructures, roads, and social amenities), we also found that there is a reservoir of good will and positive attitudes towards rural areas. In all three countries, respondents identified a number of positive aspects associated with living in rural areas (less stress, better quality of life), as well as professional opportunities (such as better recognition from the population). We also found that certain groups of nurses were more positive towards rural areas and jobs than others. In particular, those who grew up in rural areas or trained in training facilities located in more rural areas were more inclined to view rural postings more positively, and in South Africa they were more likely to choose a rural job as their first placement.

The analysis of the Discrete Choice Experiment (DCE) data also provided guidance on the association between individual characteristics and preferences for rural jobs. Whereas in South Africa students who were younger, single or had children were more likely to choose an urban posting, in Kenya these same groups preferred rural jobs. Female graduates were less likely to choose rural postings, but the difference was not significant. Furthermore, in all three countries having been born in a rural area was significantly associated with the choice of a rural job.

Other important findings emerging from the DCE analysis can inform the design of policies that could attract more health workers to rural areas:

- In both Kenya and South Africa, the most effective policy interventions to attract nurses to a rural job were the introduction of a financial rural incentive and the provision of preferential access to specialist nursing training.
- For Thai nurses, improved housing and an expanded health benefit package were the most attractive incentives, and more effective than a 30% salary increase.
- In all three countries, faster promotion and changes in management culture were the factors least likely to persuade nurses to accept a rural posting.
- Finally, in South Africa, a study of different policy scenarios showed that providing favourable education opportunities to nurses was a cost-effective policy option; but also that attracting more rural students to nursing studies (for example, through quotas) would be more cost-effective than most other interventions.

c) Service delivery at scale

As we approach 2015, there continues to be concern at the national and international levels about how coverage of effective health interventions and supporting policies can most effectively be expanded to meet the MDGs. Our review of the scaling up literature (Mangham and Hanson 2010) identified four critical issues for understanding how to increase the coverage of key services, and to expand the resources needed to deliver these. These are the approaches to estimating and mobilizing the resources required to scale up; the constraints to expanding coverage operating at different levels; the challenges of addressing equity, and quality concerns; and novel approaches to

service delivery. Rather than funding new primary research in these areas, CREHS resources were used to catalyze the communication of existing work being undertaken by the broader community of CREHS-linked researchers. This included soliciting commentaries on the main review paper from CREHS researchers (Cleary 2010; Gilson L and Schneider H 2010; Tangcharoensathien V and Patcharanarumol W 2010), support for a paper-writing workshop, and efforts to synthesise and communicate CREHS-related research on scaling up essential services. The latter has focused mainly on the costs of scaling up ART in SA, new ways of delivering effective malaria interventions such as drugs and ITNs, and the role that can be played by the private sector in expanding service delivery. In these highlights we focus on the latter two.

CREHS-related research is contributing to a rich body of evidence in the area of delivery of malaria interventions, and is having an impact on policy and practice at global level. Researchers from HEFP and IHI were contracted by the Tanzanian Ministry of Health (using their Global Fund grant) to monitor and evaluate the Tanzania National ITN Voucher Scheme over the period 2004 to present. This innovative scheme is perhaps the largest voucher scheme ever to run in a low-income setting, operating at a national scale to deliver vouchers to pregnant women and to infants which can be used as part-payment for ITNs delivered through private retail shops. The scheme was found to have contributed to a significant increase in ITN use among target groups, with each year of operation associated with a 9 percentage point increase in household ITN ownership (Hanson K, Marchant T et al. 2009). Modifications to implementation processes were made each year in response to presentation of results to the implementing partners. Together with the sharp and consistent socioeconomic differences in ITN use that were being demonstrated through the monitoring process (Marchant T, Schellenberg D et al. 2010), progress in increasing coverage was judged to be too slow, and plans were made for a mass free distribution to all children < 5 from 2009, with a universal coverage to follow in 2010. The multidisciplinary nature of the evaluation, and the close relationship forged with the implementing team have been key in supporting the rapid take-up of findings into programming and practice.

A second key focus of CREHS-related scaling up research is the potential to use the private sector to expand access to artemisinin-based combination therapy (ACT) for effective treatment of malaria. A number of CREHS-related research projects have generated evidence which has been used in the development of the Affordable Medicines Facility – malaria (AMFm), a new global financing mechanism which will provide a substantial co-payment for ACTs purchased by public, private and NGO buyers. Catherine Goodman provided technical advice for a pilot of the scheme in Tanzania, which acted as a “proof of principle” that ACT availability could be increased and substantial price reductions achieved through this mechanism (Sabot O, Mwita A et al. 2009). However, drug shops in remote areas were significantly less likely to stock ACTs than those in population centres, and over 75% of drug store customers fell in the highest two socio-economic quintiles nationally, highlighting the need for additional strategies to ensure the poorest groups are reached (Cohen JM, Sabot O et al. In Press.). A second pilot project in Western Kenya, undertaken by the KEMRI-WT team, demonstrated a 29 percentage point increase in prompt effective treatment of fever among children under five years (Kangwana B. Nov 2009). These results have influenced the decision to proceed with AMFm at both the international and country levels. Other research on the antimalarial distribution chain undertaken by the ACTwatch team in Benin, Cambodia and Nigeria has been used to inform the design of AMFm. HEFP researchers are part of the team that will undertake the Independent Evaluation of AMFm for the Global Fund (2010 – 2012).

d) Policy implementation

CREHS research on policy implementation has examined varied cases of policy implementation across all countries, as well as specific experiences of scaling up. A key contribution of using policy analysis in these studies has been to guide our thinking beyond a simplistic, linear model of hierarchical policy implementation, where policies or directives that are issued from the centre are

assumed to be implemented just as they are intended, with little resistance or deviation. Instead, policy analysis recognises how implementation is a process of interaction and negotiation between those who seek to put a policy into effect, and those who are responsible for delivering it. Overall, our empirical work drawing on these insights demonstrates that the practice of policy implementation, and its achievements, is influenced by human interactions, and not only by technical design. To strengthen achievements in line with policy objectives, better management of the implementation process is, therefore, needed. This can take many forms, including closer attention to the ways that policies are developed, framed and communicated; strengthened capacities to manage relationships throughout the system; and a greater recognition of the ways that power is distributed and used by those who are ultimately responsible for translating policy into action. The key lessons from this body of work include:

1. The critical importance of frontline providers in mediating policy implementation and access for patients: health workers influence how patients experience equity-oriented policies and therefore, whether the policy is able to generate equity and coverage gains.
2. Health worker practices are influenced by a number of factors, including whether they see the policy as a threat or as something to support; by the broader organisational culture in which they work and their willingness to make the changes requested by their managers; and by wider community influences. In Nigeria, for example, the largely unsuccessful implementation of Community Based Health Insurance was seen by health workers as a threat because of the loss of income that it entailed; and implementation was further undermined by the tradition of limited bureaucratic authority over health facilities, making it difficult to exercise managerial authority over health workers; but where the scheme worked slightly better, this was attributed to the influence of a local traditional leader who took a particular interest in the scheme. In South Africa, where we examined implementation of the user fee policy and the Patients Rights Charter at hospital level, the degree of implementation differed between the two policies – PRC was much more controversial as it challenged the existing balance of power between patients and providers. Implementation of both policies also varied between the two case study hospitals, which had very different organisational cultures and levels of trust between managers and health workers, and therefore differing levels of willingness to cooperate and implement new initiatives. With IMCI in Kenya and Tanzania, some health professionals explained their resistance to the clinical protocols in terms of how the community would view or interpret their actions – feeling that mechanically following a diagnostic flowchart would undermine patients' confidence in their abilities.
3. The practices of health sector managers are an important influence over implementation. For example, better IMCI performance was observed in the districts where managers took a personal interest and invested more energy in adapting the policy to local circumstances. More inclusive managerial practices in one of the hospitals in South Africa were associated with greater acceptance and engagement with the Patients Rights Charter.
4. Higher level influences are also important. Central level action can support implementation by providing additional resources, clear targets, or acting as policy champions. But actions at the national or international level can also undermine effective policy implementation – for example, by imposing rigid training formats for IMCI which are expensive and therefore cannot easily be scaled up; by imposing health financing models without considering the influence of local politics, as in the case of CBHI in Nigeria; by inadequately resourcing mobile units in Tamil Nadu state in India; or by shifting programme priorities and funding as has happened in the area of child health, which has seen a reduction in global funding compared with HIV/AIDS, TB and malaria.

The broader issue of how to build and strengthen health systems that promote health equity was the focus of the (CREHS-related) work of the Knowledge Network on Health Systems for the Commission on the Social Determinants of Health, led by LG and a core team drawn from LSHTM, CHP and EQUINET (the Regional Network on Equity in Health in Southern and Eastern Africa). Based on synthesis of existing knowledge, the network's report concluded that health systems that promote health equity support and enable inter-sectoral action for health, social empowerment and universal coverage (combining action on both financing and supply-side policies), and are founded on and operationalise primary health care principles. At the same time, the report highlighted the need for political action to embed these features in health systems – not only at global and national levels, but also at local levels and within the health system itself. Such health system transformation requires both strong, strategic management of policy change processes, and sustained leadership to re-orient the institutions embedded in any health system that serve to protect the status quo.

In parallel to the empirical work on policy implementation, CREHS has also supported activities to strengthen policy analysis work in low and middle income countries. The first ever review of published work in this field (Gilson and Raphaely 2008) concluded that it is a small and fragmented field of work and judged on organisational affiliation, one which is dominated by those working in Northern organisations. Further strengthening of research in the field requires explicit attention to the methods of such research, particularly of case study work, and greater author reflexivity, more awareness of existing work in the field, more explicit use of relevant theoretical and conceptual frameworks (such as to support investigation of power in implementation), more comparative work (within and across countries), and rigorous synthesis of available work. Finally, there is a need for dedicated efforts to build policy analysis capacity within LMICs. These conclusions have fed into a set of CREHS-related activities including: expanding policy analysis training providing in Africa, through sharing training curriculae, and developing methods for synthesis of policy analysis case study material.

e) Methodological insights

In addition to the policy-related findings above, CREHS research produced valuable insights into the methodologies of health policy and systems research. These include:

- The insights into overall health system performance that are generated by quantitative equity analysis
- Application of a variable threshold for measurement of financial catastrophe arising from out-of-pocket health expenditure
- The value of longitudinal study designs for understanding health worker choices; the application of discrete choice experiments to explore the effects of alternative incentive packages for health workers; and how these data can be combined with cost data to arrive at a cost-effectiveness assessment of different policy options
- Qualitative approaches to studying implementation, framed through policy analysis lens, allows investigation of key issues such as power, relationships and culture and are strengthened by deliberate use of case study design and use of relevant theory
- Cross-country, comparative study designs pose additional challenges but provide added value in analysing health policy and systems issues.

4. Achievements: Research Outputs and Purpose

What are the research outputs?

CREHS was designed around 3 outputs:

1. Implementation of a systematic CREHS communications strategy aimed at health systems

2. Production of new knowledge on:
 - a. implementation of recent health sector reform;
 - b. financial risk protection;
 - c. Health workforce performance and accountability
 - d. Scaling up health interventions and services
3. Strengthened capacity to produce and use research findings

Significant achievements have been made in all three output areas.

Communications:

The aim of the communications strategy is to ensure that CREHS research is designed, carried out and communicated in a way that encourages the research findings and recommendations to be applied to policy and/or practice in our target countries and at the international level. Our approach to implementing the strategy has been to develop specific communications plans for each of the main thematic areas that focus on producing several types of outputs, attending conferences and engaging with key stakeholders including the media. Since her appointment in July 2008, the communications manager has worked with the research coordination group overseeing the research in each thematic area to develop and implement these plans. A tracking process has been developed to monitor progress with specific activities and outputs.

These steps have led to a much more systematic approach to communicating the findings of our research than in the early period of CREHS. This is reflected in outputs that are better tailored to specific audiences and particular policy needs and debates (e.g. DFF briefing note directed at the user fee removal debate); and a heightened awareness of the importance of relationships between researchers and policymakers and greater investment in the time needed to develop and nurture these relationships. Such relationships have developed in all CREHS countries – for example, Prof Muraleedharan from IITM sits on the Steering Committee of the Indian National Rural Health Mission, and has formed close relationships with key figures in the Tamil Nadu State Health Commission. In Nigeria, policymaker interactions including training sessions in Enugu and Anambra states, and in Kenya relationships were strengthened with the Ministries of Health (e.g. Division of Malaria Control, Division of Child Health the Department of Primary Health Services).

At partner level, the development and implementation of the communications strategy has been greatly enhanced by the appointment of communications focal points in many partners (including HEU, CHP, HPRG, and IHI).

Communications activities and outputs over the life of the consortium include:

- Presentation of results of CREHS research in face-to-face meetings with policymakers in all partner countries, at different levels of the health system. Since 2008, members have attended more than 150 meetings with key stakeholders to share and debate key research findings, build relations and feed into policy discussions.
- Increased media coverage (tv and print media) of CREHS and CREHS-related research, including television interviews in Nigeria on Getting Research into Policy and Practice and newspaper features in Thailand on rural retention of Nurses. CHP and HEU researchers have had more than 10 articles published on NHI in the South African national print and online media.
- Over 40 presentations of CREHS research in a wide variety of international and national scientific meetings and conferences including the International Health Economics Association (2007 and 2009); the European Congress of Tropical Medicine (2007); the Global Health Forum (2008); the Multilateral Initiative on Malaria (2005 and 2009); the inaugural meeting of the African Health

- Development of internet-based communication channels, with blogs for cohort study and Health Policy and Systems Forum (<http://hprgnigeria.blogspot.com>).
- Production to date of 13 research reports, 16 policy and research briefs, 50 peer-reviewed papers (accepted or submitted) from core CREHS work.
- For CREHS-related work, we have produced 10 research reports, 16 books or book chapters and over 100 peer-reviewed papers (accepted or submitted).

In the final year of the consortium we have focused particular efforts on communicating key research findings and policy messages. In addition to activities at the country level, we held a conference in London in collaboration with two RPCs, TARGETS and COMDIS. The conference was attended by over 160 participants from research organisations, NGOs, multi-lateral organisations and bi-lateral donors, and journalists based in the UK and Europe. The conference consisted of several plenary and themed parallel sessions, a photo and film exhibition.

New knowledge:

CREHS researchers have produced new knowledge in each of the 4 research themes; partly policy-related, partly methodological.

a) Addressing financial barriers to health service use

During the RPC lifetime, a strong global consensus has developed around the goal of Universal Coverage, supported by a World Health Assembly resolution, and the UK government has committed itself to supporting progressive health financing and to providing assistance to governments who remove user charges. CREHS researchers addressed issues of financial risk protection through three types of activity:

- A CREHS Writing Workshop to support the completion of 8 papers from 7 different country settings, which addressed the ways in which households respond to illness, the effects of risk protection mechanisms designed to mitigate the negative impacts of ill-health, and methodological approaches to studying households and the ethical implications of this type of research. Taken together, these studies enable a textured understanding of treatment actions, costs and impact as well as casting light on underlying explanations of events and decisions at household level. Their strength lies in the comparative international experience from a range of different country contexts (Kenya, Tanzania, Nigeria, South Africa, Thailand, Lao, and India) where similar issues arise – such as the need to reduce out-of-pocket payments, ineffective implementation of exemptions, and the importance of both formal and informal social support (social grants, social networks) in enabling household resilience.
- A set of studies applying the methods of quantitative equity analysis to household level data. These included studies collecting primary data from a representative samples of households in Nigeria, a study of ESIS beneficiaries in Tamil Nadu state, India, and use of secondary NSSO data from Orissa and Tamil Nadu states; and related work updating the Thailand BIA to continue to monitor the equity impact of Universal Coverage.
- Two studies looking at supply-side issues in health financing reform: an examination of the effectiveness of Direct Facility Funding in Kenya, and a study of purchasing in two different insurance schemes within the Thai UC system.

The results of all of these activities have been communicated to decision-makers and managers within country, and reports nearly all finalized, many with accompanying briefing notes.

CREHS-related work in this area includes the EU-funded SHIELD project, which has used benefit incidence analysis and financing incidence analysis to generate an evidence base for exploring alternative approaches to achieving UC in S Africa, Tanzania and Ghana; a study of the impact of user fee removal in Zambia which has shown the implementation challenges of this policy; and a broader set of international engagements around progressive financing including support to a UNICEF-funded set of case studies on country experience of user fee removal. In S Africa, the SHIELD findings, together with results from SACBIA, have been used to inform current policy discussions around national health insurance.

A number of CREHS-related PhD studies addressed risk protection issues. A study of Nepal's Safe Delivery Incentive programme (Powell-Jackson) found that the SDIP increased utilization of maternity services, but crowded out use of the private sector. Women living in communities with active women's groups were significantly more likely to benefit from the scheme, suggesting that information is a key factor mediating access; and better-off women were more likely to receive the cash transfer. In the case of health equity funds in Madagascar (Honda), research found that low coverage of the poor significantly limited the extent of risk protection. This low coverage was due in part to design issues (particularly the creation of facility-specific funds limiting the extent of cross-subsidy among communities) and also to the way the policy was interpreted by the implementers. Poor implementation of exemption schemes in Laos was also examined in a PhD conducted by a researcher from IHPP (Patcharanarumol). Three PhDs are connected to the SHIELD project, all of whom are exploring issues relating to benefit and financing incidence analysis. A study of factors affecting enrolment in CBHI in Lao is being undertaken in collaboration with the World Bank (Alkenbrack). In South Africa, a PhD student (Harris) linked with the REACH project is examining access to health care as a form of restorative justice, to assess how health care in South Africa is being provided and accessed in such a way that it deals with past and present inequities.

b) Health workforce and accountability

Scaling up service delivery to meet the MDGs depends crucially on having an appropriate number and distribution of health workers. However, recruitment and retention of HW in rural areas has been a challenge in many countries. CREHS research sought to generate new knowledge about the motivations and preferences of health workers, with the aim of informing strategies to improve the supply of health workers in rural areas, through the CREHS Cohort Study in South Africa, Kenya and Thailand. A longitudinal study design was adopted, in which a cohort of nursing graduates (and doctors in Thailand) was enrolled and monitored prospectively, with follow-up after one year. Discrete choice experiments and experimental economic games were nested within the longitudinal design, to explore the impact of various policy incentives on the uptake of rural posts, and assess the influence of underlying altruistic values. Finally in South Africa, analysis of the cost-effectiveness of different incentive packages was undertaken.

Researchers have started to communicate these findings to policymakers, and dissemination will continue in the coming months. In Thailand, where the study started first, evidence generated has already fed into the government's reflections on how to design incentives to attract staff to rural areas. Through the deliberations in the 2nd National Health Assembly in December 2009, evidence generated from the CREHS nursing and medical cohorts in Thailand were used as input into the ten year national plan for primary health care development. In addition, the study has provided strong evidence of the usefulness of longitudinal designs to collect relevant and flexible information – this has contributed to the creation of the 25-year nursing cohort, fully funded from national sources, that includes 16,000 members.

The cohort study results have been widely presented in national and international conferences. Two reports have been written to date, while the last one is in progress; three papers (HRH, WHO, BMC Health Services) have already been published, three others will soon be submitted, and four others are being finalised. Two briefing notes have been written and disseminated in South Africa at the national and provincial levels. The cohort study blog has been used to facilitate regular contact with the cohort members.

Using innovative mixed method research, an in-progress CREHS-related PhD (Ashmore) is examining health worker motivation and retention issues in South Africa, with a particular focus on dual practice among doctors at hospital level.

Strengthening accountability is a key strategy for improving the quality of health care delivery and enhancing its contribution to societal development. There is recognition of the need to promote accountability within the health system and to increase community voice in health service delivery. Health facility committees have been proposed as a mechanism for linking health care providers with the broader community and promoting health system accountability. However, these committees do not always work effectively, and little is known about the reasons. These issues are being explored in CREHS research in Tanzania and Nigeria which is examining whether trust between committee members, health staff and the community influences the effectiveness of committee decision making. During 2009/10 data collection was completed and first drafts of reports prepared; these will be finalised and communicated with national and international audiences during the no-cost-extension period. Accountability issues were also examined in the DFF research and CREHS-related work in Kenya, and a detailed literature review on community accountability has been undertaken.

c) Service delivery at scale

Core CREHS research on scaling up has prioritised supporting the completion of existing research relevant to scaling up, and communication of CREHS-related work. Two literature reviews were conducted. Patouillard et al. 2007 examined the effectiveness and equity impact of private sector interventions (see below). A second review focused specifically on scaling up, documenting how the terminology had been used in the international public health literature, and identifying some of the main issues and controversies in the field. A review article was published in Health Policy and Planning in January 2010, accompanied by commentaries on three key issues: equity-efficiency trade-offs and the challenges they raise for HIV programming; the importance of strategic management in scaling up processes; and the health system consequences of global health initiatives.

CREHS also convened a writing workshop around the theme of scaling up. As in the case of the households workshop, described above, the scaling up writing workshop aimed at supporting researchers to complete papers for submission to peer reviewed journals, and also in arriving at a framing of these papers that would be acceptable to a peer reviewed journal. In this way, the workshop aimed at both the production of new knowledge and developing capacity to write for high quality peer reviewed journals. Eight papers have now been completed and will shortly be published in BMC Health Services Research. Three of the papers (Abuya et al., Schnieder et al., Yothasamut et al.) adopt policy analysis frameworks to explore implementation issues in scaling up new interventions; 2 present new analyses addressing the cost of scaling up ART in South Africa and its resource implications (Leisegang et al.; Cleary and McIntyre); 2 explicitly look at the role of the private sector as a potential delivery channel for ACTs for malaria treatment (Cohen et al., Abuya et al.); one considers human resources issues as a constraint to scaling up; and a final paper sets out a framework for evaluating the delivery of health interventions (Webster et al.).

A number of CREHS-related research activities have critically examined the role of the private sector as a delivery channel for increasing coverage of priority health services and commodities. (Patouillard, Goodman et al. 2007) reviewed systematically the evidence about the impact of private sector interventions on equity and access by the poor to health services, identifying a critical lack of robust evaluation of the impact of such interventions. On a related topic, (Wafula and Goodman In press.) examined the evidence about the effectiveness of interventions to improve quality in specialised private drug shops. A number of malaria related research activities are studying the effectiveness of private sector delivery channels for antimalarial drugs (Goodman and Kangwana research in Western Kenya; Goodman support to AMFm pilot in Tanzania; Goodman and Hanson contributions to ACTwatch and the independent evaluation of AMFm). In CREHS-related PhD research, Edith Patouillard reviewed the evidence about the distribution chains for antimalarial drugs (Patouillard E, Hanson K et al. 2010); and Frank Wafula has documented the very high prevalence of specialised drug shops, despite their lack of legal status; and high frequency of leakage of public sector drugs to these outlets, particularly in rural areas. HPRG researchers are collaborating in a (Gates-funded) ACT Consortium study which will evaluate ACT delivery through public sector providers, private facilities, retailers, community health workers and mothers/caretakers so as to maximize access to effective antimalarials. The contributions of the monitoring and evaluation of a novel voucher scheme which brings together the public and private sectors for ITN delivery in Tanzania have been emphasised in previous CREHS annual reports.

In 2009, ongoing work on the costs of scaling up ART in South Africa produced new knowledge about the key determinants of changes in health care costs for those on ART (Leisegang R, Cleary S et al. 2009). For the first time, this also included an assessment of the relationship between adherence and health care costs (Nachega JB, Leisegang R et al. 2010). Related conceptual work focussed on developing new ways of presenting cost-effectiveness results to increase the usefulness of this information to low and middle income country policymakers (Cleary S, McIntyre D et al. 2008; Cleary S, Mooney G et al. 2009).

Other CREHS-related studies included an analysis of the cost-effectiveness of HPV vaccination in Thailand, and an accompanying study on the policy process around cervical cancer control (Yothasamut et al. In press).

d) *Policy implementation:*

Recognising that the translation of well-designed policies into effective implementation remains an important challenge for health system strengthening, an important theme of CREHS research was to generate a better understanding of the process of policy implementation, with a focus on those policies which are specifically aimed at addressing the needs of the poor.

To study these issues, CREHS researchers conducted a series of 7 case studies (reports available at <http://www.crehs.lshtm.ac.uk>) examining the implementation of different policies that were supposed to improve equity (Mobile Health Units in India; Community-based health insurance and district health systems in Nigeria; Integrated Management of Childhood Illness (IMCI) in Kenya and Tanzania; the Patients' Rights Charter and user fee exemptions in South Africa; and Universal Coverage in Thailand). An overall briefing note has been prepared about these studies, and 7 papers based on them have, so far, been developed and published/submitted. In these studies, a comparative case study approach was taken, using primarily qualitative research methods, comparing and contrasting health system areas where the policy or programme seemed to be operating relatively well with areas where implementation problems were more apparent; this variation was used to identify the key factors that positively or negatively influenced implementation. A further 3 papers of relevance to this theme, examining implementation processes in scaling up priority health services, were also developed through the CREHS writing workshop on scaling up (to be published in BMC Health Services Research).

CREHS-related activities in this area included the co-organising of a workshop on policy analysis methods, which led to the publication of a briefing note produced with the Overseas Development Institute (<http://www.odi.org.uk/resources/download/343.pdf>) and to the publication of a special issue of Health Policy and Planning on policy analysis (including 4 papers co-authored by CREHS staff). All of these products have been used in promoting the disciplinary area of policy analysis.

The coordination of the Health Systems Knowledge Network of Commission on the Social Determinants of Health was led by Lucy Gilson and a core team drawn from LSHTM, CHP and EQUINET. The Network not only produced a final report synthesising knowledge in the area, but also a set of 10 reviews on relevant topics, 9 country or regional case studies, 10 case study papers on the role of civil society organisations and parliamentarians in promoting health equity. These are available at <http://web.wits.ac.za/Academic/Centres/CHP/Collaboration/HSKN.htm>. A series of 5 subsequent conference presentations have made the work of the Network more widely available.

Several CREHS-related PhDs have been, or are being, conducted around policy implementation. In Tanzania, examination of the change of first line malaria treatment from chloroquine to sulfadoxine pyrimethamine showed the important influence of front line providers over policy implementation (Mwisongo); and in Kenya, evaluation of training programmes for shopkeepers selling anti-malaria drugs has shown the value of combining impact and process evaluation approaches for public health programmes (Abuya). In South Africa, detailed analysis was undertaken of the local level challenges faced in implementing resource re-allocations to resource and capacity poor areas (Botha). Work in South Africa and Zambia has examined the role of policy networks, and influence of Global Health Initiatives, in supporting implementation of anti-retroviral therapy for HIV (Hanefeld). In Kenya, investigation of the decentralisation of HIV/AIDS programming to local level is exploring socio-cultural influences over decision-making and highlighting lack of accountability (Okedi). Finally, the institutional influences over user fee and exemptions policies are being investigated in Nepal (Sato).

Other CREHS-related work of relevance to this theme has involved mentoring support by Gilson to three small-scale studies of the practice of power in policy implementation (linked to EQUINET); support from UCT/CHP to four other African universities (in East, South and West Africa), each of which has now used the CHP policy analysis curriculum in their own courses; and the initiation of a project to develop approaches to synthesising qualitative policy analysis case study material and to conduct such syntheses.

3. Strengthened capacity to undertake and use research

The CREHS logframe and capacity development strategy identify 3 main targets for capacity strengthening: individuals (research and communication skills); organisations (capacity to manage and sustain research programmes); and research users (policymakers and others). A summary of achievements measured by our capacity development indicators appears as Annex 6.

In seeking to address these different levels we have worked through a variety of mechanisms:

- Facilitating access to formal training opportunities, by supporting applications for Wellcome Trust Masters Training Fellowships, and nominating candidates for Commonwealth Scholarships Commission PhD and MSc by distance learning scholarships.
- Conducting skills-development workshops to support research activities (e.g. proposal writing workshops for each objective; workshop on DCE design for cohort study; workshops for data analysis for health sector reform case studies, BIA studies and cohort study).
- Specific support and mentoring during research process e.g. HEFP staff participation in questionnaire development and preparations for data collection for the cohort study in Kenya, and travel to Thailand to support the analysis of DCE data; support for report and paper writing across all research themes.

- Funding CREHS researcher participation in workshops organised by others (e.g. workshop on discrete choice experiments hosted by HEU; workshops on qualitative data analysis using Nvivo in Tanzania and Kenya)
- Long term posting of HEFP staff to partner organisations (Gilson, Goodman, Mulligan/Borghi)
- Support to the development of communities of practice (e.g. networking among the communications staff; joint capacity development activities at RPC annual meetings)
- Conducting workshops and other events for policymakers and other stakeholders (e.g. HPRG workshops for Anambra and Enugu state officials; policymaker participation in BIA and econometrics for health policy workshops in India)
- Use of research results in materials for formal training programme taken by health managers (SA and Nigeria).

Increasingly, capacity strengthening has taken the form of South-South skill transfer and support. For instance, CHP researchers have provided support to Kenya and Thailand teams for the cohort study and to the Nigeria and Tanzania teams for the accountability study. Colleagues from Thailand have provided technical leadership in the area of Benefit Incidence Analysis, and ran a workshop for researchers and policymakers in India; and the IMPACT2 (CREHS-related) team from IHI visited KEMRI-WT staff in the field to learn about the practicalities of field surveys.

Following the appointment of the Communications Manager and revision to the communications strategy, there have been a number of capacity development activities related to research communications in order to foster a “community of practice”. These have included sessions at the RPC annual meetings in 2008 and 2009, the development of guidelines for writing briefing notes. The 2009 annual meeting was attended by all partner communications focal persons.

It has proven more challenging to identify specific activities to meet our organisational capacity development objectives. Here we have been partly constrained by the diversity of institutional settings in which partners work. Consequently, capacity development in this area has tended to take the form of informal mentoring relationships between HEFP programme management staff and others as well as in the form of the organisational support provided by HEFP research staff on long-term posting to their organisations; the topic of institutional capacity strengthening was also addressed during the lesson-learning workshop on research partnerships (see below, Lessons Learned).

A final, but often under-valued capacity development (and communications) opportunity is provided through the formal teaching programmes of partners located in universities (HPRG, IITM, CHP, HEU, and LSHTM) where future generations of health sector managers are being trained. CREHS has, in particular, facilitated the sharing of teaching materials on policy analysis.

- Who benefited as a result of these outputs?

Three main groups of beneficiaries can be identified:

- (4) **Vulnerable populations** in different settings who benefited from improved health services or reductions in exposure to health-related financial risk. For example, beneficiaries of strengthened mobile health services in India; households with kidney patients in Thailand whose exposure to financial catastrophe reduced when dialysis included in the Universal Coverage benefit package (50% of UC members are in the bottom 2 socioeconomic quintiles); Kenyan households who stand to benefit from the decision to scale-up direct facility funding, with impacts on service coverage and quality.

- (5) **Policymakers and health system managers** at the international and national levels, who benefited from an improved evidence base for decision making, and strengthened skills and knowledge of how to use evidence. For example, Nigerian policymakers and programme managers who participated in research training workshops; Thai health system managers who are able to use evidence to advocate for protecting the UC scheme from budget reductions.
- (6) **Health policy and systems researchers** in low and middle income settings who benefited from increased capacity to undertake and communicate research findings. This is demonstrated in the exceptional publication record of CREHS researchers, with 10 completed research reports, 16 policy and research briefs, over 40 peer reviewed papers (accepted or submitted) from core CREHS work – three quarters of which were written by LMIC authors. Further, we have produced more than 170 peer reviewed papers (accepted or submitted) from CREHS-related work, of which approximately two thirds have a LMIC lead-author. The strong pipeline of funded research in the 4 CREHS theme areas which will contribute to the sustainability of these research groups beyond the end of the RPC.

Table 1. Summary of CREHS Outputs

Outputs	OVis	Progress	Recommendations/ Comments
1. Implementation of a systematic CREHS communications strategy aimed at health systems policy and programme decision-makers.	<p>1.1 Strategy reflects good practice in GRIPP, e.g.</p> <ul style="list-style-type: none"> • includes a process for specifying target stakeholders; • is based on priority needs analysis; • has clear communications objectives; • communications materials presented in forms most accessible to users (e.g. open access publications etc) <p>1.2 Strategy includes changes made on basis of lessons learned during implementation (incl. e.g. changes in decision-makers or influential stakeholders; knowledge emerging from output 2).</p> <p>1.3 Partner institutions commit resources to communication through, e.g.</p>	<p>CREHS Communications Strategy developed at the beginning of the programme and revised in year 3 of the programme to fully reflect best practice in GRIPP.</p> <p>Implementation of communication activities accelerated by the recruitment of a communications manager in the programme management team; and supported by the appointment of communications focal points in most partners; HEU, CHP, IHI, KEMRI-WT and HPRG have all allocated some of their own resources to pay communications staff.</p> <p>As at 31 March we had produced 13 research reports, 16 policy and research briefs, and organised one major external conference. CREHS researchers presented in a variety of</p>	<p><i>There are challenges in managing parallel research activities, arising from high level of partner workload in often quite small research groups, some of which have quite a fragmented funding base and are heavily engaged both in research and policy engagement.</i></p> <p><i>Challenges of prioritising across output areas (communication, research, capacity development) with limited resources and time.</i></p> <p><i>Capacity development is a long term commitment; the RPC structure offers some additional opportunities for institutional capacity strengthening, but it has been possible to have only limited impact given the resources available, and the diversity of RPC partner</i></p>

<p>2. New knowledge on:</p> <p>a. recent health sector reform</p> <p>b. financial risk protection</p> <p>c. health workforce performance</p> <p>d. scaling up interventions and services</p> <p>3. Strengthened capacity to generate and use</p>	<p>appointment of communications staff</p> <p>2.1 Knowledge products match the priorities of policy & programme decision-makers.</p> <p>2.2 Research topics reflect adjustments made during the life of the RPC on the basis of new knowledge, lessons learned.</p> <p>2.3 Knowledge products meet agreed standards for scientific rigour (e.g. journal acceptances; internal peer review for non-published material; policy relevance as judged by research users).</p> <p>2.4 Knowledge products delivered in accordance with research timetable (as adjusted during the life of the RPC), and incl. min of 10 CREHS-related* products per partner; and min. of 8 CREHS-related conference presentations per partner.</p> <p>3.1 Strengthened capacity of individuals to</p>	<p>international fora including IHEA (2007/2009); MIM (2005/2009); WAHEN (2009); AfHEA (2009). New media used to communicate with broader audience (Cohort blog/Health Policy and Systems Forum (www.hprgnigeria.blogs.pot.com); and LSHTM podcast.</p> <p>Research themes continue to address international and national policy debates and priorities as reflected in annual “policy scan” undertaken during RPC annual meeting;</p> <p>Sequencing of research and development of the agenda over time allowed it to be adjusted to respond to policymaker needs. E.g. selection of health sector reform topics; study of DFF in Kenya.</p> <p>40 papers drawing on CREHS-funded research accepted or submitted to peer-reviewed journals; internal review of all final project reports.</p> <p>All partners met the targets we set for research products (a minimum of 10 CREHS and CREHS related publications) and 6 of 8 partners met targets for presentations (a minimum of 10 presentations at national/international conferences).</p> <p>Substantial and varied</p>	<p>settings</p> <p><i>Despite our best efforts to programme all research to be completed in year 4 and spend year 5 analysing and synthesising, the cohort and accountability studies will only report by the end of the no-cost extension. This is due to unexpected delays in fieldwork (e.g. Kenya post-election violence) and to heavy workloads of RPC partners.</i></p>
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research findings	<p>3.2 Strengthened capacity of institutions to manage, support and sustain research activities</p> <p>3.3 Policymakers have increased awareness and understanding of the contributions of research to policy and practice</p>	<p>programme of capacity development activities implemented, including: support provided to secure scholarships for 4 WT Masters Fellowships; 1 Commonwealth PhD; 30 CREHS workshops and annual meetings; 23 CREHS participants funded to attend external workshops;</p> <p>Institutional strengthening efforts primarily through informal support relationships between HEFP researchers and programme staff and partners; appointment of communications staff in partners</p> <p>Some evidence of increased policymaker understanding of contributions of research to policy and practice, generated through policymaker training workshops; informal meetings and contacts</p>	
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Where are the research impacts?

Knowledge generated through CREHS has had direct impact on poverty at household level, through its impact on vulnerable populations (see earlier). In addition, this knowledge has the potential to support wider impacts on poverty by contributing to the international evidence base on how to strengthen health systems in ways that promote equity (e.g. reducing the catastrophic cost burdens of impoverished population groups, enhancing the retention of health staff in rural areas and supporting constructive accountability relationships with the community).

As we have argued previously (e.g. during the mid-term review) the influence of research on policy and practice can be non-linear and long term and there are different forms of impact (e.g. instrumental, conceptual and strategic/symbolic). Policy change also does not arise directly as a result of evidence alone, but depends on how this evidence is used, the existence of trusting relationships between researchers and policymakers, the degree of “fit” of policy and evidence with the broader social context and the ebb and flow of political cycles.

Prompted by DFID’s request for reports on quantitative indicators of policy impact we have held some internal discussions about how “policy/programme/practice change” is to be defined and measured. We propose three main categories of policy change:

1. Where there is a change in policy evidenced in written form (e.g. new guidelines, policy documents, regulations, etc.
2. Where there is a clear change in the way something is done in practice, even if not reflected in a formal written document; or a decision NOT to change current policy:
3. Where research has contributed to the broader discussion or debate around a new policy direction
 - a. Where a specific policy discussion is ongoing but has not yet culminated in official policy change
 - b. As part of a broader dialogue about future policy change

Although this is an imperfect classification of the types of policy influence that we seek to have with our research, we feel it aids us to recognise influences that are broader than those which can be traced to written guidelines and documents.

On the basis of this classification, we judge CREHS to have fully achieved its purpose, which was “the application of CREHS health systems strengthening knowledge outputs to policy and/or practice in target countries and institutions by the end of the RPC. CREHS and CREHS-related research has had a wide range of impacts on policy as defined by these categories, as evidenced in Table 2.

Table 2. Summary of types of policy impact of CREHS and CREHS-related research.

	Core CREHS	CREHS-related
1. Change in policy evidenced in written form (e.g. new guidelines, policy documents, regulations, etc.	<p>Thailand: 10 Year National Plan for PHC Development</p> <p>Thailand: Adoption of 2 equity-oriented indicators in reporting guidelines for provincial health authorities</p> <p>Kenya: Scale-up of Direct Facility Funding</p>	<p>Tanzania: Voucher scheme research contributed to development of new ITN distribution strategy (mass free distribution targeted to high burden areas);</p> <p>Thailand: Expansion of UC benefit package to include dialysis for end-stage renal disease patients</p> <p>Contributions to design of Affordable Medicines Facility – Malaria (AMFm) through ACTwatch & technical input from Goodman to evaluation of Tanzania pilot project</p>
2. Where there is a clear change in the way something is done in practice, even if not reflected in a formal written policy document:	<p>India: earmarked budgets for mobile health units in Tamil Nadu</p> <p>Thailand: maintaining UC budget in 2010.</p> <p>Thailand: Decision not to introduce copayment by UC members for non-essential drugs and interventions.</p>	<p>South Africa: approaches to assessing the costs of scaling up ART were used in National Strategic planning processes</p> <p>Thailand: Decision not to adopt HPV vaccination until price reduced; adoption of alternative strategy (scaling up Pap smear and VIA)</p> <p>Vietnam: IHPP sharing of results</p>

		from cohort study and broader experience with financial and non-financial incentives for health workers led to decision in April 2009 to increase financial incentives to health workers in poor northern mountainous areas.
<p>3. Where research has contributed to the broader discussion or debate around a new policy direction</p> <p>a. Where policy discussion is ongoing but not yet culminated in official policy change</p> <p>b. As part of the broader dialogue about future policy change</p>	<p>India: Presentation of BIA results to State level health commissioners has contributed to discussion about how to strengthen service delivery to improve access to / utilization of health services by the poor (b)</p> <p>Nigeria: Case studies on CBHI and DHS have led to measures to strengthen these programmes in Enugu and Anambra state and influenced development of strategies in neighbouring states (b)</p>	<p>South Africa: Contributions by HEU&CHP researchers to NHI discussions (a)</p> <p>Tanzania: Contributions to discussions about health financing strategy in Tanzania and NHIF/CHF consolidation (a)</p> <p>Kenya: contributions of W Kenya AMFm pilot to country design of AMFm (a)</p> <p>Tanzania: IHI commissioned by SDC to undertake feasibility assessment of introducing TIKA (urban community financing scheme) in DSM region. This followed preliminary dissemination of SHIELD findings in Nov 2008 (a)</p> <p>Contributions to global debates about user fees, universal coverage and progressive financing (e.g. UNICEF studies on user fee removal + Zambia study; Thailand regional level leadership and policy discussions (a+b).</p> <p>IHPP colleagues' contributions of CREHS and related work to discussions about rural retention at Asia Pacific Action Alliance on HRH; regional consultation to discuss and comment on the code of practice in recruitment of international health professionals which will be adopted at the 2010 WHA (b)</p>

S Africa – A variety of CREHS-related work (including SHIELD and SACBIA) has contributed to discussions about National Health Insurance. Professor Di McIntyre, who is closely linked to CREHS and who leads the SHIELD and SACBIA projects, was appointed to the Ministerial Advisory Committee on National Health Insurance in November 2009. The committee will provide advice on the development of policy, legislation and the implementation of a National Health Insurance; listen to the comments made by the public on the White Paper on National Health Insurance; and will advise the Ministry on what to include in the final NHI implementation plan. The draft White Paper on the National Health Insurance will be released for public comment in due course.

The CREHS studies on the Patients' Rights Charter and user fee implementation have been used in training of health service managers on strategic management. This is another important mechanism through which research can influence policy and practice, and is additional to the types of policy change that are outlined in Table 2 above.

The methods, models and data generated through the work of HEU researchers are being used to inform national and provincial strategic planning for the scale-up of HIV treatment.

Thailand - The results of the health worker cohort study were used as technical input into the Ten Year National Plan for Primary Health Care Development. The National Health Assembly endorsed the plan in its NHA Resolution 3 in December 2009. The National Health Commission Office will shortly submit this plan to be approved by the Cabinet. Once approved by the Cabinet, the annual budget will follow. The plan focuses both on infrastructure development and on financing human resources to maintain them productively in rural health services.

The findings of BIA and FIA updates were presented by IHPP to policymakers in the MOPH and NHSO (responsible for UC scheme) Board, showing that general taxation is a more progressive financing source than SHI contributions. The positive findings about the equity of the UC scheme have been used to support the government's decision to maintain general tax financing of the UC scheme, and to ensure an adequate allocation of budget to district health systems, which are the major hub in achieving pro-poor outcomes. These same results were used to advocate for the Introduction of two equity-oriented indicators in Provincial-level monitoring systems. The decision to include dialysis for end-stage renal disease in UC benefit package was taken in response to CREHS-related research showing the financially catastrophic impact of this condition on households.

CREHS and related research supported the decisions NOT to change two policies in Thailand. The first was the decision not to introduce copayment by UC members for non-essential drugs and interventions, based on discussions between IHPP and NHSO researchers and Prime Minister Abhisit which emphasised the equity risks of introducing a two-tier system. Similarly, the decision was taken not to introduce HPV vaccination until the price was lowered enough to reach the cost-effectiveness threshold; and to scale up alternative means of prevention in the meantime.

The CREHS cohort study design stimulated and informed the design of a long term nursing cohort study, which is funded from national sources. IHPP colleagues sit on the committee that will develop technical input for health workforce payment system and pay-for-performance, and will draw upon the results from CREHS studies to develop proposals.

India – Findings from the case study on implementation of mobile health units were used in the revision and scale-up of the MHU strategy in Tamil Nadu state, implemented in 2009. The findings from the BIA study are informing broader discussions about supply side barriers impeding health service access for the poor.

Tanzania – In Tanzania a favourable policy window has been created by the Government's commitment to develop a new health financing policy this year. To inform the discussions, the SHIELD study results on BIA, FIA and role of insurance in providing financial risk protection have been presented to Health Financing Committee of the Ministry of Health and to the Development Partners Group. Modelling of alternative insurance packages will contribute to further discussions about options for extending insurance coverage.

IHI colleagues were commissioned to undertake a feasibility study of introducing a community-based insurance scheme (TIKA) in Dar es Salaam; and consultancy for SDC to evaluate initiatives to strengthen rural community health insurance.

The team from IHI and LSHTM continue to monitor the effects of national ITN policies and strategies in Tanzania. Early results demonstrating implementation challenges (voucher coverage) and equity failures had direct impact on the development of the new ITN strategy (under-5 and universal coverage campaigns, and targeting to those areas of highest malaria burden). The early results of post-campaign surveys highlight continued challenges of ensuring high levels of use (even where ownership is high) and importance of local context in influencing equity impact (variations in equity between the two regions where surveys being conducted).

Kenya – The results of the DFF evaluation informed the decision to scale up to national level, and KEMRI-WT are in the process of being commissioned to undertake the evaluation of the national scale-up.

CREHS-related work evaluating the impact of a pilot project supplying antimalarial drugs through shops in Western Kenya have influenced the decision to implement AMFm and has helped to inform the discussion about the effectiveness of distributing ACTs through retail outlets.

Nigeria – The CBHI and DHS study results have fed into the strengthening of these programmes, and are also being used to inform their design in other states.

Box 1: Multiple channels of policy influence

The experience of the International Health Policy Programme, Thailand, demonstrates the range of ways in which research groups can seek influence over health sector policy. For IHPP, some of these opportunities emerge from the particular relationship that it has with the Ministry of Public Health: being located within the MOPH and with seconded staff gives it direct access to policy processes. However, in addition, IHPP initiates other approaches independently. For example:

- Researchers are asked to serve as speechwriter for Minister of Health, Permanent Secretary, Deputy PS in national and international forums – important potential to communicate research findings, and create awareness and demand of policymakers for evidence informed speeches.
- Researchers work with journalists and the media to strengthen their ability to ask difficult questions to ministers and high level policymakers on specific policies. This helps to create demand among policymakers for evidence to inform their deliberations.

CREHS researchers sit on a variety of policy committees and advisory bodies at the national, regional and international levels. An overview of these involvements is presented in Table 3. Over the past five years, these appointments have expanded and constitute a rich resource for both influencing research agendas and informing policy.

Table 3. Membership of key committees and initiatives at the national and international levels

Country/level	
S Africa	<p>McIntyre: Ministerial Advisory Committee for National Health Insurance</p> <p>Cleary: Ministerial Advisory Committee for Health – Financing Task Team</p> <p>Gilson: Ministerial Advisory Committee for Health – Financing Task Team</p> <p>Blaauw and Rispel: Development Bank of South Africa Policy committee to develop ten point plan</p> <p>Rispel: Ministerial institutional support team</p>
India	<p>Muraleedharan: Member, Mission Steering Group of the Indian National Rural Health Mission (NRHM) Panel of Experts, Tamil Nadu Health Systems Project</p>
Nigeria	<p>Onwujekwe: Involved in national level policy discussions including the development of national strategic health development plan (NSHDP), the review of the financing component of the National Health Bill, the development of the National Health Financing Policy, and the development of Medium Term Sector Strategy (MTSS) Member, steering and technical committee, National Health Accounts committee</p> <p>Uzochukwu: Deputy president, Nigerian society of Epidemiologists National auditor, Association of Public Health Physician of Nigeria</p>
Thailand	<p>Wide membership of IHPP researchers on national committees, e.g. National Drug Systems Development Committee National Essential Drug List Sub-Committee, Working Group in Health Economics Financing sub-committee of the UC Scheme</p>
Tanzania	<p>IHI seeking observer status on the Health Financing Committee</p>
Kenya	<p>Chuma: Attends the Health Financing Working Group as an observer</p>
Regional and International bodies	<p>Gilson: STAC for Alliance for Health Systems and Policy Research Coordinator, Knowledge Network, Health Systems, Commission on the Social Determinants of Health Equinet steering committee</p> <p>Goodman : Advisory Committee for the Zambia Access to ACT Initiative (2010 -); TDR STAC for UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Disease (TDR) Business Line 9: Evidence of Antimalarial Policy and Access (2008-) Clinton Foundation AMFm Operational Research Expert Advisory Group (2009 -)</p> <p>Hanson: Center for Global Development Working Group on the IMF and Health Spending; Roll Back Malaria Resources Working Group; WHO Scientific Resource Group on Equity Analysis and Research, Indicators sub-</p>

	<p>group Health Systems, Operations Research and Diagnostics Group, MalERA Global Advisory Committee, Innovations for Maternal, Newborn and Child Health</p> <p>Mills: Chair of WG2 of Task Force on Innovative International Financing for Health Systems Member, Technical Advisory Group for PATHS2 Project, Nigeria</p> <p>HEU researchers:</p> <ul style="list-style-type: none"> • Steering Committee on Implementation Research for the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR) • MIM/TDR (Multilateral Initiative for Malaria in Africa and the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases) Task Force on Malaria Research Capability Strengthening in Africa • Scientific Advisory Committee (SAC) of the International Network of field sites with continuous Demographic Evaluation of Populations and Their Health in developing countries (INDEPTH) • Technical support to the Alliance for Health Policy and Systems Research for their research program on universal coverage and financing • Steering committee of EQUINET • Coordinator of HEPNet (health economics and policy network in Africa) <p>Onwujekwe: Member Task force on immunization, AFRO/WHO Scientific resource group on equity, WHO, Geneva Technical resource group on social sciences and research, WHO/TDR Geneva Director, West African Health Economics Network (WAHEN)</p> <p>Hanson and Good provided advice to UNITAID on development of criteria for the assessment of malaria-related proposals</p> <p>Goodman and Kidenge participated in workshop to develop OR priorities for AMFm in AMFm countries (Dec 09)</p>
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Table 4. Achievement of CREHS purpose

Purpose	OVis	Progress	Recommendations/ Comments
Application of CREHS health-systems strengthening knowledge outputs to policy and/or practice in target countries and institutions by end of RPC.	<p>1. References in national and global speeches, policy documents, media reports.</p> <p>2. Development of policy guidelines and related documents by targeted stakeholders, using CREHS knowledge products.</p> <p>3a. Participation by CREHS members in policy processes and discussions through, e.g. membership of key committees or working groups</p> <p>3. Numbers and types of products of secondary research stimulated by the primary research (e.g. research commissioned by targeted stakeholders).</p> <p>4. Attribution to the work of CREHS is judged to be at a reasonable level.</p>	<p>CREHS and CREHS-related research has had a wide range of policy impacts, including on formal/written policies, practice, and debates and discussions:.</p> <p>Thailand: 10 Year National Plan for PHC Development</p> <p>Thailand: Adoption of 2 equity-oriented indicators in reporting guidelines for provincial health authorities</p> <p>Kenya: Scale-up of Direct Facility Funding</p> <p>India: earmarked budgets for mobile health units in Tamil Nadu</p> <p>Thailand: maintaining UC budget in 2010.</p> <p>Thailand: Decision not to introduce copayment by UC members for non-essential drugs and interventions.</p> <p>India: Presentation of BIA results to State level health commissioners has contributed to discussion about how to strengthen service delivery to improve access to / utilization of health services by the poor</p> <p>Nigeria: Case studies on CBHI and DHS have</p>	<p>A broad and nuanced understanding of “policy change” is needed to fully appreciate the contributions of research.</p>

		<p>led to measures to strengthen these programmes in Enugu and Anambra state and influenced development of strategies in neighbouring states</p> <p>Tanzania: Voucher scheme research contributed to development of new ITN distribution strategy (mass free distribution targeted to high burden areas);</p> <p>Thailand: Expansion of UC benefit package to include dialysis for end-stage renal disease patients</p> <p>Contributions to design of Affordable Medicines Facility – Malaria (AMFm)</p> <p>South Africa: approaches to assessing the costs of scaling up ART were used in National Strategic planning processes</p> <p>Thailand: Decision not to adopt HPV vaccination until price reduced</p> <p>Vietnam: IHPP sharing of results from cohort study and broader experience with financial and non-financial incentives for health workers led to decision in April 2009 to increase financial incentives to health workers in poor northern mountainous areas.</p> <p>South Africa: Contributions by</p>	
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		<p>HEU&CHP researchers to NHI discussions</p> <p>Tanzania: Contributions to discussions about health financing strategy in Tanzania and NHIF/CHF consolidation</p> <p>Kenya: contributions of W Kenya AMFm pilot to country design of AMFm</p> <p>Contributions to global debates about user fees, universal coverage and progressive financing (e.g. UNICEF studies on user fee removal + Zambia study; Thailand regional level leadership and policy discussions.</p> <p>IHPP colleagues' contributions of CREHS and related work to discussions about rural retention at Asia Pacific Action Alliance on HRH; regional consultation to discuss and comment on the code of practice in recruitment of international health professionals which will be adopted at the 2010 WHA Broad and growing membership of CREHS researchers in key committees and advisory bodies: (see separate table)</p> <p>Commissioned studies arising from CREHS work include:</p> <p>Tanzania: IHI commissioned by SDC to undertake feasibility assessment of</p>	
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		introducing TIKA (urban community financing scheme) in DSM region. KEMRI-WT commissioned to evaluate DFF scale-up Thai 25 year cohort study funded from national sources	
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- The effectiveness of the delivery of the communication strategy and how it supported the achievements of the programme purpose and outputs;

The communications strategy was effective in supporting researchers to identify key messages, target audiences and effective ways of reaching them and provided a mechanism for tracking progress in producing specific outputs and thereby monitoring progress against logframe outputs. It also helped to ensure that the communications budget was spent effectively. Finally, it provided a concrete point for interaction between communications officers in partners and the core communications manager, allowing for the identification of skills needs and approaches to meeting them.

- What evidence is there that policy makers and stakeholders have increased awareness of your research findings and that has this led to changed attitudes and practice?

See above.

- What progress was made on capacity development?

See Outputs, Capacity development, above, and Capacity Development Indicators in Annex 6

- How did the research contribute to and impact on the wider environments at national and international levels?

CREHS- and related research have influenced international debates about health systems and equity. For instance, the work of the Health System Knowledge Network of the Commission for Social Determinants of Health (in which Lucy Gilson was involved) helped to shape the current policy climate in favour of equity and critical role of health systems in achieving equitable health outcomes.

CREHS researchers have made a number of contributions to global debates on health financing, and provided evidence in support of the international movement in favour of universal coverage. The Thai experience, which CREHS research has helped to document, has been widely disseminated, and IHPP researchers have been actively engaged in regional and international level discussions about UC (including inputs to the 2010 World Health Report on UC, and a Rockefeller-funded joint learning workshop on UC in the in the Asia-Pacific Region). Gilson and Hanson have been involved in UNICEF studies on user fee removal; and in influencing UNICEF strategy to include equity into their programming objectives and indicators.

Led by IHPP, CREHS research on human resources has contributed to discussions about rural retention in the Asia Pacific Action Alliance on human resources for health. The cohort study and its outputs have contributed to the growing use of discrete choice experiments as a policy tool to

CREHS researchers have used a variety of opportunities to use research findings to influence debates about how to scale up malaria interventions. Related research includes ACTwatch studies of the antimalarial supply chain which have helped to inform the design of country programmes in Cambodia, Nigeria and Benin, and the involvement of HEFP and KEMRI-WT researchers in the Independent Evaluation of the Affordable Medicines Facility –malaria (AMFm).

We have also made a number of contributions to the debate about role of private sector in scaling up service delivery and financial protection, for example, engaging with Richard Feacham and colleagues in a PLOS Medicine debate (Hanson, Gilson et al. 2008); and identifying the lack of robust evidence about the effectiveness of private sector interventions (Patouillard, Goodman et al. 2007). This gap was further emphasised in the work of Working Group 2 of the Task Force on International Financing for Health Systems (Fryatt, Mills et al. 2010).

Finally, CREHS research has contributed to international debates about the methods and focus of health policy and systems research (HSPR). The special edition of *Health Policy and Planning* on health policy analysis provides a range of ideas about how to strengthen the focus and methods of this particular area of work. Other inputs have included a Lancet commentary and an organised session at the International Health Economics Association meeting on standards of rigour in HSPR. Gilson is currently compiling a HSPR “reader” for the Alliance for Health Systems and Policies Research. An important strand to this debate is the growing interest in “implementation research”. CREHS research is helping to demonstrate the value of a variety of different research approaches, the recognition of health systems interventions as “complex interventions” requiring specific approaches to evaluation, and the importance of investigating policy processes as well as technical design in order to understand impact.

5. Lessons learnt

- Working with Partners:

Research partnerships. In October 2009, CREHS researchers joined colleagues from the Global HIV/AIDS Initiatives Network (GHIN) in 3 day workshop to compare lessons learned from collaborating in research partnerships. Participants at the meeting drew on many years of experience of different sorts of partnerships as well as on the particular experience from these two programmes

(http://www.crehs.lshtm.ac.uk/downloads/publications/multi_country_partnerships.pdf). The key lessons identified included:

- Clarify the nature of the partnership from the beginning and use this to help identify expectations and responsibilities
- Agree objectives in advance, and discuss explicitly the expectations for individual partners at the beginning to avoid later contradictions
- Allow for reasonable time and resources to establish partnerships
- Capacity building is multi-dimensional and needs institutional support: some form of pre-assessment of strengths and weaknesses and capacity gaps may help to inform selection of partners and planning. Both individual and organisational strengthening may be needed. Funders need to give appropriate weight to capacity development objectives.

- Research capacity building requires long-term, continuous effort with full funding.
- There is a need to balance cross-national and international relevance with national policy needs in building a research programme. This means that the agenda needs to be negotiated by all partners.
- Explicit planning of dissemination of findings at the international and national levels is needed; this can be supported by communications officers to work with all partners.
- Where cross-country analysis is essential to draw out policy relevant findings, then sufficient time and resources must be allowed for this phase of research (see below on specific experiences of different approaches to cross-country comparative research).
- Tensions within partnerships can be avoided through: explicit discussions about sharing power and how to do it in order to build trust; discussing issues such as authorship in advance and planning for equitable opportunities for all partners; setting ground rules from the beginning; agreeing a governance and management structure, and building in review of these during the course of the partnership; and communicating regularly to resolve problems, recognising the need for some regular face-to-face engagement.

Different forms of cross-country research: Because of the influence of context in health policy and systems research, it is particularly important to undertake research in a variety of settings to gain insights into what works where and why. The range of research activities within CREHS allowed for use of a variety of different approaches to cross country and comparative research, each with advantages and disadvantages. At one end of the spectrum the cohort study used (relatively) harmonized study designs, data collection instruments and approaches to analysis. This allowed for more carefully controlled comparisons, and for the researchers to explore the relative effectiveness of similar incentive packages in different contexts and to provide insights about the importance of tailoring incentives to particular settings. Yet it was not always easy to achieve the desired degree of harmonization. For instance, in selecting the incentives to include in the DCE, the Thai study included medical insurance coverage (because new nursing graduates are contract employees and therefore covered by the Social Health Insurance scheme rather than the more generous Civil Servants Medical Benefits Scheme) which was not relevant in other settings and therefore needed to be substituted with another appropriate incentive. Study teams also adopted different approaches to following up cohort members (letters vs. telephone calls). It was also necessary to devote a substantial level of resources to support the analysis to ensure that same methods were used. At the other end of the spectrum, the objective 1 case studies of health sector reforms were done with less central control over the specific topic and detailed research questions, although common approaches to data collection and analysis were generally applied. This meant that the choice of research topic could be negotiated between country research teams and policymakers (therefore responding better/more specifically to local priorities). However, it has also created greater challenges in terms of synthesising across the diverse experiences to extract lessons that can be more widely applied. Future cross-country qualitative case study work would be stronger if driven by a set of common research questions and analytical frameworks, even when considering different policy topics, or by focussing on a common policy topic. However, this may constrain researchers' ability to respond to national policy concerns.

- Good Practice/Innovation

Funding allocation: The CREHS funding allocation approach seems to have been effective in balancing competing demands (hub/partners; research/capacity development and communications; common activities/nationally responsive activities) and supporting the achievement of our outputs and purpose.

The allocation had three main aspects:

- (1) Core support for partner staffing, providing the equivalent of one FTE at the research fellow level. Groups used this post in different ways – in some, the post supported a single individual throughout the life of the RPC (IHI); in another, the salary support was spread across many individuals (HPRG); and in another, it was used to support different people for different studies (KEMRI-WT). The flexibility that this core funding provided was appreciated by partners, but the system failed to recognise the need for core support for senior staff (where these are soft-funded) to oversee and manage research and consortium management roles. A lesson we take for future multi-partner research collaboration is to give priority in core funding for senior staff, as junior staff costs can be more easily and flexibly handled in the research budgets (see below).
- (2) Core funding for capacity development, country-level communications and operating expenses. This allowed partners to be responsive to opportunities and to develop their own priorities (e.g. conference attendance, support for short courses or other capacity building for colleagues, such as support for Social Science Group meetings in KEMRI-WT, Nvivo training in IHI); and to tailor research communication activities to their contexts (e.g. policymaker training workshops in Nigeria; and external website support in Thailand).
- (3) Substantial budget earmarked for research (£800,000). This research fund was subject to rigorous quality control including external peer review of proposals procedures which led to substantial revisions to protocols.

Successful Consortium Advisory Group: The CAG meetings were used to report on progress with research, communications and capacity building; to act as a sounding board; as a source of information about broader opportunities and linkages; and to receive updates on DFIDs strategic directions in the areas of health systems and financing. The CAG met face-to-face yearly, with a high level of engagement and commitment from CAG members. Three main factors contributed to the success. First, the majority of members were UK based, which meant that we were able to meet face-to-face each year with most people in attendance. One overseas member was never able to participate in a meeting either in person or via teleconferencing facilities, but we sought to involve those not able to attend the meetings through other means (e.g. through participation in an annual meeting). There is obviously a trade-off between wide geographical spread and representation, and having predominantly UK membership, but we feel that having a primarily UK based group worked for us. Second, we have engaged CAG members in specific activities. The CAG Chair participated in a workshop for junior researchers from partners on writing research proposals (capacity development); facilitated a lesson-learning workshop we had in S Africa on research partnerships; and introduced a plenary session at the RPC conference in March 2010. Other members have participated in workshops, and attended annual meetings (where these were held in the UK). Finally, the CAG membership was limited to 5 members + DFID. Limiting the size meant that it was easier to get a high level of participation at CAG meetings.

Paper writing workshops: CREHS initiated a “Paper Writing Workshop” event that aimed to support researchers to prepare high quality, publishable papers on a specific theme. The process was managed by a “coordinating group” with skills in a variety of disciplines (reflecting the range of topics and methods covered in the submitted papers). There was a requirement that participants circulate a first draft of their paper in advance of the workshop so that the coordinating group and participants could review the papers beforehand. At the workshop, researchers gave brief presentations of the “storyline” of their paper to the whole group of participants (which helped to refine and simplify the storyline), then were assigned to a specific “mentor” to support the revisions to the paper, with opportunities to meet 2-3 times during a 4-5 day period; and free time to conduct additional analysis, review additional literature, and revise the paper. The coordinating group was

also responsible for identifying a publication outlet (in both instances, a special issue of a peer reviewed journal) and managing the peer review process (in accordance with journal policies). The model led to production of special issue of the Journal of International Development on households' experience of ill-health and risk-protection mechanisms; and a special issue of BMC Health Services Research on scaling up priority health policies and interventions. The CREHS model was adapted for use in the Social Science Group at KEMRI-WT; and another RPC (TARGETS) funded one of their members to join the scaling up workshop. .

Long term secondment of HEFP staff to partners: HEFP staff were seconded to 4 CREHS partners (Gilson to CHP from 2005, moving to the University of Cape Town in 2007; Goodman to KEMRI-WT from the start of the RPC in 2005; Mulligan to IHI, replaced in 2007 by Borghi). In each organisation, these staff have engaged in mentoring and on-the-job training activities and provided general institutional support (e.g. coordination of the Social Science Group in KEMRI-WT; organisation of seminar programmes in IHI; support to development of training applications; organising and coordinating training courses; general management responsibilities). They have also actively engaged in national policy communities and debates, gaining better understanding of policymaker research needs and supporting researcher-policymaker dialogue. There are, of course, some challenges with this approach (e.g. balancing the demands of employer and workplace, including research and teaching and service; balancing the demands of international and national research communities and perspectives; limited specialist peer support for selves). Nonetheless we have found this to be an invaluable mode of research capacity development that we seek to continue through a future RPC or project funding.

Capacity development integrated into the research process: In all research theme areas, the research teams were supported by the research coordination group through a combination of skills' development workshops and active email mentoring. The objective 1 studies, for example, included an initial workshop to develop initial understanding of policy analysis approaches, including relevant theoretical frameworks, and provide input to protocol development and a second workshop to support data analysis, involving review relevant theoretical frameworks, reflection on data coding processes, and planning for data analysis. Draft protocols were also internally reviewed and revised, then sent for external review with support to address comments received. Finally, extensive support was given to finalisation of study reports through extensive comment on draft reports, and, for one team, additional face to face engagement. For both the DCE and BIA studies, skills development took place through hands-on design and data analysis workshops.

- **Project/programme Management**

CREHS developed a programme management structure that combined a strong "hub" with collective decision-making and some decentralisation of research management.

The core team consisted of the Director (Hanson) and Associate Director (Gilson), Consortium Manager (Lord), and Communications Manager (Wolfe). All were London-based other than Gilson, and the London team met regularly.

From the outset of the RPC it was recognised that a core CREHS principle would be to involve all partners in the management decision making. This was achieved initially with the collective development of the RPC proposal. When RPC operations began, a Management Group was established which consisted of at least one member of each partner plus the Director, Associate Director and Consortium Manager. This group met every two months, mostly by teleconference, but with a longer, face-to-face meeting at each Consortium annual meeting. On appointment the Communications Manager joined the group. These meetings have provided an important opportunity to keep all partners updated on the work being carried out, make decisions about the

development of the areas of research, and discuss the capacity development and communications strategies.

Research Co-ordination Groups were established for each of the themes. This was a valuable way to decentralise the decision making and involve more researchers in the management of research. These were for the most part successful, although staff turnover in some partners meant a loss of continuity and momentum which had to be managed.

Annual meetings were hosted by several partners. This provided a valuable opportunity to engage with local policymakers, and to be able to involve a broader group of researchers from the host organisation in the CREHS discussions. The meetings were used to update all partners on the research activities, decide on the future direction of the research themes, discuss capacity building needs and communications strategies for the research themes, and to undertake training in specific research skills, e.g. DCE techniques. One of the important outcomes of these annual meetings has been the development of a strong sense of the RPC as a coherent group of researchers and strengthening of links between the partners; they have also allowed for partners to offer support to one another.

The consortium managed a successful handover from Anne Mills to Kara Hanson and Lucy Gilson as Directors. This was in part due to the continued hands on role of the Consortium Manager, and also to the management group structure which allowed for continuity in decision-making and institutional memory.

The strong management of the RPC by the Directors and Manager has been significant in ensuring the success of the RPC. It has led to the successful completion of the research objectives and the sound management of research funds. All partners have contributed to and benefited from this effective management.

- Communication

The following summarizes the main lessons emerging from CREHS communications activities.

- First, there have been some challenges for Southern institutions to fully engage with communication strategy and appoint local communications managers. These have related to, for example, the availability of appropriately skilled communications managers; bureaucratic constraints around the grading of academic-related posts and trying to ensure that highly skilled and experienced individuals can be attracted and retained to these posts.
- Second, effective policy engagement makes significant demands on researchers' time to invest in developing long term, trusting relationships with stakeholders; and a change in the broader culture and health research system. These need commitment from senior research staff, who need to balance these needs with existing commitments. One partner felt that full, effective engagement in research communication would require a commitment of around a day per week, a level of time which is probably not feasible for many researchers working in small teams and with diverse responsibilities.
- More generally, with RPCs' multiple objectives (high quality generation of new knowledge + capacity development + communication) it is impossible to do all three simultaneously over the given timeframe with the resources available; this invariably requires some compromise.
- The RPC has brought together research groups which are situated very differently with respect to the policy influencing process – which creates a variety of different opportunities and constraints. For example, IHPP sits within the MOH and has excellent access to policymakers

- There is a need to devote time and resources towards developing communications capacity across the consortium through the employment of communications officers, production of guidelines etc
- More can be made of opportunities for working with intermediaries and other organisations to communicate findings can make it easier to reach target audiences – in particular the media. In South Africa, the strategy of communicating important and timely findings through the online and print media has been effective in influencing public opinions and debates regarding NHI.
- Finally, there is value to working with policymakers and key people to shape the research agenda from the outset: this means that these people are more likely to be engaged and interested in findings when they become available.

6. Programme Management

7. Long-term sustainability of the Research

All CREHS partners are established institutions and have funding, people and activities in place that will maintain their health policy and systems research work in the future, and will continue to draw upon and build on CREHS research. The main constraint all our institutions face, however, is the availability of long-term programme funding for HSPR, to sustain and expand the work of these organisations in the long term.

Research outputs (reports and briefing notes) have been submitted to R4D and other portals when appropriate including id21 and Eldis. The CREHS website is hosted by the LSHTM server and will continue to be live for the foreseeable future.

Table 5: Related research projects which are funded beyond 2010

Partner	Funded projects
HEFP	<ul style="list-style-type: none"> • 2009-2014: PATHS2 – Nigeria, DFID • 2008-2011: ACTwatch, Bill and Melinda Gates Foundation • 2010-2012: Independent Evaluation of the Affordable Medicines Facility, Malaria, Global Fund • 2008-2013: IMPACT 2, BMGF (with IHI) • 2009-2014: NSCALE (Integrated community case management of common diseases of childhood), BMGF • 2010-2012: Investigating the role and influence of non-standard economic preferences on health workers' decisions in South Africa, ESRC/MRC (with CHP) • 2010-2015: Universal coverage in Tanzania and South Africa: monitoring and evaluating progress (UNITAS)
HEU	<ul style="list-style-type: none"> • 2010-2015: Universal coverage in Tanzania and South Africa: monitoring and evaluating progress (UNITAS); with Centre for Health Policy (CHP), University of the Witwatersrand; Africa Centre, University of KwaZulu-Natal; Ifakara Health Institute, Tanzania; Health Economics & Financing Programme, London School of Hygiene and Tropical Medicine (LSHTM); Institute of Tropical Medicine, Antwerp. • 2010-2011: Eliciting public preferences in relation to National Health Insurance in South Africa; with Black Sash; Health-e News Service. • 2010 – 2012: Action research to support local level planning and management; with School of Public Health, University of the Western Cape; Western Cape Provincial Department of Health; City of Cape Town health directorate. • 2009-2011: Strengthening health policy analysis research and training through a focus on approaches to comparative and synthesis analyses; with LSHTM; Maxwell School of Citizenship and Public Affairs, Syracuse University; UNAIDS. • 2007 – 2011: Researching Equity in Access to Health Care (REACH); with CHP; McMaster University, Canada.
KEMRI-WT:	<ul style="list-style-type: none"> • HSSF evaluation (funding not yet contracted)
CHP:	<ul style="list-style-type: none"> • 2008-2012 RESON project on nursing practice, Atlantic Philanthropies • 2010-2015: Universal coverage in Tanzania and South Africa: monitoring and evaluating progress (UNITAS)
IHI:	<ul style="list-style-type: none"> • 2010-2011: Understanding the effect of the takeover of an informal sector health insurance scheme by a formal sector scheme on universal coverage (UC) in terms of risk pooling and purchasing in Tanzania. Funder WHO/Alliance for Health Policy & Systems Research.

IHPP	<ul style="list-style-type: none"> • EU funded four year Health Equity and Financial Protection in Asia (HEFPA) • 25 years Thai Nurse Cohort, conduct survey every two years, and will eventually develop into e-cohort with collaboration with Australia and New Zealand Nurse cohort (local funding). • Routine health equity monitoring (local funding) • ART program performance assessment (local funding + World Bank) • Policy process of design of Universal Coverage which contributes to health equity (Alliance for Health Policy and Systems Research)
HPRG	<ul style="list-style-type: none"> • Feasibility of community based health insurance in Nigeria, funded by WHO/AFRO • 2010-2011: National health insurance scheme: factors affecting implementation • 2009-2015: Operational research on SUNMAP (DFID) • 2008-2011: Research on the economics of ACT (Bill and Melinda Gates Foundation)

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Annex 1: Logical Framework

There were no changes in the current project year.

Annex 2: Finance

As a no-cost extension has been granted to 30 September 2010, the final financial report across the six years will be submitted in October 2010.

Annex 3: Risk Assessment Matrix

There were no changes in the current project year.

Annex 4: Communication strategy

There were no changes in the current project year.

Annex 5: Products and publications

Core CREHS publications

Listed in alphabetical order, [box] at end indicates theme: [1] Health sector reform, [2] Financial risk protection, [3] Health workforce performance, [4] Scaling up, [5] Health policy implementation

Peer-reviewed publications

Erasmus E and Gilson L. How to start thinking about investigating power in the organizational settings of policy implementation. *Health Policy and Planning*, 23(5):361-8, 2008. [5]

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Molyneux C, Goudge J, Russell S, Chuma J, Gumede T and Gilson L. Conducting health-related social science research in low income settings: ethical dilemmas faced in Kenya and South Africa. *Journal of International Development*, 21(2): 309-326, 2009. [2]

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Onwujekwe O, Dike N, Chukwuka C, Uzochukwu B, Onyedum C, Onoka C, and Ichoku H. Examining catastrophic costs and benefit incidence of subsidized anti-retroviral treatment programme in south-east Nigeria. *Health Policy*, 90:223-229, 2009 [2]

Onwujekwe O, Onoka C, Uzochukwu B, Okoli C, Obikeze E and Eze S. Is community-based health insurance an equitable strategy for paying for healthcare? Experiences from southeast Nigeria. *Health Policy* 92: 96-102, 2009. [2]

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Opwora A, Kabare M, Molyneux S, Goodman C. Direct facility funding as a response to user fee reduction: implementation and perceived impact among Kenyan health centres and dispensaries. *Health Policy and Planning Advance Access* published online on March 8, 2010. [2]

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Publications in press or submitted

Abuya T, Amin A, Molyneux S et al. Importance of strategic management in the implementation of private medicine retailer programmes: case studies from three districts in Kenya. *Submitted to BMC Health Services Research* supplement on scaling-up, 2010. [4]

Cohen JM, Sabot O, Sabot K et al. A pharmacy too far? Equity and spatial distribution of outcomes in the delivery of subsidized artemisinin-based combination therapies through private drug shops. *Submitted to BMC Health Services Research* supplement on scaling-up, 2010. [4]

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Webster J, Chandramohan D, Hanson K. Methods for evaluating delivery systems for scaling-up malaria control interventions. *Submitted to BMC Health Services Research* supplement on scaling-up, 2010 [4]

Books or book chapters

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Prakongsai P, Limwattananon S, Tangcharoensathien V. The equity impact of the universal coverage policy: Lessons from Thailand. *Advances in health economics and health services research*, 2009.

Policy and research briefs

Buse K, Dickinson C, Gilson L and Murray SF. *How can the analysis of power and process in policy-making improve health outcomes? Moving the agenda forward*. ODI briefing note number 25, October 2007.

Cleary S. *Overcoming apartheid health care to achieve equitable access to ART*. CREHS policy Brief, 2009. [4]

Dash U, Muraleedharan VR, Prasad BM, Acharya D, Dash S, and Lakshminarasimhan S. *Increasing access to health services using mobile health units: implementation experiences in Tamil Nadu and Orissa States, India*. CREHS policy Brief, 2009. [1]

Goodman C et al. *Reducing user fees: implementation challenges and a possible solution*. CREHS policy Brief, 2009. [2]

Erasmus E. *Nurses attitudes towards living and working in rural areas*. CREHS research Brief, 2009. [3]

Erasmus E, and Blauuw D. *The need for the active and strategic management of local-level policy implementation*. CREHS policy Brief, 2009. [1]

Lagarde M and Palmer N. *Evidence from systematic reviews to inform decision making regarding financing mechanisms that improve access to health services for poor people. A policy brief prepared for the International Dialogue on Evidence-Informed Action to Achieve Health Goals in Developing Countries (IDEAHealth)*. Geneva: The Alliance for Health Policy and Systems Research, WHO, 2006

Mullei K, Wafula F and Goodman CA. *Implementing IMCI in Kenya: challenges and recommendations*. CREHS policy brief, 2008. [1]

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Uzochukwu BSC, Onwujekwe OE. *Implementing Community Based Health Insurance in Anambra State, Nigeria*. CREHS policy brief, 2010. [1]

Uzochukwu BSC, Onwujekwe OE. *The District Health System in Enugu State, Nigeria: an analysis of policy development and implementation*. CREHS policy brief, 2010. [1]

Wolfe R, Stevens A, Xaba A. *Influencing health systems policy and practice: experiences from the Consortium for Research on Equitable Health Systems*. CREHS briefing paper, 2010. Public health insurance and financial risk protection: lessons from Thailand. CREHS policy brief, 2010. [2]

Multicountry partnerships: adding value to research. CREHS and GHIN briefing paper, 2010.

Publicity material

Newsletters

Regular online newsletters provide updates of new CREHS research and publications.

December 2009:

July 2009: Focus on iHEA and Shield

March 2009: Focus on Financial Risk Protection

December 2008: Focus on Health Sector Reform

July 2007: Exchange II

January 2007: Exchange I

CREHS leaflet

CREHS poster

CREHS folder: Disseminated at UK and international conferences

Website links

The website is used to provide information on CREHS research, partners and members as well as links to all of our publications. Since the beginning of 2009 the site has had over 2400 unique visitors from 110 countries. The top ten countries are UK, India, US, South Africa, Kenya, Canada, Brazil, Switzerland, Nigeria and Tanzania.

The website has received visitors from 30 sites listed below:

Organisations and websites that link to CREHS [2009]	
LSHTM	London International Development Centre
TARGETS RPC	Tropical Medicine, Oxford University
DFID Health Resource Centre	Heapol, Oxford Journals
Research for Development	University of Cambridge Medical School
Health Economics Unit, University of Cape Town	Science Direct
Health Economics and Financing Programme	Evidence for Action
Kemri-Wellcome Trust Research Programme	shi-conference.de
International Health Policy Program, Thailand	World Health Organization
id21	Communication Initiative
CREHS cohort blog	Hepnet
Socialhealthprotection.org	MARCH Centre
University of Witwatersrand	Providing for health.org
Indian Institute of Technology, Madras	Ifakara Health Institute
Eldis	DFID
Realising Rights	

The CREHS Cohort study team also developed its own website during the year to share information about the project and to communicate with the cohort members (<http://cohort08.blogspot.com/>).

Research programme reports

Dash U, Muraleedharan VR, Acharya D, Prasad BM and Saraswathi L. *Access to health services in under privileged areas: a case study of mobile health units in Tamil Nadu and Orissa*. CREHS research report 2008. [1]

Gilson L and Raphaely N. *Literature review: Health policy analysis in lower and middle income or transitional countries (LMIC/TC)*, 2nd edition. CREHS research report, 2007.

Opwora A, Kabare M, Molyneux S, Goodman C. *The Implementation and Effects of Direct Facility Funding in Kenya's Health Centres and Dispensaries* CREHS research report, April 2009

Nkosi M, Govender V, Erasmus E and Gilson L. *Investigating the role of power and institutions in hospital-level implementation of equity-oriented policies*. CREHS research report, 2007 [1].

Mullei K, Wafula F, Goodman C. *A Case Study of Integrated Management of Childhood Illness (IMCI) Implementation in Kenya*. CREHS research report, 2008. [1]

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Uzochukwu B, Onwujekwe O, Ezumah N, Okoli C, Obikeze E and Eze S (2007). *Community Based Health Insurance Scheme in Anambra State, Nigeria: an analysis of policy development, implementation and equity effects*. CREHS research report, 2008. [1]

Dissemination events

In March 2010 we held a conference in London in collaboration with two RPCs, TARGETS and COMDIS called "Delivering effective health care for all". The conference was attended by over 160 participants from research organisations, NGOs, multi-lateral organisations and bi-lateral donors, and journalists based in the UK and Europe.

CREHS presentations made at the conference were:

- *Making health systems work for the poor*. K Hanson. LSHTM
- *What do health professionals think about working in rural areas? Evidence from South Africa, Kenya and Thailand*. N Pagaiya, International Health Policy Program, Thailand
- *What policies would attract health professionals to rural areas? Evidence from South Africa, Kenya and Thailand*. D Blaauw, Centre for Health Policy, South Africa
- *Financial Protection from the Universal Health Care Coverage in Thailand: the evidence*. S Limwattananon, International Health Policy Program, Thailand
- *Implementing the Integrated Management of Childhood Illness strategy in Kenya and Tanzania*. J Borghi, Ifakara Health Institute, Tanzania

- *Direct facility funding as a potential tool in user fee removal in Kenya.* A Opwora, KEMRI-Wellcome Trust Research Programme, Kenya
- *Do the Poor Benefit from Public Spending on Healthcare in India?: Results from Utilization Incidence Analysis in Tamil Nadu and Orissa.* Indian Institute of Technology, Madras, India
- *Benefit incidence analysis of priority public health services in Nigeria.* O Onwujekwe, Health Policy Research Group, University of Nigeria, Enugu-Campus, Enugu
- *Policy implementation: the influence of frontline staff, the nature and meaning of policy, and the organisational environment* E Erasmus, Centre for Health Policy, South Africa
- *Strategic management: a critical element in implementing private medicine retailer programmes in Kenya.* T Abuya, KEMRI-Wellcome Trust Research Programme, Kenya

Conference presentations

Blaauw D, Erasmus E, Pagaya N, Tangcharoensathien V, Mullei K, Wafula J, Goodman C, English M and Lagarde M. *Nurses' preferences for job location in Kenya, Thailand and South Africa: A multi-country discrete choice experiment.* Presented at the 2nd conference in Conjoint Analysis for Health, 24-26 March 2009, Delray Beach, USA. [3]

Blaauw D, Erasmus E and Lagarde M. *Policy intervention to address the shortage of nurses in rural areas: a stated preference study.* School of Public Health Research Day, Johannesburg South Africa. 14 May 2009. [3]

Blaauw D, Erasmus E and Lagarde M. *Relative costs-effectiveness of various policy intervention to address nurses shortages in rural South Africa.* Oral presentation at iHEA, Beijing, July 2009. [3]

Dash U and Muraleedharan V. *The Role of the Street Level Bureaucracy in the Implementation of Mobile Health Units* in the International Seminar on Rural Communities: Problems and Challenges. Held on 5-6th March 2008 at the Dept of Sociology, University of Madras, Chennai. [1]

Erasmus E, Blaauw D & Lagarde M. *Policy intervention to improve health worker retention in rural areas: The creation of CREHS cohort and preliminary findings from its baseline.* School of Public Health Research Day, Johannesburg South Africa. 14 May 2009. [3]

Erasmus, E., Blaauw, D. and Lagarde, M. *Policy interventions to improve health worker retention in rural areas: baseline results from the CREHS cohort study.* Public Health Association of SA conference, Durban, December 2009. [3]

Eze S. *The District Health System in Enugu State, Nigeria: An analysis of policy development and implementation.* Poster presentation at iHEA, Beijing, July 2009 [1]

Gilson L. *Health sector reforms: how can policy implementation be strengthened?* Paper presented to 5th European Congress on Tropical Medicine and International Health, Amsterdam, May 2007 [5]

Gilson G, Dash U, Erasmus E. *Moving towards equity: how can policy implementation be strengthened?* Presented at the International Health Economics Association, Copenhagen, July 2007 [5]

Goodman C. *Assessing the implementation and effects of direct facility funding in health centres & dispensaries in Coast Province, Kenya.* Poster presentation at iHEA, Beijing, July 2009 [2]

Hanson K. *Scaling up malaria interventions: working with or around existing delivery systems?* Presented at the International Conference on Parasitology, Glasgow, August 2006. [4]

Hanson K. *From interventions to public health impact: The challenge of strengthening service delivery*. Royal Geographic Society meeting on health, November 2007. [4]

Hanson K. Panel speaker, *Costs and consequences of scaling up ITN systems*. American Society of Tropical Medicine and Hygiene, Philadelphia, November 2007. [4]

Hanson K. *Understanding process to demonstrate impact*. Presented at the International Health Economics Association, Beijing, July 2009 [4]

Hanson K. *Delivering the goods: Vouchers as a link between the public and private sectors in the delivery of public health products*. Presented at pre-conference meeting on the private sector, International Health Economics Association, Beijing, July 2009. [4]

Hanson K, Jack W. *Health worker preferences for job attributes in Ethiopia: Results from a Discrete Choice Experiment*. Presented at the International Health Economics Association, Copenhagen, July 2007 [3]

Lagarde M, Blaauw D and Erasmus E. *Nurses' job preferences in South Africa: Results from a Labelled Choice Experiment*. Presented at the 2nd conference in Conjoint Analysis for Health, 24-26 March 2009, Delray Beach, USA.[3]

Lagarde M. *Nurses' job preferences in South Africa: Results from a Labelled Choice Experiment*. Oral presentation at iHEA, Beijing, July 2009. [3]

Lagarde M. *A cross-country comparison of nurses' altruistic motives*. Oral presentation at iHEA, Beijing, July 2009 [3]

Lagarde M, Erasmus E, Mullei K, Pagaiya N & Blaauw D. *The use of experimental economic games to measure nurses' altruism in South Africa, Kenya and Thailand*. Oral presentation at iHEA, Beijing, July 2009. [3]

Lagarde M. *Using discrete choice experiments to inform the design of HR policies in developing countries: lessons from a comparative study in Kenya, Thailand and South Africa*. 4th Conference on Global Health and Vaccination Research, HRH Symposium, Oslo, Nov 30 2009. [3]

Muller K, Wafula J, Mudhune S, English M, Goodman C, Lagarde M & Blaauw D. *Identifying policies to improve nurse recruitment and retention choice experiment*. Oral presentation at iHEA, Beijing, July 2009. [3]

Okoli C et al. *Community-based health insurance (CBHI) and financial risk protection: A case study in southeast Nigeria*. Oral presentation at iHEA, Beijing, July 2009 [2]

Onwujekwe O, Onoka C, Uguru N, et al. *Socio-economic and spatial differences in acceptability and preferences for different benefit packages for community-based health insurance in southeast Nigeria*. Oral presentation at iHEA, Beijing, July 2009. [2]

Opwora A, Kabare M, Molyneux S and Goodman C. *Assessing the Implementation and Effects of Direct Facility Funding in health centres and dispensaries in the Kenyan coast*. Paper presented at the African Health Economics and Policy Association Conference, 10-12 March 2009, Accra, Ghana. [2]

Opwora A. *Introducing direct funding for rural health facilities*. Oral Presentation at the Equinet Conference, September 2009 [2]

Pagaiya N, Noree T, Tangcharoensathian V, Chotiros Laongbua, Lagarde M, Blaauw D and Sriratana S. *Discrete choice experiment to elicit job preference of newly graduated nurses in Thailand*. Oral presentation to the AAAH Conference, 12-15 October 2008, Kandy, Sri Lanka. [3]

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Annex 6: Capacity development

Annex 7: Final Report Summary Sheet for R4D

Research programmes must complete the Final Report Summary for R4D. The Final report (minus financial information) will be made available for download from R4D or the research programme's website.

1. Background Information

<i>Title of research programme:</i> Consortium for Research on Equitable Health Systems
<i>Reference Number:</i> HD105
<i>Period covered by report:</i> 1 April 2005 to 31 March 2010
<i>Name of lead institution and Director:</i> London School of Hygiene & Tropical Medicine; Dr Kara Hanson
<i>Key partners:</i> Indian Institute for Technology (Madras), India; KEMRI-Wellcome Trust Research Programme, Kenya; Health Policy Research Group, University of Nigeria (Enugu), Nigeria; Centre for Health Policy, University of Witswatersrand, South Africa; Health Economics Unit, University of Cape Town, South Africa; Ifakara Health Institute, Tanzania; International Health Policy Programme, Thailand.
<i>Countries covered by research:</i> India, Kenya, Nigeria, South Africa, Tanzania, Thailand [plus related work: Ghana, Benin, Cambodia.]
<i>Start Date for research programme:</i> 1 April 2005
<i>End Date for research programme:</i> 30 September 2010

2. Summary

Over the past 5 years CREHS researchers have produced a rich body of new knowledge about how health systems can be strengthened to better meet the needs of poor people in low and middle-income countries. We have also engaged actively with decision-makers at national and international levels to communicate widely this new knowledge and influence policy and practice.

The research programme addressed 4 main themes:

- 1) Protecting the poor against the financial risks associated with paying for health care
- 2) Improving performance of health workers and their distribution between rural and urban areas
- 3) Delivering priority health interventions at scale
- 4) Strengthening the implementation of pro-poor health policies

Financial risk protection

Research undertaken directly through CREHS, and related research undertaken by our broader circle of collaborators, has contributed substantially to the evidence base around:

- The high levels of health expenditure occurring among the poorest and most vulnerable groups when they experience illness
- Socioeconomic inequalities in both the use of health services and the burden of paying for these services, in a wide range of low income settings, reflecting supply side constraints and policies that fail to address the needs of poor people
- The effects of a novel approach to supporting user fee removal/reduction by channelling funding directly to health facilities in Kenya;
- Further documentation of the equity outcomes of the Thai health reforms, demonstrating how a comprehensive approach to health financing reform, addressing both demand and supply side barriers, can support an equitable and efficient health system.

Drawing on data from an “expenditure diary” in which households were asked to record all of their expenditure over a 2-month period and a cross-sectional household survey, CREHS researchers in Nigeria found that nearly 25% of households in the poorest one-fifth of the population spent more than 40% of their total non-food expenditure on health care, exposing them to potentially serious financial hardship.

One challenge in better protecting poor households against high out-of-pocket health expenditures is the difficulty of extending health insurance to low-wage workers from whom it may be difficult to collect insurance premia. CREHS researchers in India studied the Employees State Insurance Scheme (ESIS), which was created in 1955 to protect those in low-wage employment (currently set at less than \$250 per month) against the financial risks of health care use and other shocks. However, the research found that the poor quality of health services provided by the scheme, and other characteristics of the scheme which prevented it from meeting the particular requirements of low wage formal sector employees, reduced its effectiveness. Despite a relatively comprehensive package of services covered by the insurance, including both inpatient and outpatient care, only 14% of outpatient visits, and 66% of inpatient admissions were to ESIS providers. Those who sought care from outside the insurance plan made substantial out-of-pocket expenditure payments, averaging more than \$15 per outpatient visit. A familiar set of quality-related reasons were cited for failing to use ESIS providers (poor quality drugs, impolite staff, long waiting times). Other problems for this group were the inconvenient opening times (requiring them to leave their place of work during the day to seek care) and the fact that many were migrant workers living away from their families, who were therefore unable to use the ESIS designated providers.

CREHS and related research investigated the socioeconomic distribution of the use of public health services. Studies in both Tanzania (SHIELD BIA) and India (CREHS utilization incidence analysis) have demonstrated the capture of public subsidies by better off socioeconomic groups. Data from Nigeria, which further disaggregate utilization by type of public facility, show that this can partly be explained by greater use of hospital level care by the non-poor, while utilization of PHC units, more frequently located in rural areas, tends to be more pro-poor. These results contrast sharply with the equitable pattern of utilization in the Thai system, which shows the effects of a comprehensive approach to health financing reform (albeit one which is underpinned by a much higher level of economic development, and a strong primary health care infrastructure).

In September 2009 the UK government committed to support countries to implement progressive health financing mechanisms and to remove user fees. Core CREHS and CREHS-related studies have generated new insights into some of the practical challenges involved in user fee removal. One problem when user fees are reduced or removed is the loss of health facility revenue. While this revenue is often small in absolute magnitude, it has sometimes been shown to play an important role in improving service access through outreach and referral, as well as improvements in quality of care, where these locally controlled discretionary resources are used for these purposes. CREHS researchers studied a pilot project in Kenya which experimented with Direct Facility Funding (DFF), a mechanism to compensate health facilities for user fee reduction by channelling money directly to health facilities. DFF was perceived to have been an important means of increasing access, improving quality and working conditions, and findings supported the decision to scale up this system to national level (gazetted in 2008, and implementation planned for mid 2010).

Overall, the research produced through CREHS has demonstrated the critical role of pooled, public funding in protecting the poor from high levels of health expenditure. Expanding insurance schemes to protect the poor is on the policy agendas of many low income countries, including Kenya, Tanzania, South Africa, and Nigeria. However, CREHS research has also shown how supply side problems must be addressed if financing reform is to have positive impacts. The Thailand experience provides an excellent example of how a comprehensive approach to health financing reform, incorporating both supply and demand-side measures, has created a system which is both equitable and efficient. CREHS researchers in Thailand have undertaken a series of studies of their health financing system. The main lessons for lower income countries emerging from the Thai experience include:

- the need to explore different options for expanding insurance to the informal sector;
- the importance of investing in public health infrastructure, including district level PHC services and close-to-client services, together with equitable distribution of human resources, to reduce access barriers and provide adequate quality;
- the need for effective purchasing strategies within UC schemes to secure efficiently provided services;
- the importance of both the breadth and depth (benefit package) of public health insurance coverage in protecting against financial catastrophe;
- the value of effective implementation strategies to secure equity gains.

Health workforce

Scaling up service delivery to meet the MDGs depends crucially on having enough health workers to meet the health needs of the population, and ensuring that they are located in the places where services are required. However, recruitment and retention of health workers in rural areas has been a challenge in many countries. CREHS research sought to generate new knowledge about the motivations and preferences of health workers, with the aim of informing strategies to improve the supply of health workers in rural areas, through the CREHS Cohort Study in South Africa, Kenya and Thailand. A longitudinal study design was adopted, in which a group of nursing graduates was enrolled and monitored prospectively, with follow-up after one year. Overall, the findings from the

cohort study provide evidence of the importance of trying to attract to the health profession individuals who have a positive attitude towards rural areas, and that locally designed non-financial incentives can be powerful interventions to redress the geographic maldistribution in low- and middle-income countries.

Firstly, across countries our research provided encouraging results regarding the attitude of future nurses towards rural areas and jobs there. Although the nursing students surveyed feel that working in rural areas is difficult due to professional difficulties (for example in all three countries, for a large majority of nurses working in rural areas means being isolated and without much support) and challenges in their personal lives (particularly in Kenya and South Africa where rural areas often lack infrastructures, roads, and social amenities), we also found that there is a reservoir of good will and positive attitudes towards rural areas. In all three countries, many people have positive associations with living in rural areas (less stress, better quality of life), and there are also professional opportunities (such as better recognition from the population). We also found that certain groups of nurses were more positive towards rural areas and jobs than others. In particular, those who grew up in rural areas or trained in training facilities located in more rural areas were more inclined to like rural jobs, and in South Africa they were more likely to choose a rural job as their first placement. We also undertook a study which asked nurses to make choices between “hypothetical” jobs that differed in terms of their levels of pay and a series of non-financial incentives, called a Discrete Choice Experiment (DCE). These data allowed us to examine the association between individual characteristics and preference for rural jobs. Whereas in South Africa students who were younger, single or had children were more likely to choose an urban posting, in Kenya these same groups preferred rural jobs. Female graduates were less likely to choose rural postings, but not significantly. Furthermore, in all three countries having been born in a rural area was significantly associated with the choice of a rural job.

Other important findings emerging from the DCE can inform the design of policies that could attract more health workers to rural areas:

- In both Kenya and South Africa, the most effective policy interventions to attract nurses to a rural job were the introduction of a cash bonus for working in rural areas, and the provision of preferential access to specialist nursing training.
- For Thai nurses, improved housing and an expanded health insurance package were the most attractive incentives, and more effective than a 30% salary increase.
- In all three countries, faster promotion and changes in management culture were the factors least likely to persuade nurses to accept a rural posting.
- Finally, in South Africa, a study of different policy scenarios showed that providing favourable education opportunities to nurses was a cost-effective policy option; but also that attracting more rural students to nursing studies (for example, through quotas) would be more cost-effective than most other interventions.

Service delivery at scale

As we approach 2015, there continues to be concern at the national and international levels about how coverage of effective health interventions and supporting policies can most effectively be expanded to meet the MDGs. Our review of the scaling up literature (Mangham and Hanson 2010) identified four critical issues for understanding how to increase the coverage of key services, and to expand the resources needed to deliver these. These are the approaches to estimating and mobilizing the money required to scale up; the constraints to expanding coverage operating at different levels; the challenges of addressing equity, and quality concerns; and novel approaches to service delivery. Commentaries by CREHS researchers expanded on these ideas, and addressed the importance of managing the process of scaling up; the equity challenges of expanding ART coverage in South Africa; and the opportunities and challenges created by the Global Health Initiatives, such as the Global Fund and PEPFAR.

CREHS-related research is contributing to a rich body of evidence in the area of delivery of malaria interventions, which is also having an impact on policy and practice at global level. Researchers from HEFP and IHI were contracted by the Ministry of Health (using their Global Fund grant) to monitor and evaluate the Tanzania National ITN Voucher Scheme over the period 2004 to present. This innovative scheme is perhaps the largest voucher scheme ever to run in a low-income setting, operating at a national scale to deliver vouchers to pregnant women and to infants which can be used as part-payment for ITNs delivered through private retail shops. The scheme was found to have contributed to a significant increase in ITN use among target groups, with each year of operation associated with a 9 percentage point increase in household ITN ownership. Modifications to implementation processes were made each year following presentation of the results to the implementing partners. Together with the sharp and consistent socioeconomic differences in ITN use that were being demonstrated through the monitoring process, progress in increasing coverage was judged to be too slow, and plans were made for a mass free distribution to all children < 5 from 2009, with a universal coverage to follow in 2010. The multidisciplinary nature of the evaluation, and the close relationship forged with the implementing team have been key in supporting the rapid take-up of findings into programming and practice.

A second key focus of CREHS-related scaling up research is the potential to use the private sector to expand access to artemisinin-based combination therapy (ACT) for effective treatment of malaria. A number of CREHS-related research projects have generated evidence which has been used in the development of the Affordable Medicines Facility – malaria (AMFm), a new global financing mechanism which will provide a substantial co-payment for ACTs purchased by public, private and NGO buyers. CREHS staff members provided technical advice for a pilot of the scheme in Tanzania, which acted as a “proof of principle” that ACT availability could be increased and substantial price reductions achieved through this mechanism. However, drug shops in remote areas were significantly less likely to stock ACTs than those in population centres, and over 75% of drug store customers fell in the highest two socio-economic quintiles nationally, highlighting the need for additional strategies to ensure the poorest groups are reached. A second pilot project in Western Kenya, undertaken by the KEMRI-WT team, demonstrated a 29 percentage point increase in prompt effective treatment of fever among children under five years. These results have influenced the decision to proceed with AMFm at both the international and country levels. Other research on the antimalarial distribution chain undertaken by the ACTwatch team in Benin, Cambodia and Nigeria has been used to inform the design of AMFm. HEFP researchers are part of the team that will undertake the Independent Evaluation of AMFm for the Global Fund (2010 – 2012).

Policy implementation

CREHS research on policy implementation has examined varied cases of policy implementation across all countries, as well as specific experiences of scaling up. A key contribution of using policy analysis in these studies has been to guide our thinking beyond a simplistic, linear model of hierarchical policy implementation, where policies or directives that are issued from the centre are assumed to be implemented just as they are intended, with little resistance or deviation. Instead, policy analysis recognises how implementation is a process of interaction and negotiation between those who seek to put a policy into effect, and those who are responsible for delivering it. Overall, our empirical work drawing on these insights demonstrates that the practice of policy implementation, and its achievements, is influenced by human interactions, and not only by technical design. To strengthen achievements in line with policy objectives, better management of the implementation process is, therefore, needed. This can take many forms, including closer attention to the ways that policies are developed, framed and communicated; strengthened capacities to manage relationships throughout the system; and a greater recognition of the ways that power is distributed and used by those who are ultimately responsible for translating policy into action. The key lessons from this body of work include:

5. The critical importance of frontline health workers in mediating policy implementation and access for patients: health workers influence how patients experience equity-oriented policies and therefore, whether the policy is able to generate equity and coverage gains.
6. Health worker practices are influenced by a number of factors, including whether they see the policy as a threat or as something to support; by the broader organisational culture in which they work and their willingness to make the changes requested by their managers; and by wider community influences. In Nigeria, for example, the largely unsuccessful implementation of Community Based Health Insurance was seen by health workers as a threat because of the loss of income that it entailed; and implementation was further undermined by the tradition of limited bureaucratic authority over health facilities, making it difficult to exercise managerial authority over health workers; but where the scheme worked slightly better, this was attributed to the influence of a local traditional leader who took a particular interest in the scheme. In South Africa, where we examined implementation of the user fee policy and the Patients Rights Charter (PRC) at hospital level, the degree of implementation differed between the two policies – PRC was much more controversial as it challenged the existing balance of power between patients and providers. Implementation of both policies also varied between the two case study hospitals, which had very different organisational cultures and levels of trust between managers and health workers, and therefore differing levels of willingness to cooperate and implement new initiatives. With IMCI in Kenya and Tanzania, some health professionals explained their resistance to the clinical protocols in terms of how the community would view or interpret their actions – feeling that mechanically following a diagnostic flowchart would undermine patients' confidence in their abilities.
7. The practices of health sector managers are an important influence over implementation. For example, better IMCI performance was observed in the districts where managers took a personal interest and invested more energy in adapting the policy to local circumstances. More inclusive managerial practices in one of the hospitals in South Africa were associated with greater acceptance and engagement with the Patients Rights Charter.
8. Higher level influences are also important. Central level action can support implementation by providing additional resources, clear targets, or acting as policy champions. But actions at the national or international level can also undermine effective policy implementation – for example, by imposing rigid training formats for IMCI which are expensive and therefore cannot easily be scaled up; by imposing health financing models without considering the influence of local politics, as in the case of CBHI in Nigeria; by inadequately resourcing mobile units in Tamil Nadu state in India; or by shifting programme priorities and funding as has happened in the area of child health, which has seen a reduction in global funding compared with HIV/AIDS, TB and malaria.

The broader issue of how to build and strengthen health systems that promote health equity was the focus of the (CREHS-related) work of the Knowledge Network on Health Systems for the Commission on the Social Determinants of Health, led by Lucy Gilson and a core team drawn from LSHTM, CHP and EQUINET. Basis on synthesis of existing knowledge, the network's report concluded that health systems that promote health equity support and enable inter-sectoral action for health, social empowerment and universal coverage, and are founded on and operationalise primary health care principles. At the same time, the report highlighted the need for political action to embed these features in health systems – not only at global and national levels, but also at local levels and within the health system itself. Such health system transformation requires not only strong, strategic management of policy change processes, but also sustained leadership to re-orient the institutions embedded in any health system that serve to protect the status quo.

3. Products and Publications

Core CREHS publications

Listed in alphabetical order, [box] at end indicates theme: [1] Health sector reform, [2] Financial risk protection, [3] Health workforce performance, [4] Scaling up, [5] Health policy implementation

Peer-reviewed publications

Erasmus E and Gilson L. How to start thinking about investigating power in the organizational settings of policy implementation. *Health Policy and Planning*, 23(5):361-8, 2008. [5]

Gilson L, Buse K, Murray SF and Dickinson C. Editorial. Future directions for health policy analysis: a tribute to the work of Professor Gill Walt. *Health Policy and Planning*, 23(5): 291-3, 2008. [5]

Gilson L and Raphaely N. The terrain of health policy analysis in low and middle income countries: a review of published literature 1994-2007. *Health Policy and Planning*, 23(5): 294-307, 2008. [5]

Goodman C, Brieger W, Unwin A, Mills A, Meek S, Greer G. Medicine sellers and malaria treatment in Sub-Saharan Africa: what do they do and how can their practice be improved? *Am. J. Trop. Med. Hyg.*, 77(6_Suppl), 2007, pp. 203-218 [4]

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Goudge J, Russell S, Gilson L, Gumede T, Tollman S, Mills A. Illness related impoverishment in rural South Africa: why does social protection work for some households but not others? *Journal for International Development*, 21(2) 231-251, 2009. [2]

Hanson K, Gilson L, Goodman C, Mills A, Smith R, et al. (2008) Is Private Health Care the Answer to the Health Problems of the World's Poor? *PLoS Med* 5(11) [4]

Lagarde M and Blaauw D. A review of the application and contribution of Discrete Choice Experiments to inform HR policies. *Human Resources for Health* 2009, 7:62 [3]

Mangham L, and Hanson K. Scaling up in international health: A review. *Health Policy and Planning* Advance Access published online on January 13, 2010 [4]

Molyneux C, Goudge J, Russell S, Chuma J, Gumede T and Gilson L. Conducting health-related social science research in low income settings: ethical dilemmas faced in Kenya and South Africa. *Journal of International Development*, 21(2): 309-326, 2009. [2]

Molyneux, S. Goudge, J. Chuma, J. Russell, S. Gumede, T. Gilson L. Considering bio-medical and social science ethical frameworks: Dilemmas and potential responses for multi-disciplinary health research in Africa. *Journal of International Development*, 21(2): 309-326, 2009. [2]

Onwujekwe O, Onoka C, Uzochukwu B, Obikeze E and Ezumah N. Issues in equitable health financing: socio-economic and geographic differences in households' illness expenditures and policy makers' views on the financial protection of the poor. *Journal of International Development*, 21(2): 185-199, 2009. [2]

Onwujekwe O, Okereke E, Onoka C, Uzochukwu B, Kirigia J, Petu A. Willingness to pay for community based health insurance in Nigeria: do socio-economic status and place of residence matter. *Health Policy and Planning*. Published October 26 2009. doi doi: 10. 1093/heapol/czp046 [2]

Onwujekwe O, Dike N, Chukwuka C, Uzochukwu B, Onyedum C, Onoka C, and Ichoku H. Examining catastrophic costs and benefit incidence of subsidized anti-retroviral treatment programme in south-east Nigeria. *Health Policy*, 90:223-229, 2009 [2]

Onwujekwe O, Onoka C, Uzochukwu B, Okoli C, Obikeze E and Eze S. Is community-based health insurance an equitable strategy for paying for healthcare? Experiences from southeast Nigeria. *Health Policy* 92: 96-102, 2009. [2]

Onwujekwe O, Uzochukwu B, Obibikeze E, Okoronkwo, I, Ochomma G, Onoka C, madubuko G and Okoli C. Investigating determinants of out-of-pocket spending and strategies for coping with payments for healthcare in southeast Nigeria. *BMC Health Services Research* 10:67, 2010 [2]

Opwora A, Kabare M, Molyneux S, Goodman C. Direct facility funding as a response to user fee reduction: implementation and perceived impact among Kenyan health centres and dispensaries. *Health Policy and Planning Advance Access* published online on March 8, 2010. [2]

Pagaiya N, Noree T, Tangcharoensathien V, Lagarde M, Blaauw D. Discrete Choice Experiment to elicit job preference in rural of newly graduated nurses. *Thai Journal of Health Science*. 2010 ,19 [3]

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Tangcharoenkul P, Pagaiya N, Noree T, Tangcharoensathien V. Job of choice of newly graduated nurses and opinion towards rural retention policy. Apr-09, *Thai Journal of Health Science*. 2009 ,18 [3]

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Uzochukwu BSC, Onwujekwe OE, Ezeilod EA, Nwobia E, Ndu AC, Onoka C. Integrated management of Childhood illness in Nigeria: Does short term training of health workers improve their performance? *Public Health*, Vol 122 Issue 4, April 2008. [3]

Vaisnhavi SD and Dash U. Catastrophic Payments for Health Care among Households in Urban Tamil Nadu, India. *Journal of International Development*, 21(2): 169-184, 2009. [2]

Walt G, Shiffman J, Schneider H, Murray SF, Brugha R and Gilson L. 'Doing' health policy analysis: methodological and conceptual reflections and challenges. *Health Policy and Planning*, 23(5): 308-17, 2008. [5]

Publications in press or submitted

Abuya T, Amin A, Molyneux S et al. Importance of strategic management in the implementation of private medicine retailer programmes: case studies from three districts in Kenya. *Submitted to BMC Health Services Research* supplement on scaling-up, 2010. [4]

Cohen JM, Sabot O, Sabot K et al. A pharmacy too far? Equity and spatial distribution of outcomes in the delivery of subsidized artemisinin-based combination therapies through private drug shops. *Submitted to BMC Health Services Research* supplement on scaling-up, 2010. [4]

Cleary S, McIntyre D, Financing equitable access to antiretroviral treatment in South Africa. *Submitted to BMC Health Services Research* supplement on scaling-up, 2010. [4]

Leisegang R, Maartens G, Hislop M et al. Improving the evidence base of Markov models used to estimate the costs of scaling up antiretroviral programmes in resource-limited settings. *Submitted to BMC Health Services Research* supplement on scaling-up, 2010. [4]

Mullei K, Mudhune S, Wafula J et al. Attracting and retaining health workers in rural areas: investigating nurses' views on rural posts and policy interventions. *Submitted to BMC Health Services Research* supplement on scaling-up, 2010. [4]

Putthasri W, Pitayarangsarit S, Limwattananon S, Tantivess S, Kharamanond R, Tangcharoensathien V. The local level responses to budget allocation under the Thailand Universal Health Care Coverage policy after salary deduction at the national level. *Submitted to Journal of ASEAN Institute for Health Development* [1]

Schneider H, Coetzee D, van Rensburg D, Gilson L. Differences in antiretroviral scale up in three South African provinces: the role of implementation management. *Submitted to BMC Health Services Research* supplement on scaling-up, 2010. [4]

Tsuang A, Lines J, Hanson K. Which family members use the best nets? An analysis of the within-household distribution and condition of nets in Tanzania. *Submitted to Malaria Journal*, January 2010 [4]

Webster J, Chandramohan D, Hanson K. Methods for evaluating delivery systems for scaling-up malaria control interventions. *Submitted to BMC Health Services Research* supplement on scaling-up, 2010 [4]

Books or book chapters

Onwujekwe O. *National Health Review 2007. Primary Healthcare in Nigeria: 30 years after Alma Ata*. Chapter 14: Achieving cost-effective, efficient and equitable interventions of primary healthcare in Nigeria. Abuja: Health Reform Foundation of Nigeria [1]

Prakongsai P, Limwattananon S, Tangcharoensathien V. The equity impact of the universal coverage policy: Lessons from Thailand. *Advances in health economics and health services research*, 2009.

Policy and research briefs

Buse K, Dickinson C, Gilson L and Murray SF. *How can the analysis of power and process in policy-making improve health outcomes? Moving the agenda forward*. ODI briefing note number 25, October 2007.

Cleary S. *Overcoming apartheid health care to achieve equitable access to ART*. CREHS policy Brief, 2009. [4]

Dash U, Muraleedharan VR, Prasad BM, Acharya D, Dash S, and Lakshminarasimhan S. *Increasing access to health services using mobile health units: implementation experiences in Tamil Nadu and Orissa States, India*. CREHS policy Brief, 2009. [1]

Goodman C et al. *Reducing user fees: implementation challenges and a possible solution*. CREHS policy Brief, 2009. [2]

Erasmus E. *Nurses attitudes towards living and working in rural areas*. CREHS research Brief, 2009. [3]

Erasmus E, and Blauuw D. *The need for the active and strategic management of local-level policy implementation*. CREHS policy Brief, 2009. [1]

Lagarde M and Palmer N. *Evidence from systematic reviews to inform decision making regarding financing mechanisms that improve access to health services for poor people. A policy brief prepared for the International Dialogue on Evidence-Informed Action to Achieve Health Goals in Developing Countries (IDEAHealth)*. Geneva: The Alliance for Health Policy and Systems Research, WHO, 2006

Mullei K, Wafula F and Goodman CA. *Implementing IMCI in Kenya: challenges and recommendations*. CREHS policy brief, 2008. [1]

Onoka C. *Measuring catastrophic health care expenditures in Nigeria: implications for financial risk protection*. CREHS policy brief, 2010. [2]

Opwora A et al. *Financing Kenyan Health centres and dispensaries: Exploring the implementation and effects of Direct Facility Funding*. CREHS policy brief, 2009. [2]

Palmer N and Lagarde M. *Reviewing the evidence on health financing strategies to encourage uptake of health services by the poor*. CREHS policy brief, 2007. [2]

Prosper H, Macha J and Borghi J. *IMCI implementation in Tanzania: Experiences, Challenges and Lessons*. CREHS policy brief, 2009. [1]

Uzochukwu BSC, Onwujekwe OE. *Implementing Community Based Health Insurance in Anambra State, Nigeria*. CREHS policy brief, 2010. [1]

Uzochukwu BSC, Onwujekwe OE. *The District Health System in Enugu State, Nigeria: an analysis of policy development and implementation*. CREHS policy brief, 2010. [1]

Wolfe R, Stevens A, Xaba A. *Influencing health systems policy and practice: experiences from the Consortium for Research on Equitable Health Systems*. CREHS briefing paper, 2010. Public health insurance and financial risk protection: lessons from Thailand. CREHS policy brief, 2010. [2]

Multicountry partnerships: adding value to research. CREHS and GHIN briefing paper, 2010.

Publicity material

Newsletters

Regular online newsletters provide updates of new CREHS research and publications.

December 2009:

July 2009: Focus on iHEA and Shield

March 2009: Focus on Financial Risk Protection

December 2008: Focus on Health Sector Reform

July 2007: Exchange II

January 2007: Exchange I

CREHS leaflet

CREHS poster

CREHS folder: Disseminated at UK and international conferences

Website links

The website is used to provide information on CREHS research, partners and members as well as links to all of our publications. Since the beginning of 2009 the site has had over 2400 unique visitors from 110 countries. The top ten countries are UK, India, US, South Africa, Kenya, Canada, Brazil, Switzerland, Nigeria and Tanzania.

The website has received visitors from 30 sites listed below:

Organisations and websites that link to CREHS [2009]	
LSHTM	London International Development Centre
TARGETS RPC	Tropical Medicine, Oxford University
DFID Health Resource Centre	Heapol, Oxford Journals
Research for Development	University of Cambridge Medical School
Health Economics Unit, University of Cape Town	Science Direct
Health Economics and Financing Programme	Evidence for Action
Kemri-Wellcome Trust Research Programme	shi-conference.de
International Health Policy Program, Thailand	World Health Organization
id21	Communication Initiative
CREHS cohort blog	Hepnet
Socialhealthprotection.org	MARCH Centre
University of Witswatersrand	Providing for health.org
Indian Institute of Technology, Madras	Ifakara Health Institute
Eldis	DFID
Realising Rights	

The CREHS Cohort study team also developed its own website during the year to share information about the project and to communicate with the cohort members (<http://cohort08.blogspot.com/>).

Research programme reports

Dash U, Muraleedharan VR, Acharya D, Prasad BM and Saraswathi L. *Access to health services in under privileged areas: a case study of mobile health units in Tamil Nadu and Orissa*. CREHS research report 2008. [1]

Gilson L and Raphaely N. *Literature review: Health policy analysis in lower and middle income or transitional countries (LMIC/TC)*, 2nd edition. CREHS research report, 2007.

Opwora A, Kabare M, Molyneux S, Goodman C. *The Implementation and Effects of Direct Facility Funding in Kenya's Health Centres and Dispensaries* CREHS research report, April 2009

Nkosi M, Govender V, Erasmus E and Gilson L. *Investigating the role of power and institutions in hospital-level implementation of equity-oriented policies*. CREHS research report, 2007 [1].

Mullei K, Wafula F, Goodman C. *A Case Study of Integrated Management of Childhood Illness (IMCI) Implementation in Kenya*. CREHS research report, 2008. [1]

Pitayarangsarit S, Limwattananon S, Tantivess S and Kramanon R. *The Local Level Responses to Budget Allocation under the UC Policy in Thailand*. CREHS research report, 2008. [1]

Prasad BN and Muraleedharan VR. *Community Health Workers: a review of concepts and practice and some policy concerns*. CREHS research report 2007.

Prosper H, Macha J and Borghi J. *Implementation of Integrated Management of Childhood Illness in Tanzania; Success and Challenges*. CREHS research report, 2008. [1]

Uzochukwu B, Ezumah N, Eze S and Onwujekwe O (2007). *An assessment of policy development and implementation process of District Health System in Enugu state, southeast Nigeria*. CREHS research report, 2008. [1]

Uzochukwu B, Onwujekwe O, Ezumah N, Okoli C, Obikeze E and Eze S (2007). *Community Based Health Insurance Scheme in Anambra State, Nigeria: an analysis of policy development, implementation and equity effects*. CREHS research report, 2008. [1]

Dissemination events

In March 2010 we held a conference in London in collaboration with two RPCs, TARGETS and COMDIS called "Delivering effective health care for all". The conference was attended by over 160 participants from research organisations, NGOs, multi-lateral organisations and bi-lateral donors, and journalists based in the UK and Europe.

CREHS presentations made at the conference were:

- *Making health systems work for the poor*. K Hanson. LSHTM
- *What do health professionals think about working in rural areas? Evidence from South Africa, Kenya and Thailand*. N Pagaiya, International Health Policy Program, Thailand
- *What policies would attract health professionals to rural areas? Evidence from South Africa, Kenya and Thailand*. D Blaauw, Centre for Health Policy, South Africa
- *Financial Protection from the Universal Health Care Coverage in Thailand: the evidence*. S Limwattananon, International Health Policy Program, Thailand
- *Implementing the Integrated Management of Childhood Illness strategy in Kenya and Tanzania*. J Borghi, Ifakara Health Institute, Tanzania
- *Direct facility funding as a potential tool in user fee removal in Kenya*. A Opwora, KEMRI-Wellcome Trust Research Programme, Kenya

- *Do the Poor Benefit from Public Spending on Healthcare in India?: Results from Utilization Incidence Analysis in Tamil Nadu and Orissa.* Indian Institute of Technology, Madras, India
- *Benefit incidence analysis of priority public health services in Nigeria.* O Onwujekwe, Health Policy Research Group, University of Nigeria, Enugu-Campus, Enugu
- *Policy implementation: the influence of frontline staff, the nature and meaning of policy, and the organisational environment* E Erasmus, Centre for Health Policy, South Africa
- *Strategic management: a critical element in implementing private medicine retailer programmes in Kenya.* T Abuya, KEMRI-Wellcome Trust Research Programme, Kenya

Conference presentations

Blaauw D, Erasmus E, Pagaya N, Tangcharoensathien V, Mullei K, Wafula J, Goodman C, English M and Lagarde M. *Nurses' preferences for job location in Kenya, Thailand and South Africa: A multi-country discrete choice experiment.* Presented at the 2nd conference in Conjoint Analysis for Health, 24-26 March 2009, Delray Beach, USA. [3]

Blaauw D, Erasmus E and Lagarde M. *Policy intervention to address the shortage of nurses in rural areas: a stated preference study.* School of Public Health Research Day, Johannesburg South Africa. 14 May 2009. [3]

Blaauw D, Erasmus E and Lagarde M. *Relative costs-effectiveness of various policy intervention to address nurses shortages in rural South Africa.* Oral presentation at iHEA, Beijing, July 2009. [3]

Dash U and Muraleedharan V. *The Role of the Street Level Bureaucracy in the Implementation of Mobile Health Units* in the International Seminar on Rural Communities: Problems and Challenges. Held on 5-6th March 2008 at the Dept of Sociology, University of Madras, Chennai. [1]

Erasmus E, Blaauw D & Lagarde M. *Policy intervention to improve health worker retention in rural areas: The creation of CREHS cohort and preliminary findings from its baseline.* School of Public Health Research Day, Johannesburg South Africa. 14 May 2009. [3]

Erasmus, E., Blaauw, D. and Lagarde, M. *Policy interventions to improve health worker retention in rural areas: baseline results from the CREHS cohort study.* Public Health Association of SA conference, Durban, December 2009. [3]

Eze S. *The District Health System in Enugu State, Nigeria: An analysis of policy development and implementation.* Poster presentation at iHEA, Beijing, July 2009 [1]

Gilson L. *Health sector reforms: how can policy implementation be strengthened?* Paper presented to 5th European Congress on Tropical Medicine and International Health, Amsterdam, May 2007 [5]

Gilson G, Dash U, Erasmus E. *Moving towards equity: how can policy implementation be strengthened?* Presented at the International Health Economics Association, Copenhagen, July 2007 [5]

Goodman C. *Assessing the implementation and effects of direct facility funding in health centres & dispensaries in Coast Province, Kenya.* Poster presentation at iHEA, Beijing, July 2009 [2]

Hanson K. *Scaling up malaria interventions: working with or around existing delivery systems?* Presented at the International Conference on Parasitology, Glasgow, August 2006. [4]

- Hanson K. *From interventions to public health impact: The challenge of strengthening service delivery*. Royal Geographic Society meeting on health, November 2007. [4]
- Hanson K. Panel speaker, *Costs and consequences of scaling up ITN systems*. American Society of Tropical Medicine and Hygiene, Philadelphia, November 2007. [4]
- Hanson K. *Understanding process to demonstrate impact*. Presented at the International Health Economics Association, Beijing, July 2009 [4]
- Hanson K. *Delivering the goods: Vouchers as a link between the public and private sectors in the delivery of public health products*. Presented at pre-conference meeting on the private sector, International Health Economics Association, Beijing, July 2009. [4]
- Hanson K, Jack W. *Health worker preferences for job attributes in Ethiopia: Results from a Discrete Choice Experiment*. Presented at the International Health Economics Association, Copenhagen, July 2007 [3]
- Lagarde M, Blaauw D and Erasmus E. *Nurses' job preferences in South Africa: Results from a Labelled Choice Experiment*. Presented at the 2nd conference in Conjoint Analysis for Health, 24-26 March 2009, Delray Beach, USA.[3]
- Lagarde M. *Nurses' job preferences in South Africa: Results from a Labelled Choice Experiment*. Oral presentation at iHEA, Beijing, July 2009. [3]
- Lagarde M. *A cross-country comparison of nurses' altruistic motives*. Oral presentation at iHEA, Beijing, July 2009 [3]
- Lagarde M, Erasmus E, Mullei K, Pagaiya N & Blaauw D. *The use of experimental economic games to measure nurses' altruism in South Africa, Kenya and Thailand*. Oral presentation at iHEA, Beijing, July 2009. [3]
- Lagarde M. *Using discrete choice experiments to inform the design of HR policies in developing countries: lessons from a comparative study in Kenya, Thailand and South Africa*. 4th Conference on Global Health and Vaccination Research, HRH Symposium, Oslo, Nov 30 2009. [3]
- Muller K, Wafula J, Mudhune S, English M, Goodman C, Lagarde M & Blaauw D. *Identifying policies to improve nurse recruitment and retention choice experiment*. Oral presentation at iHEA, Beijing, July 2009. [3]
- Okoli C et al. *Community-based health insurance (CBHI) and financial risk protection: A case study in southeast Nigeria*. Oral presentation at iHEA, Beijing, July 2009 [2]
- Onwujekwe O, Onoka C, Uguru N, et al. *Socio-economic and spatial differences in acceptability and preferences for different benefit packages for community-based health insurance in southeast Nigeria*. Oral presentation at iHEA, Beijing, July 2009. [2]
- Opwora A, Kabare M, Molyneux S and Goodman C. *Assessing the Implementation and Effects of Direct Facility Funding in health centres and dispensaries in the Kenyan coast*. Paper presented at the African Health Economics and Policy Association Conference, 10-12 March 2009, Accra, Ghana. [2]
- Opwora A. *Introducing direct funding for rural health facilities*. Oral Presentation at the Equinet Conference, September 2009 [2]

Pagaiya N, Noree T, Tangcharoensathian V, Chotiros Laongbua, Lagarde M, Blaauw D and Sriratana S. *Discrete choice experiment to elicit job preference of newly graduated nurses in Thailand*. Oral presentation to the AAAH Conference, 12-15 October 2008, Kandy, SriLanka. [3]

Pagaiya N, Noree T, Tangcharoensathian V, Chotiros Laongbua, Lagarde M, Blaauw D and Sriratana S. *Interventions to attract and retain newly graduated nurses to rural posts*. Oral presentation to the policy maker forum, 13 November 2008, Rama Garden Hotel , Bangkok. [3]

Pagaiya N, Noree T, Tangcharoensathian V, Laongbua C, Lagarde M & Blaauw D. *Using a discrete choice experiment to investigate doctors' job preferences in Thailand*. Oral presentation at iHEA, Beijing, July 2009. [3]

Pagaiya N, Noree T, Tangcharoensathian V, Chotiros Laongbua, Lagarde M, Blaauw D and Sriratana S. *Discrete choice experiment to elicit job preference of newly graduated nurses in Thailand*. Oral presentation to the 2009 MOPH Annual Conference, 21 March 2009, Muang Thong Thani, Nonthaburi. [3]

Pagaiya N. *Newly graduated nurses job preference and actual job choice in rural Thailand*. Oral presentation at the Human for Health Research results, 11-14 May, 2009, Addis Ababa, Ethiopia. [3]

Pagaiya N. *What makes the doctors choose to work in rural area: Discrete Choice Experiment to elicit doctors' job choices*. Oral presentation at the AAAH Conference, 22-24 November 2009, Hanoi, Vietnam. [3]

Tangcharoenkul P, Pagaiya N, Noree T, Tangcharoensathien V, Chotiros Laongbua and Sriratana S. *Job choice of newly graduated nurses and their opinion on policy interventions to retain nurse in rural Thailand*. Oral presentation to the 2009 MOPH Annual Conference, 21 March 2009, Muang Thong Thani, Nonthaburi. [3].

Tangcharoenkul P. *Integrating Financing Schemes to Achieve Universal Coverage in Thailand: Analysis of the Equity Achievements*. Oral presentation at iHEA, Beijing, July 2009. [2]

Vaishnavi SD, Dash U. *Catastrophic health care Payments among Households in Rural Tamil Nadu*. National Seminar Economic Growth, Poverty and Human Development' held on 6th March 2008 at Madras University School of Economics, Chennai [2]

Vaishnavi SD, Dash U. *Coping with the Financial Burden of Illness: A Study in rural region of a less developed district in India*. Oral presentation at iHEA, Beijing, July 2009 [2]

CREHS related publications

Peer-reviewed publications

Badri M, Cleary S, Maartens G, Pitt J, Bekker L-G, Orrell C and Wood R. When to initiate HAART in Sub-Saharan Africa? A South African cost-effectiveness study. *Antiviral Therapy* 11: 63-72, 2006.

Barnett S, Nair N, Tripathy P, Borghi J, Rath S and Costello A. A prospective key informant surveillance system to measure maternal mortality – findings from indigenous populations in Jharkhand and Orissa, India. *BMC Pregnancy Childbirth*, 8:1, 2008.

Barth-Jones DC, Cheng H, Kang LY, Kenya PR, Odera D, Mosqueira NR, Mendoza W, Portela MC, Brito C, Tangcharoensathien V, Akaleephan C, Supantamart S, Patcharanarumol W, de Macedo Brigido LF, Fonseca MG, Sanchez M, Chang ML, Osmanov S, Avrett S, Esparza J, Griffiths U. WHO-UNAIDS collaborative group on cost-effectiveness, delivery and future access to HIV vaccines. Cost effectiveness and delivery study for future HIV vaccines. *AIDS* 19(13): w1-w6, 2005.

Blas E, Gilson L, Kelley MP, Labonte R, Lapitan J, Muntaner C, Ostlin P, Popay J, Sadana R, Sen G, Schreker T and Vaghri Z. Addressing social determinants of health inequities: what can the state and civil society do? *Lancet* 372 (9650): 1684-89, 2008. [1]

Borghi J, Ensor T, Somanathan A, Lissner C and Mills A. The economics of malaria in pregnancy - a review of the evidence and research priorities. *Lancet Infectious Diseases* 7(2): 156-168, 2007.

Borghi J, Ensor T, Somarthan A, Lissner C and Mills A. Mobilising financial resources for maternal health. *The Lancet* 368(9545): 1457-1465, 2006.

Borghi J, Shrestha DL, Shrestha D and Jan S. Using focus groups to develop contingent valuation scenarios - a case study of women's groups in rural Nepal. *Social Science and Medicine*, 64(3): 531-42, 2007.

Castillo-Riquelme M, McIntyre D and Barnes K. Household burden of malaria in South Africa and Mozambique: is there a catastrophic impact? *Tropical Medicine and International Health*; 13(1): 108-122, 2008. [2]

Chokevivat V, Limwattananon S, Bundhamcharoen K, Prakongsai P and Tangcharoensathien V. Health risk distribution by socio-economic status and educational levels of Thai household: who smoke and drink more? *Journal of Health Science*, 16(Suppl.):s3-s19, 2007.

Chuma, J., Gilson, L., Molyneux, C. Inequities in health care seeking behaviour cost burdens and coping strategies among low-income rural and urban households in Coastal Kenya. *Tropical Medicine and International Health* 12 (5): 673-686, 2007.

Chuma J, Musimbi J, Okungu V, Goodman C, Molyneux C. Reducing user fees for primary health care in Kenya: Policy on paper or policy in practice? *International Journal for Equity in Health*, May-09

Cleary S, McIntyre D and Boulle A. The cost-effectiveness of Antiretroviral Treatment in Khayelitsha, South Africa - a primary data analysis. *Cost Effectiveness and Resource Allocation* 4: 20, 2006.

Cleary S, Boulle A, Castillo-Riquelme M and McIntyre D. The burden of HIV/AIDS in the public health care system. *SAJE*, 76 (1): s3-s14, 2008.[4]

Cleary S, McIntyre D, Boulle A. Assessing efficiency and the costs of scaling-up HIV treatment. *AIDS*, 22 (Suppl 1): s35-s43, 2008. [4]

Cleary S and McIntyre D. Affordability - the forgotten criterion in health care priority setting. *Health Economics*, 18: 373-375, 2009. [4]

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