Connecting the streams: Using health systems research knowledge in low- and middle-income countries

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Selected case study and interview contributions referenced in the paper were provided on Thailand by Dr Pongpisut Jongudomsuk, Thailand and on Latin America by Dr Walter Flores, Guatemala. (see brief biographies after the references).
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**Key Messages**

Whether the knowledge from health systems research (HSR) is used in policy and practice in low- and middle-income countries (LMICs) depends on the political economy context, the policy environment, and institutional capacities and practice in the health system and in the research community. What happens within each of these four ‘streams’ affects whether HSR resources and evidence are recognized and used. When linkages are made across the four streams, there is a greater possibility of evidence from HSR leading to changes in policy or practice.

What drives such linkages? Events, such as political change, may open windows of opportunity for them to happen. Various push, pull and exchange processes enhance the possibilities of links between political, policy, research and practice communities. Communicating research in accessible forms and actively using it in various forms of dialogue is essential, as are building capacities to use and produce HSR within the health system. While exchange may be increased by specific mandated units, a wider level of formal and informal networks and mechanisms involving policy, research and systems and civil society actors would better reflect and more widely tap into current processes for exchange. Individuals (activist researchers, research managers, knowledge brokers and others) play a pivotal role in communicating and engaging across streams, opening or framing strategic opportunities for links. We need to better understand, and support, the role of these knowledge-policy-practice (KPP) catalysts.

Researchers are not passive in this. For example:
- Research evidence influences political, professional and social opinion and positions, especially when the public is engaged, raising political demand for and use of evidence.

- Setting joint agendas with policy and systems personnel, getting and responding to clear policy signals, proactively building mechanisms for sustained links and dialogue across research and policy actors, using official data in HSR and having evidence available in accessible forms enhances policy uptake of HSR.

- Systematic reviews provide important evidence for framing issues and for decision-making.

- Aligning research to problems raised by implementers, building capacities and involving health system personnel and communities in gathering and/or using evidence at local level enhances local use of HSR, especially when it provides people with tools for change. Various forms of problem solving research more directly connect to action. Participatory action research more intrinsically links research, health workers and communities.

This calls for technical quality in HSR, but also for strategic analysis and choices by researchers.

Although not always well documented, there is experience within LMIC on the strategic use of HSR. There are also some conditions that appear to be a greater challenge for LMIC, especially in low-income countries (LICs); International agencies have a more powerful influence on research agendas and resources in LIC; resources for sustained research programmes and interaction are limited; as are the incentives, time, resources and authority for local personnel to gather and use evidence. Much LIC research is poorly published in accessible databases; and a significant digital divide discourages HSR and its use. Local level personnel, especially in peripheral areas, face these constraints most sharply.

There are many opportunities and processes for stimulating the dynamic interaction between political, policy, implementation and research systems. This raises a particular demand to address the constraints and inequities that alienate many in LIC from these opportunities.
Executive Summary

This paper was commissioned by World Health Organisation (WHO) as a background discussion paper for the Global Symposium on Health Systems Research (HSR) in November 2010. It explores experiences of and factors that influence how knowledge from health systems research (HSR) is translated into policy and practice, particularly at the national level, in low- and middle-income countries (LMICs). It raises, from this, discussion points for the Symposium.

A modification of the Kingdon model (1984) has been used to integrate and analyse the evidence on the demand and uptake of HSR in LMIC. The evidence is drawn from published literature, national health strategies from east and southern Africa and key informant interviews and case studies from Africa, Latin America and Asia. The modified model includes political economy, policy, institutional and knowledge (including research) streams. When windows of opportunity arise, these streams need to come together if research evidence is to play a role in policy or practice. The paper has explored the features within and across the streams that affect this coupling.

Political economy contexts for uptake of HSR:
The evidence suggests that electoral politics does not provide an inherently conducive or stable environment for using research evidence, particularly in the economically challenging and sometimes politically volatile conditions in LMICs. When conditions are favourable, such as after positive electoral or constitutional change, political leaders can give critical direction to, create and resource institutional mechanisms for HSR, linked to reforms of the health system. Individuals act as catalysts to make links across policy, research and other communities, particularly when researchers in trusted institutions are able to provide evidence on feasible options and their costs. The findings suggest that researchers may not be able to change political contexts, but neither do they have to be passive within them: Research knowledge, built and communicated as a body, may over time influence political, professional and social opinion and positions, which raises political demand. Engaging the public is thus an important means of policy influence. Evidence can also be gathered in anticipation of projected political events. This calls for a strategic, activist understanding of the context.

What complicates this situation in LIC, with high levels of external funding in their health sectors, is the dominant influence of international agencies, in both knowledge, policy and practice streams. This is reported to have oriented researchers to funder rather than to local research agendas and studies of single interventions over local implementation and multidisciplinary research. This needs explicit attention at national and international level.

Discussion points:
- What institutional arrangements and processes are needed to facilitate and sustain longer term interaction between political, policy and research communities in favourable contexts?
- What role should regional and international networks play in supporting and sustaining HSR under unfavourable political contexts, including through engaging the public?
- How can international and global influence on HSR in LMIC be aligned to national policy agendas, integrate greater recognition of local experience on health systems, and be guided to support local implementation research linked to local problem solving?
Demand for and uptake of HSR in policy:
Research evidence competes with many other factors influencing policy, especially if it contradicts dominant views. HSR is perceived as useful, especially when it is problem solving and offers solutions. There was, however, limited uptake of national HSR in national health strategies in nine African countries where these documents were accessed. HSR was found to be more responsive to demand from policy when research agendas are jointly set with stakeholders, including researchers; when clear policy signals and leadership are provided, including on specific areas of policy debate or conflict which demand evidence; where task forces or committees facilitate stable, longer term interaction between researchers, officials and policy processes, rather than ad hoc interaction; where longer term links are built with trusted national research institutions, and where organized and informed civil society motivates demand.

Responding to brief periods when policy windows open calls for researchers to have built prior relationships with policy makers, to have evidence available, to have KPP catalysts able to communicate across technical, policy and practice communities and to shared information with civil society to build widening support for evidence. This too calls for longer term institutional links with policy institutions. Individual researchers benefit from being involved in institutions that have long standing interaction with policy processes.

Discussion points:
- How can national HSR be more effectively integrated within and add value to national health policy and strategy processes?
- How can HSR make better use of the official and household survey data used in policies?
- How can more stable mechanisms for interaction between researchers, officials and policy makers be established and sustained?

Demand for and uptake of HSR in practice in LMIC:
There is more limited evidence in the published literature on HSR in health systems practice, especially at local level and in LIC. The evidence in the paper suggests specific activities that may be undertaken to bridge this gap, including: jointly setting and aligning research agendas, prioritising problem solving research; involving health system personnel in research teams; building research capacities in health workers and providing mechanisms for ongoing interaction and information exchange, including with the public. In some countries, units or departments within or linked to local or central government have been established as an institutional base for researchers within the health system, connecting with other researchers, including from civil society to work on agreed research agendas. Positive experience is cited of local HSR that involves and empowers service providers with tools, capacities and evidence. Local managers involvement in and use of HSR may, however be overshadowed by an absence of incentives, lack of time and resources, lack of authority to act on issues raised in research and policy signals communicated from higher levels. This calls for signals of support for this work from higher levels, including through incentives and training for programme staff to implement and / or use prioritised forms of HSR.

Discussion points:
- What measures should national and international institutions take to capacities to do and use HSR at local level?
- How can such research be better documented and disseminated to wider audiences?
Research that addresses policy and practice
The evidence suggests that various forms of problem solving HSR have high value in LMICs. This includes operations research; implementation research, analysis of evidence from monitoring and health information systems, evaluation research and health services research. Participatory action research (PAR) approaches provide more intrinsic links across research and practice and support social awareness and demand, but are weakly reflected in the published literature. Learning networks and analysis of multi-country sites may assist in drawing more generalisable knowledge from these processes. Systematic reviews and other summary techniques provide important evidence for decision-making. Implementing these approaches faces constraints in LIC of weaknesses and resource gaps in national research institutions, limited publication of research or indexation in bibliographic databases; and geographical, cost and slow connection barriers to electronic access to information and web databases. Investing in HSR would appear to demand complementary investments to overcome these capacity, communication and information barriers.

Discussion points:
- What measures should national and international agencies implement to support the implementation and exchange of the range of problem solving research approaches, including participatory and action approaches?
- How can production and use of multi-country research and systematic reviews be strengthened in LMICs?

Bringing knowledge, policy and institutional streams together
The evidence points to a range of ‘push’ activities that disseminate research evidence to policy or programme personnel, ‘pull’ activities that strengthen capacities to steer, demand and use research and also exchange activities, that make connections across the streams. Beyond the activities that build capacities to use and produce research already discussed, two aspects are identified as essential. The first is communication- sharing work, dialogue and interactions across streams, publishing HSR in peer reviewed journals; and in accessible forms that users can identify with, using materials in various forms of dialogue and strengthening access to the internet. The second is stimulating a more active dialogue and exchange. KTE units have provided this function for some research programmes and do provide useful capacities. The evidence suggests that in LIC exchange may be more widely and sustainably achieved by building on formal and informal networks that involve actors from across policy, research and systems and civil society. The more limited involvement of district and community level health personnel in such networks, within and across countries, is a gap that needs to be addressed. The KPP catalyst (activist researchers, institutional or knowledge brokers, policy entrepreneurs) plays a pivotal role in crossing streams with legitimacy, speaking credibly to those in policy, research, practice or political streams and opening or framing strategic, opportunities for use of HSR. There is a need to better understand, and support, the role and character of these KPP catalysts.

Discussion points:
- How can networking within and across countries should be strengthened to support the exchange across policy, research and systems and civil society personnel on health systems?
- How can capacities and processes for exchange more effectively reach and involve local and district level institutions and actors?
- How can we better understand, and support, the role and character of KPP catalysts?
1. Introduction, aims and approaches

Behind the almost dizzying expansion of policies and debates in health lies an expansion of theory and knowledge. Research has contributed to new technologies for health (drugs, vaccines, devices and other applications) and informed advances in health systems policies, strategies, and practices (Oxman et al 2009, Pang et al 2003). Despite this the translation of knowledge to policy is neither automatic, nor immediate. Those producing new knowledge grapple with why some ideas get translated into practice and institutional change and others not.

The fact that it took 263 years from the time that Lancaster demonstrated the preventive value of citrus juice against scurvy for the British merchant navy to the introduction of citrus as a routine supplement in its sailors shipboard diet at the end of the 19th century may suggest a demoralizing environment for any short term thinking about links between research evidence and practice (Mosteller 1981 in Narayan 2006). However by the mid 1900s, it took only seven years for Richard Doll’s findings linking smoking to lung cancer in 1950 to translate into legislative action in 1957 (Walt 1994 in Narayan 2006). In the 2000’s this period contracted to months as results of three randomised trials on male circumcision published in early 2007 (Karim 2007) were followed months later by the announcement in August 2007 of funding by PEPFAR of male circumcision programmes for ten African countries (Jacobson 2007). The role of global actors, agencies and funders in this exponential acceleration of evidence to policy is discussed in a separate paper by Gorik Ooms for the Global symposium.

This paper, commissioned by World Health Organisation (WHO) as a background discussion paper for the November 2010 Global Symposium on Health Systems Research (HSR) synthesizes publicly available evidence from literature, key informant interview, case studies and African national health strategies on how knowledge from HSR is translated into policy and practice, particularly at national level in low- and middle-income countries (LMICs).

1.1 Research, policy and practice: diverse worlds and concepts

"Like two people trying to assemble a jig saw each with half the pieces...and working in separate rooms"
Ravi Narayan, People’s Health Movement India

Researchers, policy makers and practitioners in health systems (health workers, managers) are often portrayed as living in ‘parallel universes’ (ODI 2006, Narayan 2006), with occasional points of contact. In this view, researchers are driven by a search for ‘truth’ through evidence, developing their ideas free from political influence (Myrdal 1953); policy makers, are preoccupied with politics and power, regarding “research as the opposite of action, rather than the opposite of ignorance” (ODI 2006 p1); while practitioners are ‘guided by common sense and experience, rather than the formal evidence base’ (Bowen and Zwi 2005).

In fact, there are widely different conceptualizations and experiences of both roles.

The view of policy making ranges from rational to chaotic. A ‘rational’ model views policy making as a benevolent and therapeutic process, solving problems with knowledge, through linear stages of: agenda-setting, policy formulation, implementation, evaluation, with the policy decision as the key moment, and implementation cast as a separate event (deLeon, 1999, Mooij, Vos 2003).
This rational model has synergies with neo-positivist theories of the production of knowledge, where truth corresponds to external facts. In this case, research provides a controlled, objective process for obtaining and interpreting facts, to feed these into problem solving (Weiss 1979).

A contrasting view sees policy making as a “chaos of purposes and accidents” (ODI 2006 p1), a dynamic political terrain of interaction and bargaining around interests, influenced by various forms of power (Mooij, Vos 2003, Stone 2002). Multiple policy communities compete for attention by developing ideas and building institutions for their own issues (Shiffman 2009), including through spontaneous, informal and irregular relations and processes (Bowen, Zwi 2005). In this view, policy making is strategic, involving legitimation, constituency building, securing and sustaining resources (Mooij, Vos 2003). Policy content is only one element in an interaction between contexts, actors, policy content and policy processes to produce change (Walt and Gilson 1994). Research evidence is only one of many sources of policy influence, and may be used or discounted for how it resonates with, or contradicts interests, experience and ‘common sense’ (Court, Young 2003; Uneke et al 2009; Bowen, Zwi 2005).

There are also less positivist views of the production of knowledge (epistemology), in which the generation of knowledge is affected by context and influenced by values. As demonstrated in the research in Appendix 1 Box A1, researchers have been found to be more likely to accept studies that confirm their preconceived views than those that contradict them, challenging concepts of neutrality when applied to bodies of knowledge (Lord et al 1979). As Marmot (1986) noted ‘When facts collide with theories, scientists are far more likely to discard or explain away the facts than the theory’ (cited in Lord et al 1979). Post positivist epistemologies acknowledge these subjective influences, and hold that valid knowledge can also be built through systematizing subjective experience (Mooij, Vos 2003; 24). Knowledge on health systems may draw from external facts, but it can also draw from systematizing subjective experience, including of those working within the health system (Dobrow et al 2004, Mooij, Vos 2003).

1.2 Understanding the interaction between research, policy and practice

“We employ and need value premises in making scientific observations of facts and in analyzing their causal interrelation. Chaos does not organize itself into any cosmos. We need viewpoints and they presume valuations. A disinterested social science is, from this viewpoint, pure nonsense. It never existed, and it will never exist. We can strive to make our thinking rational in spite of this, but only by facing the valuations, not by evading them”

Gunnar Myrdal, 1953

Efforts to improve the use of research evidence in policy have variably been referred to as knowledge translation, knowledge transfer, knowledge exchange, research utilization, implementation, diffusion, and dissemination. In relation to health systems, knowledge translation has been defined as the “synthesis, exchange and application of knowledge by relevant stakeholders to accelerate the benefits of global and local innovation in strengthening health systems and improving people’s health” (Canadian Institutes for Health Research, 2001 in WHO 2005). There are an “unwieldy number” of different models and approaches for conceptualising this process (Ward et al 2009), with as many as 63 different models of knowledge transfer identified in reviews (Ward et al 2009; Crisp 2010). The range is wide: At one end are knowledge driven, problem solving paths that assume that it is possible to sequentially track the flow and measure the impact of single pieces of research or knowledge from its introduction into a decision-making process until the time that an action was taken based on that research or knowledge (Rich, 1997 in Dobrow et al 2004; Fretheim
et al 2009; Oxman et al 2009). Figures A1 and A2 in Appendix 1 give examples of such models. At the other end are those based on different levels of policy demand: with policy makers either having no preferred position and looking for guiding evidence (substantive demand); searching for evidence to elaborate and refine a desired policy position (elaborative); or where the preferred alternative is known, and decision makers want evidence to support their decision (strategic) (Lavis et al 2004; Whiteman 1985). Between these are more complex models that propose multiple pathways for how evidence is introduced, demanded, interpreted and applied in policy (Green, Bennett (eds) 2007; ODI 2006), with interacting spheres of influence between contexts, politics and policy making, research and social practice and pressure (Dobrow et al 2004; Boaz et al 2008, Ward et al 2009). Figures A3 and A4 (Appendix 1) give examples of such models, including the “Rapid framework” cited in a number of analyses. Figure 1 below summarises different concepts of knowledge-to-policy, as well as the different concepts of both knowledge and of policy.

Figure 1: Models of research to policy and conceptualisations of knowledge and policy processes

<table>
<thead>
<tr>
<th>POLICY</th>
<th>KNOWLEDGE</th>
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<tbody>
<tr>
<td>Linear, rational,</td>
<td>Post-positivist:</td>
</tr>
<tr>
<td>Problem solving</td>
<td>Combining Knowledge and Experience, Influenced by Values</td>
</tr>
<tr>
<td>Chaos theory, complex,</td>
<td></td>
</tr>
<tr>
<td>interactive, interest driven</td>
<td></td>
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<tr>
<td>Neopositivist:</td>
<td></td>
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<tr>
<td>Scientific Process,</td>
<td></td>
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<tr>
<td>organising external</td>
<td></td>
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<tr>
<td>facts, problem solving</td>
<td></td>
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<tr>
<td>Knowledge driven</td>
<td></td>
</tr>
<tr>
<td>Problem solving</td>
<td>RESEARCH TO POLICY MODELS</td>
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<td></td>
<td>Interactive/ political</td>
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<td></td>
<td>Policy model/ “Rapid framework”</td>
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<tr>
<td></td>
<td>Enlightenment model</td>
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<td></td>
<td>Tactical Model</td>
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• The Knowledge-Driven policy model suggests that research leads directly to policy; it relies on effective strategies for the transfer of research evidence into practice.
• The Problem-Solving policy Model expects research to provide evidence and conclusions that help solve a policy problem. It assumes that evidence is systematically gathered and applied in the policy process.
• The Interactive policy Model suggests that the search for knowledge moves beyond research to include a variety of sources such as politics and interests to reflect the complexity of the policymaking process.
• In the Political policy Model, decision-makers are not receptive to research unless it serves political gain, ie demonstrates proof for a predetermined decision; or provides justifying evidence.
• The Enlightenment policy Model suggests that cumulative research shapes concepts and perspectives that permeate the policy process over time, influencing how people think about social issues.
• The Tactical Model sees evidence used to support and justify government inaction, or rejection of and delay in commitment to a policy issue (Bowen, Zwi 2005; Mooij, Vos 2003).
Is there a ‘correct’ model for this paper? The literature is rather focused on knowledge to policy, leaving a gap in the conceptualisation of knowledge to practice. There are no models specifically tested in LMIC. It is also not easy to test the models in any context. Decisions to use knowledge from HSR may often only be made after report or review of several studies, and the impetus for policy or system change might only come after governments have been persuaded of the benefits of reallocating health resources in the appropriate way. In such a scenario which piece of research legitimately claims the impact: The original study/ies? The review? The policy translation work? If all can have some claim, how is the impact ‘quotient’ fairly divided among them? (Wells, Whitworth 2007). Is the model used to inform decisions on reorganising a single health worker task adequate to also understand complex changes in how systems are financed?

Rather than be prescriptive, this paper conceptualises research, policy and practice as interfacing dynamic systems, rather than as interacting static events, where the influence for change may come from knowledge, policy or practice. Kingdon (1984) explores what drives the dynamics between the systems, and particularly those that lead to change in policy or practice. He argues that in order to understand (and influence) policy, one must understand the agenda-setting process in a more dynamic manner over time. Policy ‘windows’ open (and close) by the coupling (or de-coupling) of three ‘streams’: problems, policies and politics:

- **Problem stream**: Conditions or issues only become defined as problems when they are perceived as such. Only problems which are amenable to policy remedies may be recognized.
- **Policy stream**: The multiple strategies and policies proposed not just by civil servants or professionals but also by interest groups
- **Politics stream**: The lobbying, negotiation, coalition building and compromise of local, national and international interest groups and power bases.

These three streams may remain separate until they are coupled by chance factors, political (e.g. elections) or organizational cycles (e.g. staff turnover), or by the actions of a policy entrepreneur. The policy entrepreneur facilitates the coupling process by investing their own personal resources (reputation, status and time). If a policy window opens and the streams successfully combine there is an increased possibility of policy advance. As examples, case studies in Appendix 1, Box A2, describe how proposed new methods for measuring the consumer price index were ignored until a change of government in Peru (Court and Young 2003), and in Box A3 outlines how first policy and then systems changes towards universal coverage in Thailand derived from a more complex iterative interaction of political conditions and leadership, clear policy direction, public pressure, evidence that raises the profile of problems and demonstrates the feasibility of options, and changes in systems and practice that produce new opportunities for gathering, analysing and using evidence to support policy (Jongudomsuk 2010). The Thai example suggests an important role for people able to bridge political, policy and technical discourse, with the credibility and positioning to tap opportunities for policy change. Similar to the policy entrepreneur referred to by Kingdon above, such people seem to be catalytic in making the connection across the streams. They may come from either stream, and have been called activist researchers, institutional or knowledge brokers, or policy entrepreneurs. While recognizing this diversity of terms, as this paper explores knowledge to policy or practice (KPP), they are simply referred to as ‘KPP catalysts’.

Kingdon’s ‘model is viewed as useful for understanding the complex interaction between research-knowledge and policy-practice. The model is modified in two respects to service the specific analytic purposes of this paper. Firstly, the ‘problem’ stream is widened to include activities that raise and profile knowledge about an issue, including HSR, and is termed the
knowledge stream. Secondly, a fourth ‘institutional’ stream is added to widen the application from policy change, which was the focus for Kingdon, and to distinctly explore changes in institutional practice in the health system. This recognises that those working in the system - officials, mid level managers, health workers - who are not political actors, formal researchers nor policy makers, play a role in knowledge to practice and have potential influence, through their perceptions and actions, on knowledge and policy. The model used for the analysis is elaborated in Figure 2 below.

**Figure 2: A modification of Kingdon model to explore research to policy and practice**

<table>
<thead>
<tr>
<th>POLITICAL ECONOMY STREAM</th>
<th>Reflects political processes, public values and norms, political and social demand/pressure</th>
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<tr>
<td></td>
<td>Influenced for example by factors such as the organisation of political power, social, economic and health conditions; electoral politics and change; international agency demands and influence</td>
</tr>
<tr>
<td>POLICY STREAM</td>
<td>Reflects the policies and strategies proposed by state and non state actors</td>
</tr>
<tr>
<td></td>
<td>Influenced for example by problem perceptions, competing interests, leadership styles, demand for policy change, the nature of the policy process</td>
</tr>
<tr>
<td>INSTITUTIONAL STREAM</td>
<td>Reflects the programmes and actions of the bureaucracies, agencies and personnel that provide services and manage systems</td>
</tr>
<tr>
<td></td>
<td>Influenced for example by problem perception, political and policy support; Capacities; resources; feasibility, costs and benefits of change; institutional cultures</td>
</tr>
<tr>
<td>KNOWLEDGE/PROBLEM STREAM</td>
<td>Reflects the generation and organisation of knowledge and evidence; research production</td>
</tr>
<tr>
<td></td>
<td>Influenced by values, paradigms and discourse, problem perception, capacities, incentives, resources, feasibility of methods; positioning of the researcher</td>
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The paper explores the features and actions within a stream that affect how streams interact, ie:

i. In the political economy stream, what do we know about the contexts for uptake of HSR?
ii. In the policy stream, what increases demand for and use of HSR in policy?
iii. In the institutional stream, what enhances the demand for and use of HSR?
iv. In the knowledge stream, what research practice meets the needs of policy and practice?

It then explores what actions and catalysts generate windows of opportunity for and support coupling across the streams to make the link between HSR and change in policy or practice.

Drawing from this analysis of the evidence, the paper presents some conclusions on the conditions and practice that support the translation of knowledge from HSR into policy and practice. This analysis is particularly focused at national level, and on low- and middle-income countries (LMICs).

### 1.3 A focus on low and middle income countries

While the conceptual frameworks reviewed primarily draw from literature produced in high income countries, the modified Kingdon model still seems appropriate to organise the evidence
from LMICs. There are active research programmes in LMIC, their governments and political leaders have degrees of autonomy and resources to shape preferences, manage policy opponents, control information, define public interests, and so on (Mooij, Vos 2003), as do the institutional actors in health systems. Nevertheless, there may be differences, particularly for low income countries (LICs). These countries have a different balance of power between state, private sector and society, different levels of resources to apply and less representation and control in global and international institutions and policies. LICs often face preoccupations of economic instability, and pressures for regime or party legitimacy, for electoral populism and nation building (Stone 2002). This situation may raise particular challenges for interaction and bargaining around competing interests and power in setting policy. Research institutions in LMIC have limited resources and capacities, and the public also have more limited access to formal information sources. Experience and informal networks may play a greater role in knowledge to policy links, practice may be driven more by what is possible with available resources than by knowledge, and the research evidence brought by international actors may overshadow that of local researchers and practitioners. Such contexts in LMIC perhaps make it even more important to understand how research knowledge translates to policy and practice, including the innovations it brings. The model described provides a framework that accommodates these features. Where the evidence permits, the paper points to the specific features of LMIC that appear to differentiate them from high income countries, and further where there may be differences between LICs and middle income countries (MICs).
2. Methods

The evidence used in the paper has been gathered through review of the literature, content analysis of health policies and strategies from nine countries, and interview with key informants.

i. The literature review was restricted to English language literature available from published journals (English) in pubmed and medline in the years 1999-2010, with a particular focus on LMIC settings (using and/or search terms policy, knowledge transfer, research and health systems). Papers from high income countries that had relevance to conceptual frameworks or theory, and international reviews that covered also LMICs were also included. One hundred and four published papers and nine health policies/strategies were reviewed. Table A2.1 in Appendix 2 shows the distribution of the types of papers included. The majority of papers were theoretical, conceptual and policy papers (38%), followed by survey reports (18%) and reviews of literature (14%).

ii. Nine countries in east and southern Africa were found to have recent (post 2000) national level health policies and strategic plans available on internet. Content analysis was implemented of these available strategies to examine the frequency of citation and uptake of evidence from HSR in policies and plans. In the countries where health strategies were available there were no accessible national reports on HSR to map the overlap with policy agendas. This would require more detailed national follow up through interviews and grey literature. Three documents sourced from the REACH initiative in east Africa reporting on such cross referencing between research and policy agendas in Tanzania, Kenya and Uganda, (Lubano et al 2008, NIMRI 2008; UNHRO 2008) are discussed in the paper (and shown in Appendix 1 Box A11).

iii. Key informant interviews were implemented with health policy makers at head or deputy head of agencies working in or with national governments or civil society and with managers of national health programmes at national or subnational level from LMIC in Asia (3), Latin America (4) and Africa (3) using a guideline to draw evidence on their perceptions of the relevance, content, format and uptake of HSR in national policies and programmes, and their recommendations for research and knowledge transfer. Face to face or telephone interviews were carried out by the author, a senior research manager in Thailand (P Jongudomsuk) and in Guatemala (W Flores) (See biographies Appendix 3 and the reference list for interviews).

iv. A framework was provided to compile case studies from the three regions (Asia, Africa and Latin America) by the author, P Jongudomsuk and W Flores. Criteria for inclusion were that the case study be from a LMIC, a national setting, dated between 1995 and 2010; with evidence documented from more than one source. The case study covered the nature of the work on HSR, the nature of the policy / programme uptake and the factors affecting uptake. The author prepared further case studies from the literature. To contain the length of the paper the case studies are shown in full in Appendix 1 and only the key points are included in the text. As the case studies present a rich set of concrete experience to support the points raised in the paper, readers are urged to read the case studies where they are referred to.
There were some sources of bias and challenges in implementing the work.

While Medline is a very extensive database for the literature review, it has limitations. Articles are predominantly in English (Gonzalez Block 2006) and this review covered only the English language literature. Many journals published in developing countries and research published as internal reports or in the "grey" literature are not included in medline. An internet search of other sources was thus done using google scholar to include some of these publications. The review focused on papers that explicitly covered research to policy and practice links at national level, and the paper complements evidence from literature with other sources of evidence (ie content analysis of strategies, key informant interview and case studies). The identified scope and keywords used for the search noted above may have excluded relevant information from the universe of policy and research literature on health systems. The case studies were limited by time to three regions (Latin America, Thailand and East and Southern Africa), thus excluding some regions with LMICs.

There was limited published review (in English) on knowledge to policy processes within LICs. The literature often lumps together LICs and middle income countries (MICs), although there are differences between them. The specific features of LMICs are not always captured. A fair share of what is available in peer reviewed literature in recent years has been stimulated by international donors and the research institutions they link with, such as by the Institute of Development Studies (IDS, Sussex), the Overseas Development Institute (ODI, London) funded by the UK Department for International Development (DfID) (Mooij, Vos 2003). This may bias the reported experience to research linked with these organisations, under-representing smaller scale, local HSR. There was less literature on research to practice links than on research to policy.
3. Findings

3.1 The political economy stream: contexts for uptake of health systems research

“There is nothing a government hates more than to be well informed; for it makes the process of arriving at decisions much more complicated and difficult.”

John Maynard Keynes

Policy decisions are affected by wider contexts, such as the health / disease profile, the political economy and international environment, and the degree of openness and of political contestation (Court, Young 2003; Dobrow et al 2004). These factors are not generally open to short term manipulation by decision-makers or researchers, but they do affect how research is demanded, interpreted and used.

Political change is the most obvious of these. In Rosario Argentina, research showing the deficits in the implementation of Primary Health Care (PHC) assumed new relevance when a socialist government was elected to the local council (See Appendix 1 Box A4). Political change led to a supportive local government environment for young committed professionals and community organisations to embed research within a sustained process of PHC-oriented health system change. Political leadership can give direction to research (Dr L Caruana, Argentina in Flores 2010e). Both electoral processes and economic opportunity or crisis can raise demand for evidence to support policy platforms on health systems, as described in relation to Universal Health Coverage (UHC) in Thailand (Appendix 1 Box A3); raising new opportunities for using evidence in policy dialogue. Ideology and social values influence what is prioritized or acceptable, and affect the weighting of evidence (Dobrow et al 2004). Political and civil freedoms and contestation, the role of opinion leaders, institutional pressures and vested interests affect demand for and uptake of research evidence (Burral Datta 2008, Mooij, Vos 2003).

It is difficult to be formulaic about these conditions. The reality of political processes is that they are (paradoxically perhaps) inherently not oriented to allow politicians to be “people of ideas”. Their status is uncertain and temporary and awarded for a limited time through electoral cycles. This makes the struggle for power primary. Without it politicians don’t have the means to implement ideas, although seeking power also demands yielding on ideas. Politicians are, for example, subject to collective decisions and may have to back, or even take responsibility for, ideas that they personally opposed. Myrdal comments, cynically but perhaps truthfully, that politicians have watch carefully “that they do not elevate themselves more than a tiny inch above the short and narrow view, the popular aggressions, the ingrained prejudices of the public”, and their own party structures, which grant them power. “In general, political leadership in a democracy implies keeping oneself at the head of the flock wherever it is drifting” (Myrdal 1953). Hence, while there may be formal agenda setting processes and research agendas aligned to public health need, in practice the demand for research may often be more ad hoc, arising when a politician is asked an awkward or challenging question in the legislature, where there is a financial squeeze, when a problem is highlighted on the front page of a newspaper, or when there are competing claims for resources.

Researchers can have an active influence in these contexts. Political contestation across actors within policy processes can lead to demand for evidence, and “…research results can shake up the balance of political forces and enable movement”. Contestation can equally divert attention
from evidence (Court, Young 2003). Political events, such as the election of a new government or an interest group pressure campaign, can help to push some problems or options higher or lower on the agenda, creating ‘‘windows of opportunity’’ that researchers can tap, such as through the strategic use of reviews or focused studies (Waddell, Lavis 2009; Bradley et al 2004; Jongudomsuk 2010; Myrdal 1953). Box A5 in Appendix 1 describes in a case study of the policy uptake of research findings on Cotrimoxazole preventive therapy in Zambia how, over a period of time, different political and policy windows open, demanding at different times evidence, policy champions, bureaucratic support or networks with other health issues (Evidence for Action Research Consortium 2009). Tapping these windows of opportunity calls for a mix of skills and inputs, ranging from providing evidence, to facilitating policy champions.

Political contexts call on researchers to make strategic choices in positioning their work. As an example of this, a review of two high profile areas, AIDS and climate change, both long wave events, explores the consequences of how the body of research is positioned in each. It argues that the often crisis focused and medicalised intervention research on AIDS weakens the sustainability of its policy profile compared to research on climate change, which has given more focus to the uneven capacities of human systems to respond, and has gathered evidence to plan for future impacts (Chazan et al 2009). Strategic choices also need to be made on how to sustain work when political conditions are not favourable, including through finding a constructive space to work at local level (Court, Young 2003). Examples of this are less well documented in formal literature, and less well recognised. Researchers need to build strategic capacities to tap favourable contexts, manage unfavourable ones, and avoid paths that lead to dead ends.

The political stream also includes the role of public knowledge, perceptions and pressures. “We can speak to the journalists and the politicians; but we have also the opportunity to go over their heads and influence those who ultimately award all the power - the people” (Myrdal 1953). This social influence does not derive from a single publication or idea, and is not limited to the politics of the day, but comes from a cumulative mass of publications and feeds into the ideas from which social change emerges. It was the compelling social recognition of inequalities and wrongs in society in Britain in the turn of the 20th century that gave credence and status to the surveys of the living and working conditions that had persuasive impact on policy (Myrdal 1953). Engaging with the public is argued to provide researchers with their most important policy influence in the longer term (Wilson et al 2010). It can also have more immediate or medium term impact. In Appendix 1, Box A6 describes how participatory, community based research raised the social profile of PHC at a time of lobbying over scarce health system resources in Zimbabwe (TARSC, CWGH 2009). Box A7 describes the role that public pressure from patients and their organisations played in including renal replacement therapy for end-stage renal disease in the benefits package within UHC in Thailand. Through public opinion surveys, researchers were able to show a level of public support for the measure and shift political opinion towards adopting the measure (Jongudomsuk 2010). One senior policy-maker in Thailand described how building support for the policy of universal health care motivated efforts to “share findings with peoples’ organisations across the country … We organised public forums, study tours and public support. We had extensive discussions with civic groups to ensure their views on health security were addressed by the bill … We approached non government organisations (NGOs) …”(Nitayarumphong S (2006) p. 71). A combination of public and civil society support, research knowledge and policy engagement is noted in Thailand to be “the triangle that moves the mountain” (Jongudomsuk 2010).
Health systems are complex social systems that reflect and affect social values. The opportunities for an increasingly informed social dialogue to play a role in health systems policy and practice are wide and growing, with new communication and information technologies (discussed further in Section 3.5). Also discussed in Section 3.4 are research methods that make a more direct connection between the public actors and political forces that shape public policy. These opportunities exist, yet evidence suggests, as a matter of concern, that the public is often involved only as subjects of research, or the last recipients of results, if they receive them at all.

While these conditions are not unique to LMIC, the swings in policy contexts in these countries may be volatile, with rapid changes in both context and policy-maker interests (Court, Young 2003). For LICs, particularly, given high levels of external funding, external funders and international agencies have greater influence on both policy directions and what research ‘counts’ (Wolfe, Behague 2008, Court, Young 2003). International demand for a higher standard of accountability for monies spent has, for example, led to demand for public expenditure reviews, public expenditure tracking surveys, quantitative service delivery surveys, national health accounts (NHA), disease sub-accounts and human resource studies (Glassman et al 2008). Global and international funding has been found to have strong influence on what research is done in LICs, particularly given their limited local research financing. A survey of responses to a research call in 2000 found closer researcher alignment with ‘donor’ health priority areas than country expressed priorities (Gonzalez Block 2004). A review of two global and five LMIC studies found that uptake of national research on maternal and child health systems was weakened by the influence international actors had on national policy (Wolfe, Behague 2008). This finding is not limited to LICs. International agency (IMF and World Bank) support of research and independent academic work of particular people with influential policy links is documented in middle income India to have facilitated later adoption of economic policy measures promoted by these agencies (Mooij, Vos 2003, Patnaik 2000). As policy development and resources concentrate further in global health initiatives, these policy influences are likely to grow.

If international and global agencies have such an influential role in research and policy in LMIC, they also have a duty to ensure coherence in the links they make between research, policy and practice. There is some criticism of this in relation to health systems. Apart from concerns of alignment of research agendas with national priorities, one review of maternal and child health research comments that international agencies have discounted research into complex health systems issues and evidence from observational, historical, multi-disciplinary and local implementation research, due to their “aspiration to use experimental research methods that are best suited to assessing the impact of single interventions” (Wolfe, Behague 2008 p1; Balabanova et al 2010).

3.2 The policy stream: Demand for and use of HSR by policy-makers in LMIC

‘Evidence does not make decisions, people do’

One paper summarises research–policy links in a simple expression: ‘policy change equals demand minus contestation’ (Court, Young 2003). Demand comes from policy-makers, managers and from society more generally. Contestation occurs during policy formulation, if new ideas fall outside current narratives or policy streams, through political debate, and during
To add weight to demand over contestation, the evidence in the previous section suggests that:

- The external context needs to be understood through the lens of the political actors, to see, understand and plan for political windows of opportunity to build enabling links between research and policy;
- A longer term commitment and level of research activism may be needed to build social support; while contestation may be reduced by a visible and available mass of capacity, evidence and accessible publication on solution setting research may be needed, with tools for problem solving; and
- In LMIC the powerful influence of international agencies on both policy and research needs to be acknowledged and engaged with.

Policy-makers and those with direct influence over them are an extremely heterogeneous group. They include, among others, government officials, legislators, civil servants, civil society, the judiciary and the media. Within each group there is diversity of opinion, creating multiple entry points to policy. At moments of political change, policies may change rapidly, as new political leaderships bring in or adopt policies to make their mark (Interview with P Yingsaeree in Jongudomsuk 2010c). Policymaker demand for research arises, for example, when deciding whether to pay serious attention to a particular problem, or to convince others to agree that a problem is important (Lavis et al 2009). Research evidence competes with many other factors and sources of information in decision-making processes, may not be valued and is not always easy to use (Lavis et al. 2006; Gonzalez Block 2004; Ward et al 2009; Bowen, Zwi 2005; Fretheim et al 2009). Figure 3 maps features of research evidence described as credible to policy makers. Even persuasive evidence may be ignored, however, if it contradicts current positions or strong interests, while incomplete research may be accepted when it supports the view of policy-makers (Court, Young 2003). The window of opportunity for interaction may be brief, decisive and dependant on prior relationships, using analyses that are already ‘on the shelf’ or very quickly adaptable. Researchers can only capitalise on these situations if they have simple useful recommendations ready at the right time (Court, Young 2003). As one state manager interviewee noted in Thailand “The time used for HSR may be one of the main obstacles since policy makers need to develop policy to respond to health problems rapidly. I realize that researchers need time to get quality HSR but policy makers can not wait for such a long time to get this technical input” (W Sawasdiworn in Jongudomsuk 2010b).
Figure 3: When it comes to research evidence, what do decision makers look for?

- **Credibility and reliability**: evidence from trusted sources (e.g., established through authors’ names, peer recommendations, source of research, familiarity of logos, and so on).
- **Quality**: current, jargon-free, and transparent evidence, must include what worked and what didn’t, with recommendations ranked in order of effectiveness.
- **Costed**: discussions that include cost analysis.
- **Contextualized**: evidence presented within local/national/regional/global context.
- **Timed**: evidence on issues they are already working on.
- **Connected**: where can they get more information.
- **Customized**: evidence that can be reformatted for presentation, passing on to colleagues, printing for own use, saving and filing, composing a briefing note.
- **Mode of delivery**: in electronic format and hard copy.

Source: adapted from Dobbins et al. (2004) in (IDRC GEH 2008)

There are reports of limited national policy or programme uptake of HSR by policy makers (Jonsson et al 2007). There is a reported perception amongst researchers that randomised controlled trials (RCTs) have greater credibility with decision makers, and are more quickly translated into practice. Yet a review of RCTs in 12 LMIC on the use of magnesium sulphate to treat preeclampsia found that the uptake of this evidence was also limited and variable across the 12 countries for different reasons in the different countries (Anderson et al 2008).

Other reports indicate that HSR has more favourable policy and programme uptake, although still relatively low: Research in Iran suggests that in fact HSR may have a higher demand than experimental studies amongst decision makers, albeit that this too is low. Iran's health system integrated medical universities into Ministry of Health in 1985, through the 'Ministry of Health and Medical Education' (MOHME). Under this infrastructure, health education and research are the responsibility of the same ministry that provides services, with projects funded by the university. Such a structure can create close ties between academics and decision makers. Of the Tehran University of Medical Sciences (TUMS) completed research projects that received grants in 2004, 301 projects were assessed and 208 principle investigators interviewed. Collaboration was, however, rated as low, and only 2.2% of TUMS' projects initiated in 2004 involved a joint PI or co-investigator from a non-academic organization. The most common collaborative effort was 'choosing the research topic'. For academic members, "publishing articles is given more importance in ..... promotion criteria than solving decision makers' problems" (Majzadeh et al 2009). Collaboration between researchers and policy makers or practitioners was higher in HSR than basic research and demand for HSR was higher, but the formal structural integration of functions in the ministry did not seem to guarantee this (Majzadeh et al 2009).

The HSR from Thailand cited in Boxes A3 and A7 earlier show the importance of a clear policy message, political support and support from the public and civil society for stimulating research that is responsive to policy need (Jongudomsuk 2010). In the case of inclusion of renal replacement therapy for end-stage renal disease as a benefit in the public Medical Welfare Scheme, cited earlier, making clear the political barriers to policy change focused the gathering of evidence on the options and evidence that would address these concerns (Box A7). In another example, research in Thailand supported a 'Taskforce to Draft a No Fault Compensation Act' by generating evidence and options to inform stakeholder negotiation around conflicting interests on the Act (Appendix 1 Box A8). The task force provided the policy processes and mechanisms to steer the research, while a credible national health research institute addressed the needs for evidence, and government and civil society generated the push of political pressure. In this case,
pressure from an informed and organised civil society and the presence of KPP catalysts able to effectively mediate between the Taskforce and the research institute were critical not just to support uptake of evidence, but to orienting research to policy demand and interests.

These case studies also point to the fact that while conflict of interest, financial crisis and shortfalls in state capacities can present moments of demand and thus opportunity for HSR, exploiting these windows of opportunity calls for trust based relationships between health researchers, policy makers, administrators and interest groups (Jongudomsuk 2010). This was evident in the status of the Thai Health Systems Research Institute (HSRI) (an independent tax-funded public institution with arm’s length relationship with the Ministry of Public Health). Such institutions provide a continuity across experiences, enabling longer term relationships of trust to be built with influential state and non state institutions and actors, and providing a context for individual researchers and research activities. KPP catalysts, drawn from research managers, play an important role in facilitating such links. They are people credible to and able to dialogue across policy and technical communities, with an understanding of the cultures of both.

Many policy decisions are, however, not groundbreaking. They are routine, merely modifying previous decisions, and may offer limited scope for research uptake. This more iterative process of policy change calls for longer term relationships between researchers and policy makers. In Zambia, for example, a joint technical group of researchers and state managers linked to policy mechanisms has provided a stable means for this interaction (See Appendix 1 Box A9). This mechanism regularly brought technical and policy stakeholders together over a decade of repeated National Health Accounts studies to inform a range of policies on user fees and government spending on health (Chansa C, Kagulula S 2009; Mwikisa et al 1998; Phiri and Tien 2004). The case studies from Thailand and Zambia highlight the importance of formal mechanisms for raising and managing dialogue on evidence (the stakeholder task force, the advisory committee) close to but separate from policy making structures, facilitating synergies between policy demand for evidence and its supply. This raises the question of how policy forums provide for such mechanisms, and provide the direction and information that stimulates policy relevant research.

3.2.1. Uptake and citation of HSR in national health policies and strategies in LIC

"Planning is the activity that bonds research with public policy"
Dr. David Acurio Deputy Governor, Azuay Province, Ecuador.

The Thai cases indicate the potentials for research to policy links in a medium income country setting. To explore further the reality of HSR uptake in health policies more specifically in low income countries, a simple content analysis was implemented of the nine national health strategies and policies available on internet search from low income countries in sub-Saharan Africa to access their citation of and reference to HSR. The policies/strategies were from Ghana (2007); Swaziland (2008); Rwanda (2005) Tanzania (2003) Seychelles (2005) Zambia (2005) Uganda (2005); Zimbabwe (2010) and Botswana (1993). The documents are shown in the reference list and details provided in Table A2.2 in Appendix 2.

Of the 129 references to evidence in these 9 reports, the majority of citations (74, or 57%) were of other administrative, policy or planning documents or reports. However a reasonable share, 46 (36%), were of survey or research reports, particularly household surveys, followed by population surveys and then ad hoc sample surveys. In total, nine surveys implemented by non state actors were cited, or 7% of the 129 references overall. Most of these were implemented
together with Ministries of Health. Seven health information system sources were explicitly cited, although the administrative reports also draw largely on these sources indicating that they are often not given adequate profile in reports.

The content analysis suggests that for these countries, there appears to be a preference for citing administrative sources of evidence in health policy, and that household surveys are a preferred source of evidence. Sample surveys by non-state actors cited were more often those implemented together with Ministries of Health or other state institutions.

Four countries noted in their strategies/policies the need to better develop, co-ordinate and support research capacities and work, while also noting weak human resource and institutional capacities; duplication of research in some areas and gaps in others. All refer to improved use of research findings for decision making and action, and Ghana’s health policy goes further to identify its ‘knowledge industry’ in health as a specific sector to be developed. They all draw on a combination of data sources. Specific evidence gaps are identified for follow up research, such as assessing the economic and development impact of AIDS, tracking the trends in non communicable diseases (NCDs) and nutrition, or operations research on demand side factors in health service coverage. All reports refer to strengthening population-based data sources, ie vital registration and surveys; health service-based records ie administrative, service records and health/disease records; and surveillance systems. Three countries seek to improve the multi-sectoral coordination mechanisms for research, including mapping and monitoring health policy research to identify gaps and imbalances. This type of demand has led to efforts to map prioritized research needs against capacities and current work, as has been done by the REACH initiative outlined in Appendix 1, Box A10 (Green, Bennett 2007; Lubano et al 2008; NIMRI 2008; UNHRO 2008, Van Kammen et al 2006). Four countries seek to increase research training of health workers. In Tanzania for example, districts are encouraged to identify priorities, and, assisted by regions, to conduct operations research to improve service provision and the strategy states a commitment to train all health workers in research skills (MoH Tanzania 2003).

The strategies indicate awareness of the need to strengthen research as an input to policy and planning. However, with little citation of research by non-state actors or studies outside the regular household survey programmes, the non-use of research can lead to frustration amongst researchers. This calls for measures in LIC to create more virtuous cycles and production and use between research and policy processes, linked perhaps to national health strategy processes.

The experiences outlined in this section suggest that HSR is more responsive policy demand when it
- is implemented in a trusted, credible institution;
- is given clear political signals and leadership;
- links with stakeholder mechanisms able to articulate evidence gaps and use findings;
- is motivated by an informed and organised civil society;
- is able to present decision makers with options that support choice or that facilitate decisions in areas of policy conflict;
- makes use of administrative and household survey data more familiar to state actors; and
- involves a KPP catalyst able to engage across research and policy communities.
3.3 The institutional stream: Demand for and use of HSR in practice in LMIC

“...There is little point in conducting research if it does not leave the world in a different, and hopefully better, place”
Fran Baum Flinders University Australia (in ODI 2006)

Linking research to practice brings in an even wider range of actors. The case study cited earlier in Rosario Argentina (Box A4 Appendix 1) provides an example of more direct links between research and local government practice in health systems, including of capacities for gathering and using evidence within the implementing agency, with training, research and technical support from the Juan Lazarte Institute for Health provide (Box A4, Flores 2010). This latter institute provides a postgraduate Masters of Management of Health Systems and Services (MMHSS) (www.mgsss.com.ar/index.html), that combines training, research and knowledge transfer. It actively connects policy, practice and research communities through recruiting decision-makers and health workers as students; and recruits past students, policy-makers and health care managers as lecturers. By including the research process and evidence into the training, involving researchers as staff, using ongoing research projects as case examples and involving students through scholarships as research assistants in projects in the MMHSS programme it is forging a community of decision makers in contact with research evidence, supported with ongoing seminars, newsletters (www.aps-gza.com.ar/avan.html) and books www.mgsss.com.ar/publicacion/boletin/libro.html (Flores, Yavich & Bascolo 2010b).

The Cape Town Equity Gauge is documented to have similarly involved participation of programme managers in research on the socio-economic determinants of health across the sub-district health structures of Cape Town. The Gauge produced an Equity Measurement Tool which quantifies inequity in health service provision in financial terms, and a Equity Resource Allocation Tool which advocates for and guides action to rectify inequity in health service provision. The three pillars of assessment and monitoring; advocacy; and community empowerment were used, leading to report of increased participation and support of managers for implementation (Scott et al 2008). The authors attribute changes in practice to the involvement and empowerment of stakeholders, such as by giving health managers tools with which to challenge colleagues in sectors such as housing and sanitation, to engage their political bosses on socioeconomic and service delivery inequities that affect the health of the people of Cape Town (Scott et al 2008).

Another example of such links is the ‘Improvement method’ being implemented in Malawi, South Africa and Ghana to strengthen delivery of care for HIV and maternal and child health. In this method health workers who share a particular goal – such as reducing child mortality – look at their own systems, identify the barriers and decide what immediate, practical steps can be taken to make an improvement. The steps include simple measures, such as changing the day on which supplies are delivered, and after implementation the results are reviewed – and amendments made as necessary – before the next step. This series of steps – or improvement cycles – continue and over time there is a cumulative improvement and progress towards a goal. Change may be made at scale by linking or networking health workers from different clinics and hospitals with the district managers to share across the system (Lomas 1997).

The literature appears to be more focused on research to policy, and relatively sparse on HSR to practice, a gap which merits attention. Many of the examples are from MICs, where capacities exist, and implementers in low and middle income countries face institutional and political limits, and limits to their authority to act (ODI 2006). The culture of evidence use may be weak
and poorly encouraged: The health management information system (HMIS) is, for example, a key local source of evidence for health managers but has been found to be under-used in LMIC in guiding practice (Day et al 2009). In Kisoro District, Uganda, staff were found to be untrained or unsupervised in data analysis, to simply submit data directly to higher levels and to not receive more than verbal feedback on their submissions (Paschal 2007). Local service providers were noted to be relatively uninvolved in an active programme of reproductive health research in India based in national priorities, leading to less research on operational, service delivery concerns at this level (Mehrotra cited in Askew et al undated). In contrast to the Cape Town Equity Gauge, or Rosario municipality experiences, in this example a top down approach to both policy and research was noted to weaken the translation of research evidence in district or clinic level practice, and to lead to targets that gave less profile to the process and operational concerns that apply at that level.

This calls for capacity support and incentives to produce or use research. The review of African policy and strategy documents presented earlier showed policy commitment to provide training, but did not indicate whether health workers would get time or rewards for this. Many state personnel find it difficult to fully participate in research due to conflicting time demands and strong signals on deliverables in other areas in performance assessments.

The examples of HSR described in this section (Argentina, Cape Town, Improvement Method) while limited, suggest that HSR may be more responsive to implementer’s needs when it • is problem solving operations research and presents options that support practice;
• involves and empowers stakeholders in the research process;
• produces policy or management tools useful to those who seek to use the evidence, and
• builds institutional, capacity support and incentives through local and central government and research institutions.

3.4 The knowledge stream: Research that addresses policy and practice

“I do not think research evidence influences policy and decision-making in a linear way. Rather, in my experience, it is a relevant input to think and to take into account in decision-making processes”.
Dr Leonardo Caruana Deputy-secretary of health, Rosario, Argentina

3.4.1. Features of research that support uptake in policies and practice

The discussion in previous sections have pointed to features of HSR that facilitate uptake, ie when • research priorities and questions are identified with service providers and decision makers;
• health workers have capacities for research and incentives to implement it;
• the products and timing of research are relevant to needs in programmes and policies;
• research draws evidence from a range of disciplines and links evidence to its application;
• evidence is used to understand what works, how it works and in what circumstances;
• stakeholders have an opportunity to engage with the process, including testing the transferability of the draft recommendations into practice; and
• debate on the findings is encouraged, including in national policy forums, and stimulated by KPP catalysts (Brazil et al 2005; Tollman, Zwi 2000; Dobrow et al 2004; Pokhrel 2006).

This paper does not seek or claim to provide a detailed inventory of all the possible forms of HSR that potentially meet such features, including operations research, implementation research, participatory action research, health services research, evaluation research and so on. Nor does it seek to evaluate the quality of how methods are designed or applied. Concerns related to quality that apply generally to all research clearly apply in this area. It does point to examples of research practice that respond to some of the features observed above, as linked to policy and practice.
**Problem solving research**

Operations or action research, that was ‘solution setting’ was found in numerous settings to have higher uptake than problem raising research, (Hyder et al 2007; Theobald et al 2009), particularly when the research process itself builds the methods, capacities and the networking of actors that are needed for policy or programme uptake (Court, Young 2003). This was found in operations research and in implementation, evaluation and health services research. In an example of evaluation research, the large scale evaluation of the Mexican conditional cash transfer programme Progresa provided strong evidence of positive impact that not only contributed to the new administration’s decision to expand rather than curtail the programme, but also led to increased use of evidence in the design of social policy in Mexico (Green and Bennett (eds) 2007).

Beyond the examples already cited, other examples of problem solving research include analysis of evidence from monitoring systems, such as in assessing equity in the scale up of AIDS treatment in east and southern African countries (Makwiza et al 2007); comparative, multi-country field research (Dawad, Veenstra 2007; Dobrow et al 2004; EQUINET SC 2007); or evaluation studies.

**Research that involves health system personnel and communities, especially at local levels**

The participation, influence, and control by non-academic researchers, health systems personnel or communities in the process of creating knowledge and change has been raised earlier as important to raising social demand, with participatory action research (PAR) approaches increasing local power to act as a lever to ‘moving the mountain’ for change (Lomas 1997; Wilson et al 2010, Theobald et al 2009; Scott et al 2008, Court, Young 2003, IDRC GEH 2008, Goetz Gaventa 2001, TARSC CWGH 2009). PAR approaches facilitate links between knowledge, political and institutional streams in a more intrinsic manner, as described in the community research on PHC in Zimbabwe (TARSC CWGH 2009 Appendix 1 Box A6) and in the Navrongo model in Ghana on the assessment of new approaches to primary level service delivery (Tindana et al 2007, Box A11).

Bringing community evidence and voice to decision making and practice on health systems helps to align reforms more closely to the needs of communities and local personnel and to link knowledge to action (Minkler and Wallerstein 2003; Wilson et al 2010; TARSC CWGH 2009; Tindana et al 2007). While a definitive causal relation between ‘voice’ and policy change is difficult to establish (Mooij, Vos 2003), reviews of evidence in LMIC suggest that involving community members and local personnel in priority setting and research improves the performance of health systems and population health outcomes, especially in relation to health promotion and public health activities (Loewenson, 2003; Goetz and Gaventa, 2001). The strengths and weaknesses of participatory and community based research have been summarised by Wilson et al (2010) (See Table A2, Appendix 1): The strengths focus primarily on the capacity building of and partnership with community organisations, collaborative priority setting, relevance of the work and dissemination through existing networks. The weaknesses are outlined as limitations to scope of the work, to formal dissemination and generalisability of findings and limited evaluation of impact (Wilson et al 2010). One concern is how far the knowledge gained can be more widely generalised, a critique of local specificity that has also been raised in relation to operations research (Askew et al undated), and that may be a reason why there is limited community based research in peer reviewed publications. One approach to addressing this has been through building multi-country research, to identify common knowledge across different sites of PAR. The PRA4equity learning network in the Regional Network for Equity in Health in East and Southern Africa (EQUINET) has, for example, built a network of 20 sites of PAR to build knowledge on community and health worker interaction in local health systems and PHC approaches to HIV and AIDS services (TARSC 2009). With studies all following a similar design, exchange across a learning network is used to
Systematising knowledge from different sites

For all forms of research, although a single rigorously designed and conducted study in a relevant setting can by itself provide useful information for policymaking, persuasive and useful evidence from single sites or countries is viewed as less useful than evidence from multiple sites produced by different research groups. Cochrane Collaboration type systematic reviews, meta analysis and other summary techniques are thus cited as being a more useful source of research evidence for decision-making (Lomas 1997). They aim to synthesize a vast amount of research results, including on issues such as health care financing in LICs, to identify alternative framings of the problem, to understand how or why a policy or program option works, and to appreciate stakeholders’ perspectives on options.(Waddell, Lavis 2009, Pang et al 2003; Lavis et al 2004).

Lavis et al (2004), in a comprehensive review of the use of systematic reviews in HSR, noted in 2004 that despite an encouraging growth in the proportion of Cochrane reviewers from LMIC - from 5.6% in 2000 to 8.2% in 2003 - there is a dearth of reviews that address the second-order health system questions often asked by public policymakers and that few focus on LMIC. More recent information on reviews in LMICs can be found at the searchable database at the McMaster Health Forum website www.healthsystemsevidence.org/. Open-access initiatives, such as the Health Internetwork Access to Research Initiative (HINARI) have facilitated the participation of investigators from LMIC in Cochrane Collaborations, and Lavis et al (2004) suggest that the European Observatory on Health Systems and Policies provides a model for similar support to making reviews relevant to LMIC available to policy makers. This would include identifying priorities for systematic reviews together with public policymakers and wider stakeholders, commissioning systematic reviews, and making the evidence available in accessible forms, including through face-to-face interactions.

3.4.2. Constraints and barriers to relevance and use of HSR

One constraint to the effective use of HSR is its absence, an issue raised by policy-makers seeking to draw on appropriate evidence (Godlee 2008, Loewenson 2010a). In LICs, this may be a real gap, due to the absence, under-resourcing of or weaknesses in national research institutions in these countries. Lead institutions and study countries in multi-country studies were, for example, found to concentrated in a handful of mostly MICs and that lead authors mainly came from high income countries (Gonzalez Block 2004, 2006). Improving research capacities and resources is a bottom line for LIC to improve availability of relevant HSR.

A large volume of studies that are done in LMIC are, however, either not reported or are reported in journals not yet indexed in bibliographic databases. This biases cited evidence to the more accessible body of publication from middle and high income countries, although systematic reviews do try to find and include these unpublished studies. Published information on LMIC may not always reflect or present how the history, culture, economic development, and institutional structures of LMIC have affected their response to policy and programme initiatives (Balabanova et al 2010; TARSC 2009).
A further barrier to uptake of HSR in LMIC may be in the poor alignment of research agendas to policy/practice demands. Interaction and trust between researchers, policy-makers and programme personnel and their inclusion early in the research process has already been noted to generate shared agendas and support uptake, exposing them to research work and aligning research agendas to needs. Decision-makers have been involved as formal supporters, responsive audiences, and integral partners – with important contributions to the research process. Four factors – the stage of the research process, time commitment required, alignment between decision-maker expertise and programme needs, and an existing relationship between the researcher and decision-maker – influenced the role played by decision-makers (Ross et al 2003).

In a recent survey of 308 researchers in 10 LMIC working in clinical areas relevant to the Millennium Development Goals (MDGs), Lavis et al (2010) found that less than half of the researchers surveyed reported that they engaged in one or more of the three promising bridging activities: 27% provided systematic reviews of the research literature to their target audiences, 40% provided access to a searchable database of research products on their topic, and 43% established or maintained long-term partnerships related to their topic with representatives of the target audience. The researchers were found to be significantly more likely to be engaged in these activities if there were: structures and processes to link them with their target audiences, if their contacts and partnerships were stable and if they had managers and public (government) policy-makers among their target audiences (Lavis et al 2010).

Investments in databases, reviews and partnerships thus need to be complemented by investment in the structures, stability of partnerships and communication mechanisms with managers and policy makers that enhance uptake of these tools, discussed further in the next section. Those in policy or practice may also not access internet, creating a barrier to receiving information, and may thus respond more to the immediate pressure of lobbies, interest groups and media and the dominant role of international institutions noted earlier (IDRC GEH 2008). Further, what is accessible may not have the features that make it credible for use shown earlier (IDRC GEH 2008), or may be stated in ways that do not take into account the lens of policy maker or practitioner (de Bont et al 2007; Uphoff et al undated). Evidence presented in simple and compelling ways may thus have more uptake over higher quality evidence that is inaccessible or presented in a complex manner (Roe 1991, Court, Young 2003). The evidence above suggests that investing in 'problem solving' HSR needs complementary investments to overcome these capacity, communication and information barriers.

3.5 Coupling across streams: Linking research with policy and practice

“Don’t save up information for a “big bang” moment at the end of a project; share with others, start making changes, and learn as you go”

Canadian Health Services Research Foundation 2004

The previous sections have described features within each of the political, policy, institutional and knowledge streams that make it more or less likely for demand for and uptake of HSR to be effectively expressed and addressed. As noted in the introduction, these conditions provide an enabling environment for change that draws on research evidence, but do not guarantee it. Research activities are sometimes criticised for making inadequate provision to translate findings into action – leaving this to under-funded, fragile health systems to sort out (Aeserud et al 2005). When windows of opportunities open and are effectively tapped for the streams to come together,
this more qualitative shift takes place. This last section explores further what further provisions this calls for.

Previous sections have already pointed to some of the mix of supportive cultures; relevant evidence; 'producer push,' 'user pull,' and 'exchange' activities that encourage a coupling across streams (Wilson et al 2010) A summary from one review is shown in Table 1 below. ‘Push’ activities include identifying and communicating actionable messages, and providing information in 'user friendly formats, further discussed in Section 3.5.1. ‘Pull’ activities, include the capacity building within civil society, implementers and policy levels to strengthen their demand for research and their ability to acquire, assess and use it, facilitated by providing one stop easy means of access to evidence. The second part, in 3.5.2 explores the processes, networks and people that stimulate exchange.

Table 3: Strategies to enhance exchange and use of evidence from HSR in policy making

<table>
<thead>
<tr>
<th>Area of intervention</th>
<th>Type of intervention</th>
<th>Key actors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure relevance of HSR</td>
<td>Promote joint priority setting exercises</td>
<td>Government X, Funder X, Researcher X</td>
</tr>
<tr>
<td>Ensure access to policy relevant briefs</td>
<td>Support development of policy briefs</td>
<td>Government X, Funder X, Researcher X</td>
</tr>
<tr>
<td></td>
<td>Support development of systematic reviews</td>
<td>Government X, Funder X, Researcher X</td>
</tr>
<tr>
<td></td>
<td>Archive evidence, briefs in accessible form</td>
<td>Government X, Funder X, Researcher X</td>
</tr>
<tr>
<td>Enhance capacity of policy making bodies to use evidence</td>
<td>Strengthen individual staff skills and institutional behaviours</td>
<td>Provide training or mentoring in use of research evidence, commissioning research</td>
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<tr>
<td></td>
<td></td>
<td>Incentives for evidence use eg in performance appraisals, leadership programmes</td>
</tr>
<tr>
<td></td>
<td>Increase finances for evidence use functions</td>
<td>Secure donor or government funds to support policy analysis / research units in government bodies</td>
</tr>
<tr>
<td></td>
<td>Enhance access to evidence</td>
<td>Improve access to internet research resources, develop low-cost databases (eg HINARI)</td>
</tr>
<tr>
<td>Establish new organisational mechanisms to support evidence use in policy</td>
<td>Development and support knowledge broker capacity</td>
<td>Establish knowledge broker organisations in or outside of government, such as NICE (United Kingdom), REACH (East Africa), CHSRF (Canada.)</td>
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<tr>
<td></td>
<td></td>
<td>Establish networks (such as Evipnet) to support knowledge broker type functions through training and exchange of experience</td>
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<tr>
<td></td>
<td>Build HSR capacity in or close to policy body</td>
<td>Establish health systems research units in health ministries or in organisations with links to ministries</td>
</tr>
<tr>
<td>Promote networking</td>
<td>Establish institutional mechanisms that promote exchange between research policy worlds</td>
<td>Revolving door mechanisms whereby policymakers spend time in research organisations and think tanks</td>
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<td></td>
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<td>‘Shadowing’ (ie observing professional researcher/policy maker) and job swaps</td>
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<td>Develop database of active researchers in the country, including skills and areas of interest</td>
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<td></td>
<td>Encourage regional networks, eg EQUINET</td>
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<td>Bring technical expertise into government</td>
<td>Encourage the establishment of special commissions or technical advisory groups</td>
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<td></td>
<td>Conduct special events bringing key actors together</td>
<td>Run ‘safe harbour forums’, other policy events gathering policy makers, researchers and civil society to discuss evidence and policy issues</td>
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</table>
3.5.1 Strengthening communication on HSR

“You should hit to the point. Don’t spend too much time for the presentation. They don’t want to know the detail. They want to know what they have to do and what they will get from this decision. You should be aware that the politicians want to have their own policy innovations. Therefore, your recommendation should be a new idea and could succeed in a short time, then, this could easily attract them. Presentation in a big meeting will not work. It should be a personal approach”.

Dr. Pipat Yingsaeree Secretary General, Food and Drug Administration Thailand (Jongudomsuk 2010c)

One way linear communications models (sender–message–channel–recipient) do not fit the exchange/bridging/coupling processes involved in using HSR in policy and practice (Court, Young 2003; Myrdal 1953). Discussions on ‘knowledge translation’ often focus on the more visible ‘hardware’ of eye-catching products and materials, and not the less accessible ‘software’ of relationships of trust, shared activism, dialogue and interactive inputs for change processes. Both are essential. Even traditional mass communication tools, like mass media, are not only useful in communicating findings (and they are reported to have a huge appetite for research-based stories and content), but can also be tapped to support exchange by “getting you into the kitchen, being part of the soup-making”, by widening public information, promoting and shaping dialogue and debate; and building accountability through sharing research findings and the policy/programme actions taken with those affected or involved (Panos 2006).

One aspect is widening the inclusion of HSR from LMIC in peer reviewed journals, including for researchers to meet obligations to publish for public and scientific scrutiny (Myrdal 1953; Bailey 2004). In building towards UHC in Brazil, for example, researchers allied to political actors published in journals and used scientific forums to build a body of relevant knowledge to support policy innovation and implementation (See Box A12 Appendix 1; Flores 2010).

Nevertheless, policy and research communities have very different communication styles (WHO 2005; shown in more detail in Figure A5 Appendix 1). Academic papers are often not accessible to those involved in decision-making or practice settings, leading well researched studies to be ignored over ad hoc human interest stories in media. Dr. David Acurio Deputy Governor, Azuay Province, Ecuador, a political leader who has also been a public health researcher, noted the need to use accessible language and to make explicit the potential benefits for specific groups in their own terms (Interview, Flores 2010c). Various approaches have been used to achieve this. One is using a 1:3:25 format ie. one page with key messages, a three page structured summary, and a 25 page report with a longer technical report if needed (Lavis et al 2009; Crisp 2010). IDRC Canada’s “Research Matters” programme have produced a resource website and guidance materials to support the production of more accessible communications from the research
community (See Figure A6 Appendix 1; IDRC GEH 2008). Policy maker and community voice have been included in materials and published resources used in meetings to engage on issues under social debate (Narayan 2006). The Center for the Study of Equity and Governance in Health Systems (CEGSS) in Guatemala City used publications to stimulate dialogue with civil society on proposals on the new health law, and formulated recommendations from this dialogue in more official form for submission to parliament (See Appendix 1 Box A13; Flores 2010). Story telling was used in Thailand to draw attention to the impoverishment from the inadequate systems of health financing, as a motivation for UHC (Jongudomsuk 2010, Box A3). Community photography was used by EQUINET to communicate the contexts and policy messages in the PRA research described earlier within community, programme and policy audiences, as well as for picture codes for further PRA research (See Appendix 1 Figure A7, TARSC et al 2009).

There is little evidence on which to base any assessment of the impact of these publications. A 2007 evaluation by Health Systems Trust (HST) of its District Health Barometer (DHB), a report that aims to support district managers to strengthen health service delivery in South Africa, focused on their preferred form of the report (with CD Rom and hardcopy preferred over downloading it from the website) and preferred form of evidence (with charts preferred over tabulated appendices (Monticelli et al 2008).

The internet has played perhaps the most significant and fastest growing role in recent decades in making a range of resources available. A range of websites and internet based searchable health databases provide a resource to access research evidence (Evipnet REACH undated; Lavis et al 2004; Waddell, Lavis 2009 and see Table A1 and Box 14 in Appendix 1), the internet has opened global policy debates to wider input and with social networking sites, these resources have also raised public awareness and shaped social perceptions and debates that impact on policy and practice.

“Now people can access to information by using information technology and they can easily search what they want to know. If you say something not true to the public, you can speak only once. Information can spread very rapidly through social media”
Ms. Saree Ongsomwang Manager of Foundation for Consumer Jongudomsuk 2010c

Open access to publicly funded research information is now a widely accepted idea and is an explicit element of the plan of action of the Intergovernmental Working Group on Public Health, Innovation and Intellectual Property and the WHO strategy on research for health (Terry 2009).

Yet for many LMICs, and many practitioner and policy groups, the digital divide remains large, and for LICs capacity gaps equally affect their publication and communication of their work, marginalizing them from this communication flow. The local content from LICs available on international internet based databases or websites is generally limited (IDRC Research Matters 2006; Terry 2009). Internet connectivity in Africa ranged between 1% and 2% of the population in 2004, with access constrained by slow connections, distance and cost. Not surprisingly perhaps, even in South Africa, despite its relatively well developed internet infrastructure, district health managers in the HST survey cited the web as their least preferred means of accessing the DHB report (Monticelli et al 2008). This inequity in presence, voice in and access to information and communication technology infrastructure is a critical gap that needs to be addressed if the internet is to be a part of an equitable strategy for improving the links between knowledge, policy and practice.
3.5.2 Strengthening exchange on HSR

“How many researchers use these (existing legal institutional) spaces to communicate the results of their studies? Very few. To do so also implies that researchers must see themselves as political subjects”.

Dr. David Acurio Deputy Governor, Azuay Province, Ecuador.

The coupling across streams depends on more active exchange between them. Towards this, knowledge transfer and exchange (KTE) has become a new ‘industry’ linked to both research and policy. KTE actors have been engaged within individual research activities to select, package and communicate evidence for policy-makers or implementers in preferred formats (push activities); to provide access to and develop capacity to use research (pull activities); and to engage target audiences in research and KTE processes (exchange activities) (Cameron et al 2010; Bowen Zwi 2005; Syed et al 2008; Green, Bennett 2007; Lomas 1997; CHSRF 2004).

A survey of 38 such KTE units in LMIC found them to be based in academic institutions (37%) and government agencies (39%), providing a range of functions: characterizing problems (74%), identifying potential solutions (82%), fitting solutions into health systems (75%), and bringing about change in health systems (88%). They were most focused on public policymakers in health departments (Evipnet, REACH undated). Their strength was noted to be in the presence of a small unit that can respond quickly, publishing drafts for public comments, having close links with policymakers, and having independence and financial stability (Evipnet, REACH undated).

These are useful capacities and processes. They may, however, be concentrated more within specific, larger scale and often internationally funded programmes, may not be found or used in the lowest income settings, and may be inaccessible to the wider research community.

Segmenting ‘knowledge translation’ as a separate area of activity within individual research programmes ignores the issues of positioning, perspective, trust and interactions across the research, policy and practice communities raised earlier that appear to be pivotal to bringing the streams together to effect change (Court, Young 2003; Kelley, Bonnefoy 2008).

There is evidence of other wider forms of networking that also support links across the streams. In many LMICs, at an individual level, researchers, decision makers, managers and certain levels of political actors share common networks. “None of the players is more than two handshakes away from any of the others” (ODI 2006). Coming from a shared social class, decision makers, managers and certain levels of political actors may have stronger interactions in informal networks than is documented in the literature. The interviews carried out for this paper confirm this, and point to the role of trust, legitimacy and deeper, more consistent relations centred on common interest or shared action (Wells, Whitworth 2007; Court, Young 2003; Walley et al 2005; Jongudomsuk 2010, 2010b, 2010c, Flores 2010). Trust from long standing collaboration and sustained support for programmes were central to making effective links between research evidence and programme implementation in Pakistan, Uganda and China (Walley et al 2005). A review of case studies of lessons learned from the uptake of research on eclampsia treatment and malaria control in three southern African countries found that rather than singular, focused links, long standing partnerships at multiple levels and with multiple players in the health system were found to enable policy and programme uptake of research findings (Woelk et al 2009). This suggests that rather than partition exchange to KTE units, strengthening the possibilities for coupling of the streams demands a range of forms of formal and informal networking across policy, practice and research / knowledge communities that are sustained and supported (Court, Young 2003; Boaz et al 2008; Theobald et al 2009; Wilson et al 2010). These are context and culture specific, and the range of forms found include:
• Advocacy membership based civil society – who use evidence and perceptions to raise and campaign on policy issues (such as the People’s Health Movement, or the Treatment Action Campaign);
• Policy forums, advocacy coalitions and networks, such as the China Health Development Forum (IDS 2005) or the Thailand advocacy coalition for tobacco control described in Box A15 in Appendix 1 (Green, Bennett 2007);
• Advisory committees, multistakeholder task forces and expert working groups, feeding into policy level, as described in the Thailand example in A3, the Zimbabwe example in Box A6 and the Zambia example in Box A9;
• Think tanks – who raise, summarize, and disseminate ideas to those engaged in decision making. Examples include the IBON Foundation, a think tank in the Philippines that analyses and disseminates data about socioeconomic and health conditions in that country; the Forum on the Future of Aid (FFA), a space for Southern research institutes and think tanks to exchange information, research and ideas in order to increase the impact of southern-led research on international aid policy and on the reform of the international aid architecture;
• Associations – geographical, issue-based communities, and professional associations; and
• Consortia, non profit organisations and their coordinators – who gather and coordinate other actors, mediate relations and raise issues (such as the Christian health associations, Save the Children Fund);

These examples range from ad hoc issue-specific mechanisms to longer term, more permanent mechanisms with a more comprehensive focus. In Section 3.2 it is argued that institutions that provide a continuity across experiences enable longer term relationships of trust to be built with influential state and non state institutions and actors, facilitating links for individual researchers. Units or departments within university or government can create an institutional base for the alliance between universities and public agencies, through mobilising skills and resources for work on agreed research agendas (Dr. Acurio Deputy Governor, Azuay Province, Ecuador in Flores 2010c).

Knowledge networks and communities of practice (ie peer networks with common mandates or concerns) provide wider forums for bridging activities, processes and actors across knowledge, policy and practice and appear to be a growing phenomenon, although their reach to those working within district and community level of health systems is not clear (Green, Bennett 2007; Gonzalez Block 2004; Boaz et al 2008; IDS, HSRC 2008). Those cited in this report in LMIC include, for example, the Regional East African Community Health (REACH) Policy Initiative (See Box A10), the WHO-sponsored Evidence Informed Policy Networks emerging in the Western Pacific, Africa, the Americas, and the Eastern Mediterranean; the Regional Network for Equity in Health (EQUINET, www.equinetafrica.org) and the ECSA Health Community, described in further detail in Box A16 Appendix 1; Loewenson 2010a; Green, Bennett 2007; Gonzalez Block 2004; Boaz et al 2008; IDS, HSRC 2008). These merit further attention, including for their role in also bridging capacities and exchange south-south, across regions and across MICs and LICs in the same region. Internet and email has facilitated such networks, with same disadvantage for those with slow or interrupted internet access, discussed earlier, and for those that face language barriers.

Even more pivotal, but almost invisible in the published literature on research to policy and practice, are the activist researchers, institutional or knowledge brokers, policy entrepreneurs and other terms to describe the KPP catalysts who mediate between and sometimes bring the streams
together. The case studies and interviews cited in this paper make common reference to these people in describing experiences of HSR and its uptake. The literature makes less reference. KPP catalysts are located in the state, research institutions, civil society or political structures. They are able to cross streams with legitimacy, and speak credibly to those in policy, research, practice or political streams. They appear to do this due to features of seniority, activism or due to trust that has built around their roles over the years (See for example Box A3, Appendix 1). They appear to be strategic, able to identify HSR that has strategic value (See for example Box A6, A7). They are credible messengers, able to facilitate ownership and dialogue. They operate within informal and formal networks, and may use informal interactions to share information, learning and ‘unofficial’ policy interpretations as a catalyst to more formal, institutionalized processes (Jongudomsuk 2010b, c). As the Kingdon model suggests, the evidence from the case studies shows that they facilitate the coupling process by investing their own personal resources (reputation, status and time). Their role appears to be key to catalyzing the coupling of streams, but they are often ‘invisible’ in documented processes of change, which are more often attributed to institutions and more formal processes (Court, Young 2003; 21). This leaves a gap in understanding strategic turning points in policy uptake. There is a need to better understand, and support, the role and character of these KPP catalysts.
4. Conclusions and issues for discussion at the symposium

This section raises the conclusions and issues for further discussion at the Global Symposium for Health Systems Research. These issues are primarily directed at the global and international level of discourse, given the nature of the forum.

Health systems not only produce health care and health, but also shape and reflect wider societal norms and values. Knowledge on health systems thus not only draws from the scientific observation of facts but also from systematising subjective perceptions and experience. Policy, practice and research in health systems are context dependent and dynamic; the flow of information and knowledge between research and policy/practice communities is not one way; and HSR evidence is one of many influences on policy and practice, and may not be a decisive one.

A modification of the Kingdon model has been used to integrate and analyse the evidence on the demand and uptake of HSR in LMIC. The evidence is drawn from published literature, national health strategies from east and southern Africa and key informant interviews and case studies from Africa, Latin America and Asia. The modified model includes political economy, policy, institutional and knowledge (including research) streams. When windows of opportunity arise, these streams need to come together if research evidence is to play a role in policy or practice. The paper has explored the features within and across the streams that affect this coupling.

Political economy contexts for uptake of HSR:

The evidence suggests that electoral politics does not provide an inherently conducive or stable environment for using research evidence. When conditions are favourable, such as after positive electoral or constitutional change, political leaders can give critical direction to, create and resource institutional mechanisms for HSR linked to reforms of the health system. This can be a period of high demand for HSR that helps to move policy changes to practice. Not all policy shifts work in single, grand changes. In more iterative changes, virtuous cycles of interaction between political and knowledge streams appear to be supported by clear and consistent legal and policy frameworks, public support and a stable environment within which to make interacting steps of policy and systems change. KPP catalysts make links across policy, research and other communities, particularly when researchers in trusted institutions are able to provide evidence on feasible options and their costs. When conditions are less favourable, researchers, as activists, may go upstream, to feed into and influence political party, professional and social opinion and positions, or downstream, to bypass politics and policy and directly feed research into building local good practice, or into wider regional policy. The interviews suggest that while policy windows may open or close very rapidly, these background activities may last decades.

The findings suggest that researchers may not be able to change political contexts, but neither do they have to be passive within them: Research knowledge, built and communicated as a body, may over time influence the thinking within electoral parties, professional and public opinion and social pressure, which raises political demand. Engaging with the public could provide researchers with their most important, longer-term policy influence. Research evidence, such as that on public opinion can shift political positions. Evidence can also be gathered in anticipation of projected political events. This calls for a strategic, activist understanding of the context, to predict, plan for, tap and sometimes even stimulate windows of political opportunity for change.
What complicates this situation in LIC, with high levels of external funding in their health sectors, is the dominant influence of international agencies, in both knowledge, policy and practice streams. This is reported to have oriented researchers to funder rather than to local research agendas and to studies of single interventions over local implementation and multidisciplinary research. This needs explicit attention at national and international level.

**Discussion points:**

- What institutional arrangements and processes are needed to facilitate and sustain longer term interaction between political, policy and research communities in favourable contexts?
- What role should regional and international networks play in supporting and sustaining HSR under unfavourable political contexts, including through engaging the public?
- How can international and global influence on HSR in LMIC be aligned to national policy agendas, integrate greater recognition of local experience on health systems, and be guided to support local implementation research linked to local problem solving?

**Demand for and uptake of HSR in policy:**

A diversity of policy actors provide multiple entry points to policy for new knowledge, but research evidence competes with many other factors influencing policy, especially if it contradicts dominant views. HSR is perceived as useful, especially when it is problem solving and offers solutions. There is, however, limited uptake of national HSR in national health strategies. A lot of attention has been given in the past to setting research agendas. However these agendas may remain purely aspirational unless the ‘knowledge industry’ in the health sector is recognised and measures are taken to incentivise and organize the institutional resources to implement them. From the policy perspective, HSR is more responsive to demand from policy when

- research agendas are jointly set with stakeholders, including researchers;
- clear policy signals and leadership are provided, including on parameters for specific areas of policy debate and conflict for which evidence is demanded;
- task forces or committees facilitate stable, longer term interaction between researchers, officials and policy processes, rather than ad hoc interaction;
- longer term links are built with trusted national research institutions; and
- HSR is used and cited in national health strategies.

For researchers, engaging with policy calls for responsiveness to brief periods when windows of opportunity open, such as by building on prior relationships, having analyses available, appropriately adapting evidence, engaging through KPP catalysts able to communicate across technical, policy and practice communities and widening support for evidence from an informed civil society. However both to tap these windows and make input to more iterative processes of policy change, researchers can facilitate longer term uptake of HSR. This includes involving policy personnel in setting agendas and making research processes and products clear, building long term institutional links with policy institutions; using administrative and official data in HSR; providing evidence to inform thinking and solving of prioritised problems and to inform and motivate civil society. This calls for researchers to produce credible, quality work, but as for the political stream, to also make strategic decisions.
Discussion points:
- How can national HSR be more effectively integrated within and add value to national health policy and strategy processes?
- How can HSR make better use of the official and household survey data used in policies?
- How can more stable mechanisms for interaction between researchers, officials and policy makers be established and sustained?

Demand for and uptake of HSR in practice in LMIC:
There is more limited evidence in the published literature on HSR in health systems practice, especially at local level and in LIC. This may be due to limited documentation of this experience, a gap to be addressed. The evidence in the paper suggests specific activities that may be undertaken to bridge this gap, including: jointly setting and aligning research agendas, prioritising problem solving research; involving health system personnel in research teams; building research capacities in health workers and providing mechanisms for ongoing interaction and information exchange, including with the public. In some countries, units or departments within or linked to local or central government have been established as an institutional base for researchers within the health system, connecting with other researchers, including from civil society to work on agreed research agendas. Positive experience is cited of local HSR that involves and empowers service providers with tools, capacities and evidence. Local managers involvement in or use of HSR may, however be overshadowed by an absence of incentives, lack of time and resources, lack of authority to act on issues raised in research and policy signals communicated from higher levels. This calls for signals of support for this work from higher levels, including through incentives and training for programme staff to implement and / or use prioritised forms of HSR.

Discussion points:
- What measures should national and international institutions take to capacities to do and use HSR at local level?
- How can such research be better documented and disseminated to wider audiences?

Research that addresses policy and practice
Beyond the features of research identified above (eg joint agenda setting, building research capacities within the health system, drawing on a range of disciplines), and without discounting the role of research evidence that informs how we think about health systems, there is a strong message from the literature that problem solving research that presents options on what works and why has high value in LMICs. This includes operations research; implementation research, analysis of evidence from monitoring and health information systems, evaluation research and health services research. The demand to expand and strengthen implementation research is, for example, informing the WHO alliance with other agencies on the “Initiative on Implementation Research for Access and Delivery of New and Improved Tools, Strategies and Interventions for the Control of Diseases of Poverty” (http://meeting.tropika.net/access2010/). This opportunity for south-south collaboration and learning networks needs to build capacities to participate and lead in low income countries. Participatory action research (PAR) approaches are also documented to facilitate participation, influence, and action in non-academic researchers, health systems personnel or communities, but are weakly reflected in the published literature. Learning
networks and analysis of multi-country sites may assist in providing a means to draw more generalisable knowledge from these processes. There is also evidence of need to further strengthen processes that synthesise and systematise existing evidence across countries, such as through multi-country research, Cochrane Collaboration type systematic reviews and other summary techniques. The latter are a useful source of evidence for decision-making; can help to identify alternative framings of the problem, to understand how or why a policy or program option works, and to appreciate stakeholders’ perspectives on particular options.

Implementing these approaches faces constraints in LIC of weaknesses and resource gaps in national research institutions, limited publication or indexation in bibliographic databases of research from LIC; and distance, cost and slow connections limiting electronic access to information and web databases. Investing in HSR would appear to demand complementary investments to overcome these capacity, communication and information barriers.

Discussion points:
- What measures should national and international agencies implement to support the implementation and exchange of the range of problem solving research approaches, including participatory and action approaches?
- How can production and use of multi-country research and systematic reviews be strengthened in LMICs?

**Bringing knowledge, policy and institutional streams together**

The evidence points to a range of ‘push’ activities that disseminate research evidence to policy or programme personnel, ‘pull’ activities that strengthen capacities to steer, demand and use research and also exchange activities, that make connections across the streams. Beyond strengthening the capacities to use and produce research raised earlier, two aspects are identified as essential to link streams. The first is communication- sharing work, dialogue and interactions across streams, publishing HSR in per reviewed journals; and in accessible forms that users can identify with, and using materials for dialogue. Making access to the internet in LMIC less time consuming and costly is critical. The second is stimulating a more active dialogue and exchange.

KTE units have provided this function for some research programmes and do provide useful capacities. The evidence suggests that in LMIC exchange may be more widely and sustainably achieved by building on the formal and informal networks that exist across these different groups, whether sustained or ad hoc, depending on the context. When these involve actors from across policy, research and systems and civil society, they strengthen collaboration, and build trust and dialogue. The more limited involvement of district and community level health personnel in such networks, within and across countries, is a gap that needs to be addressed. KPP catalysts (activist researchers, institutional or knowledge brokers, policy entrepreneurs) cross streams with legitimacy, speaking credibly to those in policy, research, practice or political streams and opening or framing strategic, opportunities for use of HSR. This makes them central to the convergence of streams that yields change. There is a need to better understand, and support, the role and character of these KPP catalysts.
Discussion points:
- How can networking within and across countries be strengthened to support the exchange across policy, research and systems, and civil society personnel on health systems?
- How can capacities and processes for exchange more effectively reach and involve local and district level institutions and actors?
- How can we better understand, and support, the role and character of KPP catalysts?

Figure 9 overleaf presents a summary of these different features within and across the four streams.

Limits to the methods for this paper were raised in Section 2. The inclusion of English language materials, for example, without doubt limits the scope of published experience and perspective covered. The interviews and case studies provided rich input and there is an argument for more widely and systematically capturing and documenting this, as they were limited in number. The presentation of the paper at the Global Symposium on HSR will hopefully further draw such direct experience and perspective.

The introduction to this paper pointed to the extraordinary expansion of knowledge, policy and practice in health that has taken place in the past century. The time frame for research results to translate into considerable resource flows has contracted to months, within a network of global actors. The volume and speed of exchange of information, evidence and data is formidable, thanks to the internet. Networks have grown globally and it is now possible for people in one part of the world to input electronically to policy processes in another, or to mobilize influential social pressure on policies and practices. These global resources and capacities carry significant potential for health systems, and particularly for the knowledge and evidence they need. It is a moment of exciting opportunity, especially for knowledge on health systems. Yet many practitioner, policy and research groups in LMIC, particularly those at local level are totally isolated from these advances, have limited access to or time and money for the very slow and expensive internet services, and do not hear their voice or see their experience in the flow of ideas and dialogue on health systems. This creates an inequity in presence, voice in, access to and control over information, evidence and policy processes. It needs to be addressed, if the links between knowledge, policy and practice in health systems are to meet the same values of equity and empowerment that apply in other areas of health.
Figure 9: Summary of features influencing research/ knowledge to policy / practice

<table>
<thead>
<tr>
<th>POLITICAL ECONOMY STREAM</th>
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<tbody>
<tr>
<td>Political system, values and norms</td>
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<tr>
<td>Social, economic and health conditions;</td>
</tr>
<tr>
<td>Political leadership, direction</td>
</tr>
<tr>
<td>Public awareness, social perceptions and demand; community empowerment</td>
</tr>
<tr>
<td>Electoral politics and change;</td>
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<tr>
<td>International agency demands, influence</td>
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<table>
<thead>
<tr>
<th>POLICY STREAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem perceptions, competing interests</td>
</tr>
<tr>
<td>Multiple entry points; nature of the policy process; iterative or major policy change;</td>
</tr>
<tr>
<td>Clarity of policy signals</td>
</tr>
<tr>
<td>Alignment of international to national priorities;</td>
</tr>
<tr>
<td>Collaborative processes for setting strategies, policies and agendas</td>
</tr>
<tr>
<td>Mechanisms for dialogue</td>
</tr>
<tr>
<td>Access to and use of official data;</td>
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<tr>
<td>Access to information, media, internet;</td>
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<tr>
<td>Reporting obligations</td>
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<table>
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<tr>
<th>INSTITUTIONAL STREAM</th>
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<tbody>
<tr>
<td>Problem perception</td>
</tr>
<tr>
<td>Political and policy support;</td>
</tr>
<tr>
<td>Nature of bureaucracy; institutional culture, norms, authorities and rules</td>
</tr>
<tr>
<td>Capacities; resources; feasibility, costs and benefits of change</td>
</tr>
<tr>
<td>Research capacities, support</td>
</tr>
<tr>
<td>Access to and use of information, internet</td>
</tr>
<tr>
<td>Incentives for and use of the HIS</td>
</tr>
<tr>
<td>Reporting obligations</td>
</tr>
<tr>
<td>Academia, civil society, community links</td>
</tr>
<tr>
<td>Involvement in learning networks</td>
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<table>
<thead>
<tr>
<th>KNOWLEDGE/PROBLEM STREAM</th>
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<tbody>
<tr>
<td>Strategic positioning, values, activism, credibility of researchers;</td>
</tr>
<tr>
<td>Source and alignment of research agenda</td>
</tr>
<tr>
<td>Political space for research</td>
</tr>
<tr>
<td>Resources, cross disciplinary capacities</td>
</tr>
<tr>
<td>Knowledge, implementation of</td>
</tr>
<tr>
<td>- problem solving HSR (operations, evaluation, implementation etc)</td>
</tr>
<tr>
<td>- Participatory action research;</td>
</tr>
<tr>
<td>- multiity-coun research; systematic reviews</td>
</tr>
<tr>
<td>Access to routine, official data</td>
</tr>
<tr>
<td>Capacities, incentives, support for peer reviewed and user friendly publication</td>
</tr>
<tr>
<td>Access to internet</td>
</tr>
</tbody>
</table>

**PUSH PROCESSES:**

- Communications, information exchange:
  - Benefits made clear to targets in own terms
  - Storytelling, photography approaches
  - KTE tools, processes and resources to support communication and exchange; 1;3;25 format
  - Media reach and involvement
  - Access to fast internet, Mobile phones, databases

- Research methods / processes that encourage exchange:
  - Stable, credible, trusted national institutions
  - Research units in central and local govt, civil society
  - Capacity to engage in iterative demand-led processes
  - Participatory, operations, problem solving designs
  - Community, local health worker involvement
  - Open access and multidisciplinary journals

**PULL PROCESSES:**

- Joint Research agenda setting, incentives to implement
- Informed and motivated civil society
- Capacity to use and produce evidence in implementers
- Researchers, policy, managers as trainers
- Active and inquiring media

**EXCHANGE PROCESSES**

- Inclusive steering groups on agendas, design, results
- Expert; think tank; advisory; task force groups
- Link to policy forums
- Exchange activities using information from research
- Consistent, regular interaction over a long time
- Formal and informal networks and communities of practice with shared interests, trust, social interaction
- Combining actors from different streams
- Linkages to national and regional policy forums

Credible knowledge-policy-practice catalysts -able to bridge policy/political and technical discourse
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6. Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACC</td>
<td>Australian Cochrane Centre</td>
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<tr>
<td>ART</td>
<td>Antiretroviral therapy</td>
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<tr>
<td>CBO</td>
<td>Community Based Organisation</td>
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<tr>
<td>CBR</td>
<td>Community Based Research</td>
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<tr>
<td>CCPH</td>
<td>Community Campus Partnership For Health</td>
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<tr>
<td>CC&amp;CRG</td>
<td>Cochrane Consumers and Communication</td>
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<tr>
<td>CEGSS</td>
<td>Center for the Study of Equity and Governance in Health Systems</td>
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<tr>
<td>CHW</td>
<td>Community health worker</td>
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<tr>
<td>CHSF</td>
<td>Canadian Health Services Research Foundation</td>
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<tr>
<td>CPT</td>
<td>Cotrimoxazole Preventative Therapy</td>
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<tr>
<td>CWGH</td>
<td>Community Working Group on Health</td>
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<tr>
<td>DARE</td>
<td>Database of Abstracts of Reviews Effects</td>
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<tr>
<td>DFID</td>
<td>Department for International Development</td>
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<tr>
<td>DHB</td>
<td>District Health Barometer</td>
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<tr>
<td>ECSA</td>
<td>HC East, Central and Southern African Health Community</td>
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<tr>
<td>EPOC</td>
<td>Effective Practice and Organisation of Care</td>
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<tr>
<td>EQUINET</td>
<td>Regional Network for Equity in Health in East and Southern Africa</td>
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<tr>
<td>EVIPNet</td>
<td>Evidence Informed Policy Network</td>
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<tr>
<td>GEH</td>
<td>Governance Equity and Health</td>
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<tr>
<td>HINARI</td>
<td>Health InterNetwork Access to Research Initiative</td>
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<tr>
<td>HIS</td>
<td>Health Information system</td>
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<tr>
<td>HMIS</td>
<td>Health Management information system</td>
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<td>HSR</td>
<td>Health Systems Research</td>
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<tr>
<td>HSRI</td>
<td>Health Systems Research Institute</td>
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<td>HST</td>
<td>Health Systems Trust</td>
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<tr>
<td>IDEAHealth</td>
<td>International Dialogue on Evidence Action to Action Health Goals in Developing Countries,</td>
</tr>
<tr>
<td>IDRC</td>
<td>International Development Research Centre</td>
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<tr>
<td>IDS</td>
<td>Institute of Development Studies</td>
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<tr>
<td>KTE</td>
<td>Knowledge, Translation and Exchange</td>
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<tr>
<td>LMIC</td>
<td>Low- and middle-income countries</td>
</tr>
<tr>
<td>MoH</td>
<td>Ministry of Health</td>
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<tr>
<td>MDG</td>
<td>Millennium Development Goal</td>
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<tr>
<td>NICE</td>
<td>National Institute for Health and Clinical Excellence</td>
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<td>NCD</td>
<td>Non Communicable Disease</td>
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<tr>
<td>NGO</td>
<td>Non Government Organisation</td>
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<tr>
<td>NHA</td>
<td>National Health Accounts</td>
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<td>ODI</td>
<td>Overseas Development Institute</td>
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<tr>
<td>PHC</td>
<td>Primary Health Care</td>
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<tr>
<td>PRA</td>
<td>Participatory action research</td>
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<tr>
<td>REACH</td>
<td>Regional East African Community Health</td>
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<tr>
<td>RCT</td>
<td>Randomised Controlled Trial</td>
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<tr>
<td>SUPPORT</td>
<td>Supporting Policy Relevant Reviews and Trials</td>
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<tr>
<td>TARSC</td>
<td>Training and Research Support Centre</td>
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<tr>
<td>TB</td>
<td>Tuberculosis</td>
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<tr>
<td>UHC</td>
<td>Universal Health Coverage</td>
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<tr>
<td>WHO</td>
<td>World Health Organisation</td>
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Appendices

Appendices for “Connecting the streams: Using research knowledge in health systems in low- and middle-income countries”.
Dr Rene Loewenson Training and Research Support Centre
October 2010 Background paper commissioned by the World Health Organisation For the Global Symposium on Health Systems Research, November 16-19 2010

Appendix 1: Case studies from interviews and literature
See reference list in the main paper for references cited in the Appendices.

Box A1: How ideology biases receptivity to research
Psychologists have elegantly demonstrated how our ideologies bias our reaction to research findings. Lord et al (1979) gave a class of undergraduates a survey to evaluate the strength of their opposition to or support capital punishment. They took two groups from this sample – those with the strongest views to either end of the spectrum. To half of each group they presented research supporting their preconceived ideology and half saw research contradicting their preconceived ideology. The experiment first showed the students the studies’ results, then assessed any impact on their attitudes to capital punishment. Then they showed the methods used to arrive at the results in each study before again assessing the students’ strength of support for or opposition to capital punishment. Perhaps predictably when confronted with results in support of their initial ideology the students embraced them and the research was used to strengthen their pre-conceived views. Subsequent presentation of each study’s methods has little or no additional impact. In contrast students presented with results contrary to their ideology, moved their views only minimally or not at all in the direction of the findings. On presentation of the studies’ methods, these students immediately reverted to their preconceived views, even increasing the strength with which they held them. Criticism of the methods was used as the ‘excuse’ to reject research contrary to their initial ideology. In a twist of study design the experimenters had in fact controlled for the quality of each study. They had reconstructed each research report so that half the time it had the original methods, but half the time methods used in an opposing study were inserted. Students were indiscriminate in their use of methods to reject ‘uncomfortable’ research findings. Methods used in studies recently embraced for their confirmatory value, were now used to reject contrary findings. As Marmot (1986) has pointed out ‘When facts collide with theories, scientists (and one might add decision-maker) are far more likely to discard or explain away the facts than theory.’ Lord et al (1979)

Figure A1: Identifying needs for research

Figure A2: Using evidence for policy

Source: Fretheim et al 2009
Source Oxman et al 2009
Figure A3: Conceptual framework for evidence informed health policy making

Source Green, Benett (eds) 2007

Figure A4: The RAPID framework

The framework presents interacting circles of

**Political context:** civil and political freedoms; policy process, political contestation, institutional pressures and interests; attitudes and incentives among officials, local history, power relations

**Evidence and Communication:**
the quality, relevance, communication of research

**Links:** of communities, networks and intermediaries; issues of trust, legitimacy, openness and the role of translators and communicators

**Within external contexts:** of political, economic, cultural and international influences

Source ODI 2006
Box A2: Responding to a policy window: measuring inflation in Peru

The importance of links – and how they can change – is powerfully indicated in the case of the consumer price index (CPI) in Peru. Despite the solid evidence put forward, the Peruvian Statistical Agency initially disregarded the advice of GRADE (the Group of Analysis for Development) and publicity criticized their research contribution on the CPI. However after the change of regime, the Peruvian Statistical Agency called upon GRADE’s researchers to conduct an independent audit of the way the official CPI was constructed. This resulted in a policy change. Source: Court, Young 2003 www.gdnet.org/rapnet/research/studies/case_studies/Case_Study_28_Intro.html

Box A3: A long march to universal healthcare coverage in Thailand

Thailand had a good geographical coverage of public healthcare infrastructure as a result of continuous investment during 1961-1986, but its health insurance coverage was fragmented and inadequate. Despite efforts to progressively expand its insurance coverage through establishment and extension of many public health insurance schemes, more than two-third of Thais were uninsured in 1991. Concern about universal healthcare coverage (UHC) was raised in the 1990s by an active public health leader and senior official in the Ministry of Public Health (MOPH), Dr. Sanguan Nittayarumphong, after learning about the experience of many European countries.

There were many economic and social forces that reinforced this concern: a social demand for the right to health and healthcare access was finally guaranteed in the 1997 “People’s” Constitution (Section 52), which also promoted citizen participation in decision making on rights and state policies, and encouraged civil society to propose new laws (Section 170). An IMF “Structural Adjustment Package” (SAP) after the 1997 Asian financial crisis opened debates on health financing. The 8th National Economic and Social Development Plan (1997-2001) set a commitment to operationalise UHC by extending healthcare coverage to poor people and improving efficiency and equity of health insurance systems. Then the general election in 2001 and the participation of new political actors beyond the military and bureaucrats created the opportunity for political parties to campaign around concrete and achievable policies. (Noguan S 2006).

Dr. Nittayarumphong’s position as a senior official in the health ministry was a key, and particularly his ability to effectively communicate with politicians and to command their respect. He integrated existing knowledge and evidence from various sources and simplified it in an easily understandable book “the yellow book” (Nittayarumphong et al 2000). The UHC policy objectives were clear: to guarantee access to essential healthcare of all citizens, to prevent medical impoverishment and to have a more equitable healthcare financing system. In the build up to the 2001 general election, he made appointments with all leading political parties and presented the proposal and the supporting evidence. The leader of Thai Rak Thai Party (TRT), Dr Thaksin Shinawatra, accepted the proposal as one of the main policies in his election campaign. The TRT renamed the policy to be “30 Baht for treatment of all diseases” or “30 Baht policy”. In addition, civil society groups campaigned for the 50,000 signatories required by the 1997 Constitution to draft and submit a law on UHC to the Parliament for consideration (Tancharoensathien and Jongudomsuk 2004). Evidence on magnitude of medical impoverishment and case studies on patients’ experience of the healthcare system were very effective in drawing public attention to the problems of uninsured people and to build support for UHC (Rojanapriwong 2002). The stories, disseminated through media and as a book, attracted public and politician interest, connected with the audiences’ emotion and grasped their attention. Storytelling offers a holistic view of issues, and stories are easily memorized by the audience (Weaver and Brun 2010).
The TRT party won the election by a landslide. Dr. Nittayarumphong’s approach and the TRT campaign were backed by a civil society movement. The political decision on the policy was supported by a well-prepared technical work, which also made it feasible to implement the policy. There were at least two studies on how to reform health financing system towards UHC. The first, in 1999, recommended an estimated budget needed for UHC (Panarunothai et al 1999) and was persuasive in showing the viability of the UHC proposal to the politicians. A second study, commissioned by the HSRI, provided a more comprehensive study on UHC and its financing options (Siamwala et al 2001). This study reconfirmed the financial feasibility of UHC and became a blue-print for its design and implementation. These studies were complemented by a model development of primary care using action research approach, first in Ayutthaya Province (Pongsuparb 1996), then in other provinces, that provided practical tools for primary care providers to implement UHC. In a positive cycle, as the programme was implemented it yielded further knowledge and experience needed for its implementation. Notably, the researchers were mainly from the Ministry of Public Health working under the umbrella of the Health Systems Research Institute (HSRI) and Office of Health Care Reform Project (HCRP) with little contribution from university’s researchers.

The experience showed that four groups of actors played important roles in moving Thailand towards UHC: the politicians who made the decision to adopt the policy, allocated additional resources and enacted legislation on UHC; the researchers who produced the evidence and proposed design of the system; the politicians and the constituencies and civil society organizations that exerted pressure on the politicians and the personnel in state institutions who bridged the gap between researchers and (Tangcharoensathien et al 2004). While the last mentioned was pivotal, all roles had different strengths and acted as critical factors at different times: to catalyse the process; to provide political leadership for it; to inform and make it technically feasible and to maintain pressure for its implementation. No single body of knowledge was pivotal, but different sources and sets of knowledge and evidence were generated at different periods of time to stimulate and support the policy adoption and implementation. Jongudomsuk (2010) and reference list for further citations.

Box A4: Transforming practice at municipal level: PHC Reforms in Rosario, Argentina

Rosario, with a million inhabitants, is the largest city in Santa Fe province in Argentina, producing about 60% of the GDP of the province. Since the 1989 election of the socialist party to the municipal government, and its consistent re-election thereafter, Rosario has received international recognition and prizes for its practice in democratic governance, local development and positive impact in the life of its citizens (http://www.rosario.gov.ar/sitio/riii/premios.jsp?idioma=ingles). This included transformation of a highly fragmented, under-resourced hospital centered system into a system organized around primary health care (PHC). This was not a technocratic exercise, but a social movement empowering young professionals, public health experts and politicians, both to improve access to health care and to raise the professional reward of work in PHC. The transformation was built on investing in the under-resourced community health care centers, connecting with community organizations to enhance participatory forms of management, and raising the prestige of work in and recruiting young committed professionals (generalists doctors, psychologists and social workers) for the network of health care centers. A department of PHC was created within the municipal government to support this, whilst engaging communities and professionals in the health boards was a critical factor in the change (Báscolo & Yavich).
The reforms were supported by a post-graduate programme set up to train the professionals who were assigned to the PHC network, and through research to provide scientific evidence to support the reforms. According to well known research Carlos Bloch, earlier research on PHC showing its underdeveloped and under resourced state did not generate response until the political and policy change. In 1994, a tripartite agreement between the municipal government, the National university of Rosario and the Medical Association of Rosario, founded the Juan Lazarte Institute for Health as a private not for profit institute, which launched its first cohort of postgraduate training in collaboration with the Oswaldo Cruz Foundation from Brazil. The Institute provides interdisciplinary teaching, technical assistance to public and private organizations at provincial and municipal level in public health, planning, management and implements interdisciplinary research on health systems (http://webs.satlink.com/usuarios/l/lazarte/infoinst.htm).

This transformation process was not led by an ambitious plan, but by concrete actions leading to step by step advances that eventually reached substantial reforms. Carlos Bloch points out that the pace of reform did not always allow for rigorous assessment of the impacts of policies and programmes. However, twenty years of political support by the socialist party, support by municipal government authorities, resources, training of personnel and knowledge from research at steps of the process have sustained progress, despite an economic recession and the advance of privatizing health care reforms in other parts of the country (Iriart et al 2001). In turn, gains from the PHC reforms programme provided political capital to the socialist party, translated into recurrent re-election. The process is ongoing and there are still challenges to address, that call for the same combination of research knowledge, political support and professional activism, including the lack of integration between provincial and municipal health facilities and strategies for overcoming inequity in access and coverage of services (DEGeS 2008). As one decision maker from the programme noted in relation to the funding pressures due to the economic situation “..we still have the challenges we knew but now they have to be resolved maybe with less resources.” To do this, we will require innovative solutions. Health Systems research can provide relevant tools and answers to these challenges.”

Source Flores, Yavich & Bascolo (2010), and other references cited.
Box A5: Understanding the Research to Policy Process in Zambia: The case of Cotrimoxazole Preventative Therapy

Cotrimoxazole prophylaxis for the prevention of HIV-related infection in adults and children has been recommended by the WHO and UNAIDS since 2000. One of the most important clinical trials on CPT (the ‘CHAP’ trial) was conducted in Lusaka between 2001 and 2003, and although the results of the study were widely disseminated, and while the National AIDS Council technical working group on treatment and care accepted the use of CPT in principal after the publication of the CHAP study (2004), this did not appear to influence practice widely at that time. A study conducted by members of the Evidence for Action research consortium on HIV treatment and care, aimed through document review and interviews with key informants in 2008 to understand the process by which the policy change towards CPT took place. Analysis of the process of policy uptake showed that three key factors were critical in influencing changes in both policy and practice on CPT. These were:

- The nature of the evidence, and how it was conceptualised;
- The role of key networks and individuals to facilitate policy change;
- The importance of changes in the policy context which provided both barriers and windows of opportunity.

The initial 2000 UNAIDS/WHO policy recommendations were seen sceptically by Zambian clinicians as they were based on research undertaken in areas with low in vitro resistance to Cotrimoxazole (while in Zambia the in vitro resistance to CPT was high). The 2003 CHAP study showed that Cotrimoxazole was effective in an area of high in vitro resistance and overcame this clinical resistance to use of CPT. However while doctors and researchers perceived the results to be an issue of simply changing clinical practice, much HIV treatment in Zambia at this point was being provided by clinical officers rather than physicians. These staff had less discretion and choice over clinical practice, and needed to be backed by an official policy change. For some time there was no champion for this policy change, and the situation remained unchanged at policy level, until a policy champion who had been involved in the creation of CPT policy in other countries, and who recognised the need to put CPT back onto the NAC/government policy agenda insisted that CPT be discussed and utilised in Zambia. As one of the groups of actors who can influence health policy at national level, this person had an important influence in raising the need for a policy shift as a means to changing practice. There were other concerns: were the resources there to purchase Cotrimoxazole? Was the system able to scale it up nationally? Further the international focus on scale up of ARVs eclipsed somewhat the results of the CPT trial. As it became evident however that ART scale up would be accompanied by significant amounts of international funding for Zambia for for HIV services, these systems concerns were addressed and the necessary institutional structure was created for provision of CPT. The final step in policy consolidation came when in 2007 a new official ART policy document was developed. The CPT supporters used this as a window to insist that CPT guidelines be included. The case of CPT thus saw the research-to-policy and practice process stall until a policy champion was able to influence uptake, and until a changing context (funds, policy review) provided a window for both addressing institutional concerns and for formalising the use of CPT in new treatment policy for AIDS. It was thus only in 2007, four years after the research results, that a detailed ‘policy’ was finally published by the government.

Box A6: Community Research at a pivotal moment: Supporting PHC in Zimbabwe

Primary health care (PHC) is a strategy that seeks to respond equitably, appropriately, and effectively to basic health needs and to address the underlying social, economic, and political causes of poor health, to provide accessible essential health services and to involve the participation of communities. In 2008, in the midst of economic decline and a cholera epidemic, comprehensive PHC appeared to be particularly suited to addressing the current challenges and health needs in Zimbabwe. Yet it was not certain that PHC would be central to the National Health Strategy. More powerful medical lobbies and middle income urban populations were also keen for resources to be used to restore the central hospitals, which had also declined in the past 5 years.

To support the voice of communities in the national policy debates on health taking place with the formation of the government of national unity, the Training and Research Support Centre (TARSC) working with Community Working Group on Health (CWGH) carried out a situation assessment of PHC in Zimbabwe. The programme built capacities for, implemented and reported on a cross sectional survey of primary health care conditions in sentinel wards in 20 districts of Zimbabwe in March 2009. The assessment provided evidence from 20 districts of the country on the conditions in community health, in the primary level of the health system, and the views and aspirations of communities and frontline health workers. The research signaled the potential for rebuilding Zimbabwe’s health system from the bottom up. It presented issues and options from local level for wider discussion and input to the national PHC strategy. Most importantly the research itself was implemented by teams from communities and frontline health workers at community and local level in the districts, who were trained in research methods and analysis. It was thus not only the data that pointed to the demand for PHC, but the voice of the affected communities themselves.

A one day stakeholder review meeting was thus a platform to present the findings of the assessment to stakeholders at national level. The meeting participants were drawn from the 20 districts involved, Ministry of Health at district, provincial and national level; the Zimbabwe Health Services Board, Members of the Health Portfolio Committee in parliament, local government health officers, environmental health practitioners, the nursing associations, the church hospitals, the University of Zimbabwe, national and international non-government organizations, World Health Organisation, CWGH and TARSC. The meeting proposed that PHC be given priority as the key strategy for recovery of people’s health and the recovery of the health sector, in tandem. While this calls for leadership from the health sector, it implies ownership and action from community level upwards, fair allocation of resources to needs, and co-ordination and action across a range of sectors and institutions. So PHC was seen as a commitment, role and responsibility of all those in the meeting. Specific concrete proposals were made for how to take this forward and a task force set up to motivate the implementation of the proposals.

The National Health Strategy 2010-2013 made reference to this research, and the Health Sector Investment Case (2010 – 2012) made clear that government would focus on revitalizing the Primary Health Care Approach (PHC) to address the health needs of the nation. The research was cited in this document: “The same was reinforced in the Assessment of Primary Care in Zimbabwe (2009) which clearly articulated the need to “Put in place a national PHC strategy, backed by clear service entitlements, with resources effectively applied to community and primary care levels of the health system” as “an entry point to wider PHC oriented changes”. In this context the NHS identifies three important objectives of the health system in Zimbabwe – (i) to keep as many people as possible in good health in the community through health protection, health promotion and disease prevention strategies, (ii) to provide appropriate quality services for those needing care in the community (Primary care) and (iii) to provide high quality hospital services at the appropriate level for those few requiring that form of treatment and care (Secondary, Tertiary and Quaternary care).” The challenge remains to take these policy positions forward in an under-resourced environment. However the combination of timely evidence linked to community voice, the engagement of national stakeholders, and linkages between researchers, civil society and receptive personnel within the policy and senior management levels of the Ministry of Health combined to enable the research to act as a bridge between community aspirations and national policies and plans at a critical time.

Source: TARSC, CWGH 2009; Zimbabwe Ministry of Health 2010
Box A7: Financing renal replacement therapy (RRT) for end-stage renal disease (ESRD) within the framework of Universal Health Coverage (UHC) in Thailand

Prior to the UHC in Thailand, many low income patients suffered early mortality and bankruptcy as renal replacement therapy (RRT) for end-stage renal disease (ESRD) was excluded as a benefit in the public Medical Welfare Scheme (MWS), covering low income people, children and people with disability, even though it was covered in tax financed schemes for civil servants and formal employees. This left approximately 94,000 uninsured patients paying the cost of treatment out of their own pockets. Complementary support from the Kidney Foundation of Thailand, a non-for-profit organization, was not able to cover this unmet demand, and many patients with high need suffered early deaths or bankruptcy as a result (Kasemsup, Teerawattananon, Tangcharoensathien 2006). Representations from parliament and civil society had not succeeded in changing the policy, with the costs of including the benefit the major barrier to getting the necessary political support. When the UHC policy was introduced, NGOs and patients themselves raised the issue again. The research that supported this demand was drawn jointly by researchers and state officials, and was on policy options to meet the costs and evidence from a public opinion survey that demonstrated public support for including RRT within UHC, funded from the government budget with co-payment from communities. It was thus targeted at the major obstacles, the perceived political risk of raising further costs to the scheme. This both raised the policy profile of the issue, and also raised options for dealing with it, and a proposal for inclusion of RRT was made by the National Health Security Board to the Minister of Health. Even with this outcome further steps had to be taken by state officials and patient groups to obtain the support of the Prime Minister for the policy to be adopted and resources to be allocated. It is difficult to say what point in the chain of events was pivotal in the shift. Nevertheless the case gives further evidence of the critical interaction at different times and with different drivers of political, state, civil society and research constituencies in producing the shift – to create political pressure, to orient evidence to address options and potential risks in making change.

Source: Jongudomsuk 2010; and further references cited in the case study reference list.

Box A8: Research under pressure: Addressing conflict of interests over medical malpractice and rising costs of the Civil Servant Medical Benefit Scheme in Thailand.

In 2000, a Medical Council of Thailand subcommittee found that existing mechanisms to help patients who were injured or damaged from medical practice were cumbersome in demanding proof of guilt and in the long time cases took. The subcommittee proposed to establish a government budget supported no fault compensation fund. While a form of this was included in the universal healthcare coverage (UHC) policy in 2002, it only covered those in the scheme and only compensated immediate suffering. In fact, patient complaints to the medical council increased substantially since 1998, leading to formation of a network of people who suffered from medical practice in 2002, called the Thai Medical Error Network (TMEN), and to accusations of the Medical Council for overprotecting medical practitioners. In contrast, a 2007 court case sentencing a rural doctor to three years’ imprisonment because of medical malpractice created a wide defensive reaction from all medical practitioners (Treerutkuarkul 2010). The triggers for demand for HSR arose thus in the confrontation between medical practitioners and patients and the policy response of a multi-stakeholder task force to agree on a policy and draft law on a no-fault compensation approach. A number of research activities responded to this situation to feed into the dialogue in the multi-stakeholder task force on proposals for a new approach: Studies: reviewed the level of medical error in hospitalized patients and the existing mechanisms for managing consequences of medical errors and found both court and informal settlement processes taking place (Saithanu et al 2003; Ketsomboon et al 2003); others explored the suffering of patients injured from medical error and analyzed existing mechanisms from the perspectives of patients and general public, identifying the limited knowledge and expectations of faster processing and improved compensation that patients had (Pannarunothai 2006). Still further research was done with technical support of an international expert from Sweden to explore the options for systems and legal aspects of no fault compensation funds. Some of the research included in the process methods that could also be used as management tools. A study on incidence of medical error in a medical school in Bangkok used a new method, called “trigger tool”, to identify the incidence rate of these events and the preventable share, with the high levels found as compared to other studies pointing the need to improve a tool for medical record review.
The demand to estimate the budget needed for the no fault compensation fund to facilitate the policy process was difficult to meet, due to inadequate reliable evidence on medical error and unclear compensation criteria and varieties of patient loss. A rough estimate was done using evidence from prior experiences (Taskforce to Draft a No Fault Compensation Act. 2007). The Health Systems Research Institute (HSRI) and Office of Health Care Reform Project (HCRP) were both key institutions in providing these research inputs, the task force provided an enabling framework for the review of evidence and the negotiation of conflicting interests. The leader of the patient networks facilitated the pressure for both the production and use of the evidence to reach a proposal for a law and policy by the taskforce that has, in 2010, been submitted to the Parliament. While the conflict between the Medical Council and the TMEN is probably not yet concluded on the process, given the legislation process ahead, the experience has shown that such conflict can generate positive demand for research when processes and mechanisms are put in place to steer it towards agreed outcomes. Having a capable team of health researchers and experts generating evidence and proposals steered by credible research managers in HSRI and HCRP was clearly a key factor in using evidence in this context. Processes and mechanisms like the stakeholder task force were important not only to generate the demand, but also facilitate the pull of uptake of research, while government and civil society generated the push of political pressure.

A second case involves the Thai Civil Servant Medical Benefit Scheme (CSMBS), that has covered civil servants and pensioners, since 1980. The scheme, funded from taxes, reimburses members and their immediate family for both outpatient (OP) and inpatient (IP) services mainly in public health facilities with some negative lists such as cosmetic surgery and preventive services except for annual health checkup. A rapidly increasing cost (38% annually) of this relatively generous benefits package CSMBS was first observed in 1990-1994. The Comptroller’s General Department (CGD) of Finance Ministry, who was responsible for implementation of the CSMBS had limited knowledge and competency in health service management and health care financing, and drew in the Health Systems Research Institute (HSRI), to provide technical support and facilitate the policy process. The HSRI appointed an advisory committee, chaired by the Deputy Director General of the CGD to support a consultative process with technical inputs from a research program supported by the HSRI. The recommendations from such studies were for three phases of reform of the scheme (Tangcharoensathien 1997). The economic crisis in 1997 and consequent budget cuts led the CGD, after consulting with HSRI experts, to introduce short term demand-side interventions, which were somewhat effective in reducing expenditures (Pitayarangsarit et al 2000). The advisory committee made recommendations for the longer term in 2000, with implementation taking place in 2002. Evidence from research was used in developing measures to improve the management and review of costs, including a beneficiaries’ database, a direct disbursement system for cost of out-patient services for chronic patients, and establishment of a Central Office for Healthcare Information (CHI) and an Office for Medical Audit (OMA) under the umbrella of the HSRI to support policy implementation.

In 2007 review of the Thai Constitution raised further pressure to track and use evidence to manage the scheme. In the past, the CGD could automatically use treasury reserves to pay for the budget deficit of the CSMBS. After 2007 the CGD could use treasury reserves only in case of urgency and would have to prepare a budget plan submitted to the Parliament for approval in the following year to pay back to the treasury reserves. This made CGD and the Finance Ministry accountable for the performance of the CSMBS system. Research evidence has contributed to decisions on other aspects of the scheme: The direct disbursement system was anticipated to drive 45% increases annually in outpatient costs. HSR identified the drivers of cost increases, and evaluated drug utilization, with findings leading to a cabinet approved proposal on cost containment of drug expenditures in the CSMBS in March 2010, and more immediate feedback directly to hospital administrators for appropriate actions to control drug cost (Srithamrongsawat 2009). Research and technical options were proposed on both capitation contract model and case based payment models. Given lack of political support for the former, and research has been done to explore and made proposals to address weaknesses in the CSMBS administration. Research has also been used to study further areas of government interest, such as in the role of a Medical Saving Account (MSA) model in the management and cost containment of the CSMBS.

Source: Jongudomsuk 2010 and further references cited in the case study reference list.
Box A9: National Health Accounts research as an asset in policy making in Zambia

National Health Accounts (NHA) studies are designed to give a comprehensive description of financial resource flows in a health care system, showing where resources come from and how they are used in the health sector. They provide evidence on the availability and utilization of total financial resources in the health sector, and thus inform policymakers and advisors on these resource flows. Zambia has conducted several rounds of NHAs through the Ministry of Health with various national and international partners. After the first NHA in 1998 covering the period 1995-1998 four further rounds have been done:

<table>
<thead>
<tr>
<th>Year</th>
<th>Period Covered</th>
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<tr>
<td>2003</td>
<td>1999-2001</td>
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<tr>
<td>2006</td>
<td>2002-2004</td>
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<tr>
<td>2008</td>
<td>2005-2006 (HIV/AIDS, Malaria &amp; TB Accounts added)</td>
</tr>
<tr>
<td>2009</td>
<td>2006-2008</td>
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The NHA in Zambia aims to determine total health care expenditure, and the distribution of the expenditure by financing sources. It provides evidence to evaluate government commitment to the health sector, progress in policy implementation and priorities for public health sector spending. It provides data to inform policy development and planning, especially the role of private sector. The repeat of the NHA from 1995 to 2006 has made it possible to track changes in health care financing overtime. The last round of the NHA in 2008 incorporated sub-accounts for HIV/AIDS, TB & Malaria for 2003, 2005 & 2006, adding further detail in the process.

While the NHA research has been implemented in many countries, the Zambian experience has been a particularly active one in using and developing the NHA for policy. It has been used to raise policy awareness on financial flows in the system as a whole, public and private, including on the significant resources for HIV and AIDS. The evidence has been used, for example, in negotiating the sector wide approach to health financing and in various ways in health planning and budgeting. The data have been used to prepare the costing for the National Health Strategic Plan (NHSP) 2006-2010, for the basic health care package, in the actuarial assessment for the Social Health Insurance and to inform the costing of the health priorities for the Medium Term Expenditure Frameworks annual plans and budgetary allocations. The uptake of the evidence is attributable both to the relevance of the evidence and the nature of the NHA process. A Health Care Financing Working Group (HCFWG) in the Ministry of Health and involving other stakeholders provides technical backstopping to all health economics and financing related work such as the annual budget analysis and approvals, the related health economics and financing research work and reports as well as the financial and administrative reports. It meets on a fortnightly basis, and feeds into a Sector Advisory Group (SAG), a cross-section of key stakeholders in the health sector including: international, bilateral and multilateral organisations, local civil society organisations and academia. These mechanisms have enabled a two way communication flow between the NHA research findings and policy dialogue, within and beyond government.

The basic NHA data has thus been used more widely to inform policy. For example the NHA results were combined with data from Living Conditions Monitoring Surveys (1991, 1993, 1996, 1998, 2004, 2006) to identify out of pocket spending by socio-economic groups and to assess the extent of catastrophic health expenditures in research work done with University of Cape Town, 2008. NHA data fed into and was instrumental in setting the free ART policy in 2005, and to a lesser extent, the removal of user fees in 54 rural districts in 2006. The evidence played a role in policy and public debates on low government and high household spending on AIDS, despite the free provision of ART, and on the sustainability of external and vertical HIV financing. The 2002 NHA showed, for example, that People living with HIV/AIDS were spending 12 times more on health care than non-HIV-infected individuals.

While these processes highlight the positive potential of research, even in such contexts policy decisions can be made independent of the process and evidence. For example, the move to abolish user fees in Zambia was made as a political decision based on international input and evidence from outside Zambia.
The policy demand was thus limited to evidence that would support the move, less on the policy content and more on the phasing and timing of its application. While there is a highly active health economics capacity in Zambia, the experience indicates the need to engage with the paradigms and pressures that motivate policy makers if the evidence they produce is to be relevant and used. This may require new paradigms and research frameworks, such as models that show the value added of health spending for other sectors.

The NHA research is a useful tool, but needs to be institutionalized at the Ministry of Health. The data collection has in the past been contracted out at a huge cost, and with long time lags in collecting data and finalizing reports. This affects its effective use in health planning & budgeting. From an ad hoc research process, it is now timely to take the next step of institutionalizing the NHA in the Ministry of Health. This will make it cheaper and improve the quality and timeliness of data collection, while also allowing for its scope and coverage to be reviewed and linked to other spending assessments and to policy demands.


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**Box A10: Mapping research agendas in the REACH initiative in East Africa**

In Kenya, Uganda and the United Republic of Tanzania, various stakeholders, including policy-makers, researchers from universities and civil society have since 2002, been interested in developing a knowledge broker for the health sector. Research was generally found to be owned by research organizations, and research to policy was most commonly through researcher push (eg on antimalarial policy), less commonly through policy maker pull (eg application of nevaripine) and least commonly through interactive push-pull (eg research on community health insurance). These three countries share a common disease burden that could be significantly reduced through the application of existing knowledge. To achieve this, the three countries created an institutional mechanism, the Regional East African Community Health (REACH) Policy Initiative, which acts as a knowledge broker, bridging the gap between health research and policy decision-making. REACH is housed within the East African Community Health Research Commission in Arusha and supports a node in each constituent country. It aims to provide accessible, timely, credible and trusted evidence, packaged in a user-friendly format, relevant to the local context. Towards this, REACH carried out in 2008 a document review and key informant interviews through national institutions in the three countries, to identify priority policy questions in health systems on the policy agenda that could be informed through the application of research evidence, and to map the extent to which these are being addressed.

In Kenya, this review found a disconnect between development of policy and elaboration of the operational documents such as annual operational plans, with a lack of a clearly defined framework linking the research agenda to funding, findings or the use of research in policy formulation, operational plans or monitoring and evaluation mechanisms. Hence while policy documents were found to be developed by consultative processes, the evidence base for policy choices was reported to be lacking and based on political change, even in the absence of evidence of the need for change. The priority areas identified as requiring research evidence in 2008-2010 were

- Health care financing and access and health equity
- Health workers, especially their distribution in rural and urban areas based on needs
- Government roles in policy formulation, stewardship and regulatory functions
- Shifting focus from curative to preventive services

Interviews state and non state agencies suggested the need for a more effective framework linking research to policy and for use of operations research within operational planning and results based management to evaluate activities.
A similar study in Tanzania implemented by the National Medical Research Institute reported low capacity in the health ministry to locate, interpret and use evidence in policy processes, and lack of exchange with sources of evidence for policy development, so that policy is often more motivated by political or development partner influence, weakening the role of national researchers or civil society. Different institutions identified different priorities for research, from human resources, financing, maternal and child health services, communicable and non-communicable diseases and their control. While Tanzania has capacity to carry out research, and while policy makers express interest in research there is low capacity and resources and weak mechanisms for translating this to policy relevant forms, and weak resources for creating the strong research programmes needed for policy support.

A third study, in Uganda, found the priorities for research to be male circumcision for HIV prevention; task shifting for health workers and community health insurance. This study, implemented by the government Uganda National Health Research Organisation, found that evidence is used in defending policies, and is gathered, analysed in a background paper/policy brief and discussed by stakeholders in a systematic manner. The groups interviewed felt that research is addressing priority issues and that results are accessible, with structures and processes in place for dissemination and promotion of use of results for policy making.

The differences between the relatively common findings in Kenya and Tanzania and those in Uganda merit further exploration. The REACH initiative provides precisely the type of forum that may be able to take up the findings in policy or practice and facilitate dialogue on the differences across countries. The information made available suggests that this follow up on the recommendations from the reviews is still to be implemented. Source Green, Bennett 2007; Lubano et al 2008; NIMRI 2008; UNHRO 2008, Van Kammen et al 2006

Box A11: Introducing Primary Health Care Delivery to Rural Communities in Ghana:

In 1994, the Navrongo Health Research Centre initiated a community-based research project in the Kassena- Nankana District of northern Ghana, to develop, test, and evaluate approaches to rural health service delivery using a combination of strategies (www.ghana-chps.org/navrongo.htm). With support of the Ministry of Health, the Centre embarked on a series of consultations with the chiefs and residents of the district, who contributed to the design of the project, known as the Navrongo Experiment. The consultations with chiefs and residents helped to establish mutual trust between researchers and the community, which has been sustained over the years. The key stakeholders in this project were community leaders, traditionally known as chiefs, district health authorities, development partners, and researchers. The initiative made community leaders local consultants to the project, and involved them at all stages of implementation. The process of consulting local authorities, opinion leaders, and household heads about any new activity in the community, including research, follows a long-established protocol that has become a model for public health interventions in Ghana. This approach has been incorporated into a policy known as the Ghana Community- Based Health Planning and Services Initiative, which has been adopted by several districts within the country. Unique features of the Navrongo model include community entry, a process of going into the community to meet with community leaders before initiating a research activity, and community “durbars.” Durbars involve a gathering of chiefs, elders, opinion leaders, and community members, along with researchers, to deliberate on a proposed research agenda, and to consolidate and communicate community views and concerns. Durbars have been used to mobilize the community for discussions about proposed research projects, and to provide feedback on research activities to the community. The concept of durbars also demonstrates how cultural institutions can be utilized for mobilizing communities and promoting the exchange of ideas. A publication called What Works, What Fails shares the experiences of the Navrongo Experiment. It notes that while community participation is important, translating the concept into practical terms at the local level can be difficult. “Significant institutional, economic, social, health and environmental concerns of community members must be addressed if efforts are to succeed” Source: Tindana et al 2007.
In 1988, after a period of military government, the Brazilian National Congress, influenced by an alliance of civil society organizations (CSOs) and academia, included health as universal right in the new Constitution, with fulfillment of the right a responsibility of the state. The same alliance proposed the governing principles and organization to realize the right, through a new “Unified Health Care System” (UHS), characterized by a decentralized network of health care facilities, strong social participation in its governance and a priority for prevention within an integrated approach (Elias & Cohn 2003). Since then, progressively implementing the UHS has created challenges. Guided by a rights based approach it has also led to innovation and achievement, such as in participatory governance of public policy, the generation of resources through ear marked taxes on financial transactions, the participation of federal and municipal level government in managing resources and not least, being the first developing country to achieve universal access to antiretroviral therapy (Teixera et al 2004). UHS has been documented to improve health care access in poor households, to reduce infant mortality and reduce health inequities (IBGE 2005; Aquino et al 2009).

CSOs played a key role in realizing UHS as a policy and in advancing its implementation through a rights based approach. Public participation became institutionalized through ordinary citizens having 50% of all seats in the bodies responsible for overseeing the planning and allocation of health care resources at municipal level. This CSO influence arose due to strong relationships with politicians in two forms: First, through interaction, collaboration and alliance with progressive policy-makers/elected politicians (Wampler & Avritzer), and secondly through activists from civil society taking key political posts within municipal, state and federal government (Costa 2007; Cornwall & Shankland 2008).

With the adoption of the policy through a state- civil society alliance, research, monitoring and evaluation have subsequently played a key role in informing the implementation, and review of policies. Health research is of high importance in Brazil, with a yearly mean in 2000-2002 of US$573 million spent on health research, or 3.3% of national public spending. That 96% of this was public funds reflected the importance given to health research (Guimaraes 2006). Brazil has developed a field of collective health (saúde coletiva) research, with its feature of inter-disciplinary inquiry and over 1000 papers in this field annually (Barros 2006). Practitioners play an active role: The implementation of the UHS is decentralized to municipal governments, collaborating with state and federal government. As one instrument to define priorities, evaluate and monitor results, municipal governments carry-out research activities themselves or in collaboration with research centres and universities (Flores 2010e). Personnel in these municipal systems are thus active users and producers of research, and their personnel have published the work they do and contributed to national research forums (such as Sancho GL & Vargens JMC 2009).

This has generated a strong link between research and practice. It is reinforced by well established scientific journals, such as Revista de Saúde Publica, in print for more than 40 years and growing annually by 12.7% in citation, that provide a vibrant channel for health services organization, public health, health systems and policy and planning research dissemination and debates in Brazil and include also papers from North America and Europe (Pereira 2006). This, and another journal –Cadernos de Saúde Publica- are open access through Scientific Electronic Library Online-SciELO (www.scielo.br) and indexed in international bibliography databases. Public investment in research and the availability of scientific journals for dissemination have been an important resource for supporting operational research within the system, backed by the production of professionals through post-graduate education. CSOs and progressive politicians thus played an active role as strategic allies in realising the new UHC policy, and in ensuring through public and scientific resources the research by health care providers, managers and decision-makers linked with research institutions to support its implementation. Source Flores (2010) and references cited.
Figure A5: Differences in communication styles in advocacy and scientific communities

Source WHO 2005

Figure A6: IDRC knowledge translation materials
Source IDRC GEH 2008 and visit www.research-matters.net
Box A13: Communicating research evidence within civil society

The Center for the Study of Equity and Governance in Health Systems (CEGSS) in Guatemala City, Guatemala (www.cegss.org) is a multi-disciplinary nonprofit academic association that undertakes, applied social science research in equity in health systems, and provides training through internships, training workshops and mentorship. The Center disseminates research evidence to academics and policymakers through peer-review journals, research papers, stakeholder seminars and policy-briefs distributed in hard copy and electronically (see www.cegss.org.gt/index.php?option=com_content&view=article&id=51&Itemid=62&lang=es). CEGSS makes a conscious and explicit effort to communicate research evidence to civil society organizations, as a key actor in policy processes. Research findings are communicated through community assemblies and participatory workshops focusing on the implications for the work of community based organizations. New work is now underway to share evidence with civil society organizations from rural municipalities through audiovisuals screened at town hall meetings and radio programs aired through community radio. CEGSS is also an active member of the Movimiento Ciudadano por la Salud (Citizens’ Movement for Health) which is an alliance of civil society organizations advocating the right to health in Guatemala (www.mcs-guatemala.org). Through participation in this alliance, CEGSS provides support to participatory research on the right to health presented at public events attracting interest of mass media (http://www.mcs-guatemala.org/index.php?option=com_content&view=article&id=57&Itemid=56).

CEGSS also provides training and technical assistance to members of the alliance to support debates with members of Parliament and Ministry of Health authorities. For example, in the past three years there have been initiatives aimed at passing a new health law in Guatemala. There have been several different proposals about that law, reflecting different and conflicting interests (from private insurance companies, professional associations and colleges, municipal governments and others). For each proposal, CEGSS has facilitated workshops with CSOs to analyze the implications for universal access and equity, particularly in terms of the health of rural households, and to make recommendations that are officially documented and presented to parliament. This has contributed, with other inputs, to blocking a proposal to privatize public health care in Guatemala. Source: Flores (2010)

Figure A7: Using community photography to communicate evidence from PAR

Example of a photograph: Building a bridge to access the health centre, Bunia DRC, A Baba in TARSC et al 2009

EQUINET “Eye on Equity book of community photography for PRA

TARSC et al 2009
<table>
<thead>
<tr>
<th>Type</th>
<th>Goal</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summaries of systematic reviews</td>
<td>Summarize systematic reviews in order to: (1). Allow policy makers to identify the take home messages from systematic reviews that address their policy question (or elements of their policy question) and (2). (Occasionally) add value to a review by evaluating its quality, grading the strengths of evidence contained in it, identify local applicability and equity considerations, and/or providing commentaries by select users of the reviews</td>
<td>ACC Policy Liaison Initiative, Reviews of policy relevant reviews, (health system interventions provider behaviour –change interventions, and consumer –targeted reviews) (29)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DARE, Reviews of the effects of health or health system intervention</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Effective Health Care Research Programme Consortium, Same as ACC but with a particular focus on LMICs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evidence Aid, Same as DARE but with a focus on natural disasters and health care emergencies (eg 2004 tsunami; H1N1 pandemic) (30)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health Knowledge Network of the C&amp;CRG Evidence Bulletins, Reviews of the effects of consumer-targeted reviews</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health-evidence.ca, Reviews of the effects of public health interventions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reproductive health library, Reviews on effects of reproductive health interventions; focus on LMICs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rx for change, Reviews of effects of prescribing related interventions and provider behaviour-change interventions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SUPPORT, Same as ACC but with LMIC focus</td>
</tr>
<tr>
<td>Overviews of systematic reviews</td>
<td>Identify select, appraise and synthesize systematic reviews that address research questions in a given domain to: (1) allow policymakers to identify reviews that address their policy questions (or elements of them) and the messages from these reviews; (2) allow policymakers to identify gaps in reviews to be filled through policymakers’ own efforts / commissioned reviews</td>
<td>IEAHealth, Reviews of the effects of health system financing mechanisms, human resource interventions, and interventions to reduce maternal and child mortality, focus on LMICs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SUPPORT, Reviews of the effects of interventions to support the delivery of cost effective interventions in health systems and in maternal and child health, focus on LMICs (36)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EPOC review group: Cochrane Collaboration, Reviews of the effects of provider behaviour change interventions (37)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CC&amp;CRG review group Cochrane Collaboration, Protocol for a review of the effects of consumer-targeted intervention (38)</td>
</tr>
<tr>
<td>Policy briefs</td>
<td>Systematically and transparently identify, select, appraise and synthesize systematic reviews, research studies, and context-specific data to address all elements of a policy question to (1) allow policymakers to define the problem, characterize policy and programme options and implementation issues to address the problem (2) allow policymakers to identify gaps in existing reviews, studies and context-specific data that will need to be filed</td>
<td>Health Evidence Network/ European Observatory on Health Systems and Policies</td>
</tr>
<tr>
<td>EVIPNet</td>
<td>Reviews that inform problem definition, policy option characterization, and policy implementation strategy characterization the country level with a particular focus on countries in Africa, Asia and the Americas with formally established evidence to policy partnership (EVIPNet)</td>
<td></td>
</tr>
</tbody>
</table>

Source Lavis 2009

<table>
<thead>
<tr>
<th>Types of Activities</th>
<th>CBR strengths</th>
<th>CBR limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fostering a culture that supports research use</strong></td>
<td>Funding requires partnerships between researchers and community members / CBOs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Emphasis on capacity building and actionable outcomes resonates well with the grass roots orientation of many CBOs</td>
<td>Scope of partnership often limited to community partners that already use research evidence</td>
</tr>
<tr>
<td></td>
<td>Often no funding for action (vs for research)</td>
<td>Long, uncertain timelines limit the ability of some partners to remain engaged</td>
</tr>
<tr>
<td></td>
<td>Those with authority in a CBO not always included as the community partner</td>
<td></td>
</tr>
<tr>
<td><strong>Production of research to key audiences</strong></td>
<td>CBR projects are often developed through consultation with local communities in order to ensure they are addressing community relevant issues and needs</td>
<td>Typically single locally based studies, not conducted across a range of communities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No capacity building in acquiring, accessing, adapting and applying research evidence</td>
</tr>
<tr>
<td><strong>Activities to link research to action ‘push’</strong></td>
<td>Dissemination of actionable messages is often strong at the local level through the existing networks and partnerships</td>
<td>Actionable messages derived from CBR often not shared on a larger scale despite their potential broader applicability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Push efforts localized to project sites and not actively ‘pushed’ to relevant target audiences</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Minimal capacity built for ‘push’ efforts</td>
</tr>
<tr>
<td><strong>Facilitating ‘pull’</strong></td>
<td>Capacity building for research within communities and CBOs through partnerships and CBR projects is a central goal to the CBR approach</td>
<td>No capacity building in acquiring, accessing, adapting and applying research evidence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Few ‘one stop shopping websites or resources high quality, community relevant evidence</td>
</tr>
<tr>
<td><strong>‘Pull’</strong></td>
<td>CBOs/ communities effectively identify and partner to address research needs. Some CBOs incorporate prompts to build research evidence into their strategic review. Some research users design prompts in the decision-making to support research use. Some research users will conduct assessments of and build capacity to acquire, assess, adapt and apply research</td>
<td>CBOs typically don’t have in place mechanisms to promote them to review their programming in light of the available research evidence (either on a rotating basis for select programs or all at once during strategic planning)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Smaller CBOs do not always have the capacity resources or time to acquire, assess, adapt and apply research evidence in their settings</td>
</tr>
<tr>
<td><strong>‘Exchange’</strong></td>
<td>Equitable partnership between community, researchers and others core to the CBR approach Researchers and research users build partnerships and work collaboratively in setting research priorities, conducting research and linking research to action</td>
<td>Scope of partnership often limited to the same researchers and community partners in many projects. Many not representative of the breadth of perspectives in he community</td>
</tr>
<tr>
<td><strong>Evaluation</strong></td>
<td>Some projects have systematically evaluated the types of topics previously addressed by CBR and the quality of those projects in order to inform future research and funding initiatives CBR projects sometimes engage target audiences in reflection processes about the specific impacts the project had</td>
<td>Minimal efforts to evaluate the impact of CBR and other community based KTE strategies on action beyond those communities most directly involved in the CBR. Evaluations of impact done by researchers of the study introduce bias. Some funders of CBR offer capacity building resources to bring together community stakeholders for skill-building activities</td>
</tr>
</tbody>
</table>

Source Wilson et al 2010. Acronyms used: CBO= community based organisations, CBR= community based research, KTE= knowledge transfer and exchange, CCPH= Community Campus Partnership For Health
Box A14: Examples of HSR relevant searchable databases on the internet

- The Health InterNetwork Access to Research Initiative (HINARI) [www.who.int/hinari/en/] that allows free full-text access to more than 1500 journals to developing country researchers or access to e-journals that are freely accessible through the Internet.

- The Cochrane Library, [www.thecochranelibrary.com] which provides a small but growing stock of systematic reviews that address questions asked by health care managers and policymakers. It includes Cochrane reviews that have met the standards of a Cochrane review group as well as structured summaries of other systematic reviews.

- The MacMaster Health Forum Health Systems Evidence database, at [www.healthsystemsevidence.org] a continuously updated repository of syntheses of research evidence about governance, financial and delivery arrangements within health systems, and about implementation strategies that can support change in health systems.

- Health-evidence.ca at [http://health-evidence.ca/] that aims to support evidence-informed decision making in public health by providing current research evidence in a searchable online registry.

- The MAP website, [www.map.ox.ac.uk] which was launched in 2006, to allow users to visualize the current evidence on malaria through static maps in Web browsers, or more interactively through display in Google Earth. MAP is different than previous attempts at mapping malaria, primarily because it is a global initiative, but also because it aims to share data in the public domain from the outset. It includes only random or complete community-sample surveys conducted post-1985, where parasite species and age groups are defined and the survey involves more than 50 persons to minimize sampling error.

- The Southern African Regional Poverty Network (SARPN) [http://www.sarpn.org.za/] a non-profit organisation that promotes debate and knowledge sharing on poverty reduction processes and experiences in Southern Africa and creates platforms for effective pro-poor policy, strategy and practice.

- The Bangladesh Bangladesh Journals OnLine - BanglaJOL ([www.banglajol.info]) a service to provide access to Bangladesh published research, and increase worldwide knowledge of indigenous scholarship.

- The SURE website, [http://www.iop.kcl.ac.uk/departments/?locator=300] that includes clearing houses for research syntheses and policy relevant research and rapid response mechanisms to meet policymakers’ needs for research evidence within short time frames (hours or days).

- The EQUINET website ([www.equinetafrica.org]) provides an annotated bibliography of 2300 publications on equity in health in east and southern Africa through a searchable web database and a monthly newsletter of new publications and resources on health equity that are archived on the site in a searchable database.
Box A15: Building policy networks for tobacco control in Thailand

During the late 1980s a series of royal decrees in Thailand limited tobacco advertising and enforced labeling of tobacco as a harmful product. These had been supported by local NGOs such as Action for Smoking and Health (ASH Thailand), an NGO established in 1986 under the auspices of the Rural Doctor Society. During the early 1990s the Thai Health System Research Institute (HSRI) provided a renewed focus on the issue of tobacco consumption. This was particularly important given arrangements under the General Agreement on Tariffs and Trade (GATT) and pressures on Thailand to open up its tobacco markets.

Research provided clear evidence on the epidemiology and trends of tobacco consumption, the cost of tobacco-related illnesses and income and price elasticity based on Thai household surveys. This evidence served as a platform for effective health promotion strategies. In 1994-10995 the Tobacco Office and HSRI facilitated a forum for exchange of experience and visits between Thailand and VicHealth, an Australian tobacco control NGO. At the first biennial HSHI conference in February 1995, the VicHealth Chief Executive Officers was invited to speak about the Australian experience with tobacco control. A notable outcome of this informal Thai-Australia collaboration was confidence among Thai partners about the feasibility of a dedicated tax-for-health movement. As a result of conviction and commitments by Thai anti-tobacco champions, multiple stakeholders were involved in consultations, with the aim of achieving a dedicated tobacco tax for health promotion. A policy recommendation to establish such a mechanism was made to the government in 1996.

In the 1996, the Minister of Finance established a Health Promotion Foundation funded by a dedicated tobacco and alcohol tax. This tax represented a major shift from the conventional central pooling of all government tax revenues. It took another two years for the drafting of a bill for consideration by the House of Representatives and Senate. Finally the Thai Health Promotion Foundation Act of 2001 was promulgated and the organisation ThaiHealth was launched in October 2001. Critical success factors in the founding of ThaiHealth include evidence-based advocacy by civil society organisations and political support from the Ministry of Finance. Lessons learned from VicHealth were valuable and provided a context for such movement in the Thailand. However, the process was an internal one, spearheaded by national anti-tobacco champions. More recent evidence drawn from national household surveys suggested that tobacco consumption has been reduced as a result of these measures.

Source: Chantormuong & McCargo (2000); Tangcharoensathien et al. (2006) in Green, Bennett (2007)
Box A16: The ECSA Health Community: A regional forum linking multi-country research to policy

The ECSA Health Community is a regional organization that fosters and encourages cooperation in health in East, Central and Southern Africa (ECSA). The organization was set up to promote regional cooperation in health, and covers 10 member states in the East, Central and Southern Africa region namely; Lesotho, Kenya, Malawi, Mauritius, Seychelles, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe with a combined population of more than 190 million people, making it one of the largest health organizations in the region. During the over 30 years of its existence, ECSA HC has evolved into a strong regional organization that provides member countries with a unique framework for addressing health problems that require joint action. As an inter-governmental organization ECSA HC enjoys direct links with regional Health Ministers and Permanent/Principal Secretaries, with an extensive network of regional health institutions, including research and academic institutions, and regional networks such as EQUINET and with international development agencies in the region and globally. ECSA HC undertakes capacity building, policy and advocacy, research and evaluation and information sharing.

The research and policy response to the health worker crisis exemplifies the exchange activities of the ECSA HC. In 2005 the ECSA Regional Health Ministers Conference observed the need to give greater focus on the health worker situation and called for a situation assessment. Research was an important tool in supporting countries to respond to this policy demand, given the gap in available evidence. In 2005, the ECSA secretariat was tasked to prepare a human resources for health situation assessment of the countries in the region. A questionnaire was mailed to the Ministries of Health of the 14 ECSA countries with a 50% response rate. There was no major opposition to the exercise, but some countries found areas of the questionnaire difficult to complete in relation to specific areas of HRH data and the data collection was not always standard across countries. This flagged the need for further investment in the HR management information systems in countries, an issue that was raised at policy level when the report was presented, and has been followed up thereafter. The evidence that was available from Ministries of Health, medical, nurses, and allied health professions’ councils, national health information systems, and training institutions was used to prepare a report on the policy and health system context, health worker trends, production, utilization and governance. The report raised policy relevant findings on harmonization of training curricula to facilitate student staff exchange programmes in the region; on introduction of monetary and non-monetary incentives for health workers, and on the role of continuous professional development in health worker productivity. It encouraged Ministries of Health to draw in technical cooperation in developing appropriate strategies to address the HRH problems where needed. This work preceded the major global programme on health workers, and provided an entry point for countries to take up what was a common issue through a regional platform.

Countries identified with the process and findings, giving them credibility. In considering the report in 2006, the 42nd Regional Health Ministers conference made a number of resolutions for member states to support national systems of continuing professional development; innovative mechanisms for staff recruitment; and to develop financial and non-financial strategies to encourage retention of health professionals and manage migration. The report raised policy attention on the need for improved HR management information systems, enabling follow up work and investment in this area. It led to a follow up regional programme of research work and policy review on financial and non financial incentives, an assessment of the role and impact of task shifting and a review of the impact of HIV and AIDS on health workers. It triggered a major regional programme of work on different dimensions of health worker issues, linking the ECSA HC centrally to international and regional follow up work with WHO, the Capacity Project, the African Observatory on health workers, EQUINET and others. It also led to some countries reviewing their workplace HIV/AIDS and incentives policies for health workers.
ECSA HC note that it is difficult to make direct links between individual pieces of research and policy outcomes. However the response to high level policy demand, the involvement of countries, the link to practice and the face to face meetings between researchers, officials and policy and decision makers enabled uptake of the findings. At the same time the research ECSA does is not published in peer reviewed journals, which is a gap in peer review and dissemination. The policy and programme uptake provides the means by which the quality of the work is judged.

The Regional Health Ministers Conferences have identified many areas where there is still policy demand for research or where results of existing research are presented in ways that too generic or too specific to be useful to policy makers. These include policy questions on health financing, governance and policy analysis. ECSA HC sees research as a vital contributor to national policy, and regional exchange as an important source of policy learning. The community is therefore investing in research teams and processes on issues at country level, bringing together government, universities and relevant professional associations, such as on strategies for improving maternal and child health. While the secretariat need to strengthen their own research and publication capacities, there are significant opportunities in tapping the strength ECSA HC has as a regional organization to convene and support these forums that link researchers to policy and senior management level.

Source: Loewenson (2010a), Interview with A Kibwika, Director of Operations and Institutional Development ECSA Health Community, Tanzania; ECSA HC 2006
Appendix 2: Sources of evidence for the literature review and analysis of strategies in nine African countries

Table A2.1: Distribution of papers in the literature review

<table>
<thead>
<tr>
<th>TYPE</th>
<th>Scope</th>
<th>Total papers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Briefing</td>
<td>Briefs based on research review; media perspective</td>
<td>2</td>
</tr>
<tr>
<td>Literature reviews</td>
<td>Systematic, bibliometric, ethnographic and general reviews of published literature (covering between 100 to 8800 papers in each review) at global, regional, or multi-country level research on a range of areas, including research impact on policy; different areas of health systems research; community based participatory research, knowledge and evidence in social determinants research. Three reviews drawn specifically from LMIC, the rest drawn from low and high income settings.</td>
<td>14</td>
</tr>
<tr>
<td>Case studies</td>
<td>Presentation and analysis of case studies of research to policy/ research to practice initiatives and experiences in health systems in LMIC.</td>
<td>11</td>
</tr>
<tr>
<td>Interview reports, reports of project/ programme experience</td>
<td>Interviews with lead personnel, or reports / papers drawing on experiences, analyses of a range of areas of research and practice relating to health systems research in LMIC. Personnel and programme experiences drawn from civil society, government, academia and international agencies.</td>
<td>12</td>
</tr>
<tr>
<td>Survey reports/ papers</td>
<td>Papers based on interview surveys, database analyses on research to policy and practice, use of research evidence. 14 aimed at LMIC and 1 in HIC on database relevant to LMIC</td>
<td>19</td>
</tr>
<tr>
<td>Conceptual, theoretical, policy papers</td>
<td>Papers on scoping studies, conceptual frameworks, debate and discussion pieces, drawing on, critically reviewing or synthesising literature and experience. Authors drawn from a mix of LMIC and HIC but conceptual discussions relevant to LMIC settings.</td>
<td>32</td>
</tr>
<tr>
<td>Databases;</td>
<td>District Health Barometer; Malaria Atlas project as examples of resources</td>
<td>2</td>
</tr>
<tr>
<td>Meeting reports</td>
<td>Reports of meetings held by the Canadian Health Services Research Foundation, WHO, Institute of Development Studies and Health Science Research Council South Africa, ECSA HC related to knowledge transfer and LMIC</td>
<td>4</td>
</tr>
</tbody>
</table>
Table A2.2: Citations of research in the nine African Health Strategy documents reviewed

<table>
<thead>
<tr>
<th>Policy/strategy document</th>
<th>Number of citations</th>
<th>Number of research paper citations</th>
<th>Comment on use of research</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Health Policy Creating Wealth through Health Ministry of Health, Accra, Ghana September, 2007</td>
<td>No reference list. 8 references cited in the text or through footnotes. ie Millennium Declaration, the Ghana Growth and Poverty Reduction Strategy; the Ghana Macroeconomics and Health Initiative Report 2005; Ghana Demographic and health Survey 2003; UNDP Human Development Report 2006, Ghana Census 2000; Ghana Health information system data 2004, 2005;</td>
<td>No research papers cited.</td>
<td>Unclear how far research has contributed to the setting of the strategic objectives. The policy notes that the health industry is an important component of the health system. A pluralistic local health service and manufacturing industry exists, both public and private, but it makes a limited contribution to the health system and key public health interventions are imported. A small health knowledge industry made up of consultancy firms has emerged providing technical support but the size is small compared to the need and “no conscious effort is being made to grow the local knowledge industry”.</td>
</tr>
<tr>
<td>National Health Policy, Ministry of Health and Social Welfare, Swaziland 2008</td>
<td>39 references cited in the reference list and three further in the text: ie Regional Health Policy for All for the 21st Century in the African Region: Swaziland Demographic and Health Survey 2006/7; HDA &amp; JTK Associates, 2005.</td>
<td>HDA &amp; JTK Associates, 2005 cited in relation to health worker vacancies;</td>
<td>The policy document provides for periodic evaluations to be carried out after every five years to determine the extent to which policy objectives have been achieved. The findings to be widely disseminated through reports, news and national conferences.</td>
</tr>
<tr>
<td>National Health Policy, Ministry of Health Tanzania, 2003</td>
<td>No reference list. No references cited in the text:</td>
<td>No references cited.</td>
<td>Document notes need for research on NCDs and nutrition. Special institutions set up for health research: National Institute for Medical Research; Tanzania Food and Nutrition Centre; Institutions of higher learning and a Health Systems Research Unit to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health Information, statistics and research noted to show</td>
<td></td>
</tr>
</tbody>
</table>

Of the 8 total:  
- 1 is a household survey report  
- 1 is the national HIS  
- 6 are policy, planning or administrative reports

Of the 42 total:  
- 9 are survey/assessment reports  
- 1 is a UN database  
- 32 are policy, planning or administrative reports
<table>
<thead>
<tr>
<th>Policy/strategy document</th>
<th>Number of citations</th>
<th>Number of research paper citations</th>
<th>Comment on use of research</th>
</tr>
</thead>
<tbody>
<tr>
<td>No reference list. No references cited in the text:</td>
<td>0</td>
<td>No research papers cited. The report cites that research has been conducted but has lacked legal and implementation backing. Research has not been mainstreamed enough to provide timely evidence for policy and action (p59).</td>
<td>Evidence from research in Zambia is noted to show that although the poorest people suffer disproportionately from preventable diseases, they tend to make less use of health services (p17). Government surveys are cited to determine trends in vitamin A and other micronutrient deficiencies and child anaemia. (p42, 43) Population based surveys to feed policy and planning are reported to be regularly and consistently done (p58).</td>
</tr>
<tr>
<td>No reference list. . 8 references cited in the text ie Economic Report 2004, Ministry of Finance and National Planning, 2005; Zambia DHS 2001-02; Central Board of Health Ministry of Health HIS data; Zambia Census 2004; MoFNP: TNDP/2002-05; Living Conditions Monitoring Survey 2002/2003; Vaccine Preventable Diseases Bulletin, 2002; Of the 8 total: • 2 are household survey reports • 1 is the national HIS • 5 are policy, planning or administrative reports</td>
<td>No research papers cited. Of the 13 surveys, 4 are surveys implemented by non state actors, 3 in partnership with MoH Uganda.</td>
<td>The National Health Research Organization is responsible for coordination of health research. Health research activities in the country are noted to be fragmented and not properly focused and the UNHRO to not have legal status. Operational research capacities and resources to district level seen to be important. (p70)</td>
<td></td>
</tr>
<tr>
<td>No reference list but reference to</td>
<td>30 references cited in the reference list. Of the 30: • 16 are household, population/sample and facility survey reports • 1 refers to performance reports from the HIS • 13 are policy, planning or administrative reports</td>
<td>Of the 16 surveys, 4 are surveys implemented by non state actors</td>
<td>The strategy notes that despite clear policies, health services still pay far too much attention to supply vs demand challenges, partly due to lack of health policy research and analysis, duplication of some research areas and overload and frustration in researchers due to an environment that doesn’t enable research findings to be implemented. The strategy seeks to make better use of research findings (p137).</td>
</tr>
</tbody>
</table>

| Republic of Zambia, Ministry of Health (2005) National Health Strategic Plan 2006-2010 | No reference list. . 8 references cited in the text ie Economic Report 2004, Ministry of Finance and National Planning, 2005; Zambia DHS 2001-02; Central Board of Health Ministry of Health HIS data; Zambia Census 2004; MoFNP: TNDP/2002-05; Living Conditions Monitoring Survey 2002/2003; Vaccine Preventable Diseases Bulletin, 2002; Of the 8 total: • 2 are household survey reports • 1 is the national HIS • 5 are policy, planning or administrative reports | No research papers cited. Of the 13 surveys, 4 are surveys implemented by non state actors, 3 in partnership with MoH Uganda. | The National Health Research Organization is responsible for coordination of health research. Health research activities in the country are noted to be fragmented and not properly focused and the UNHRO to not have legal status. Operational research capacities and resources to district level seen to be important. (p70) |

| Republic of Uganda Ministry of Health (2005) Health Sector Strategic Plan II 2005/06 – 2009/2010 | 34 references cited in the reference list. Of the 34 total: • 13 are household, population and facility survey reports • 4 refer to performance reports from the HIS • 17 are policy, planning or administrative reports | Of the 13 surveys, 4 are surveys implemented by non state actors, 3 in partnership with MoH Uganda. | The National Health Research Organization is responsible for coordination of health research. Health research activities in the country are noted to be fragmented and not properly focused and the UNHRO to not have legal status. Operational research capacities and resources to district level seen to be important. (p70) |

| Government of Zimbabwe Ministry of Health and Child Welfare (2010) The National Health Strategy For Zimbabwe (2009 – 2013) | 30 references cited in the reference list. Of the 30: • 16 are household, population/sample and facility survey reports • 1 refers to performance reports from the HIS • 13 are policy, planning or administrative reports | Of the 16 surveys, 4 are surveys implemented by non state actors | The strategy notes that despite clear policies, health services still pay far too much attention to supply vs demand challenges, partly due to lack of health policy research and analysis, duplication of some research areas and overload and frustration in researchers due to an environment that doesn’t enable research findings to be implemented. The strategy seeks to make better use of research findings (p137). |

| National Health Policy, Government of Seychelles, 2005 | No reference list. No references cited in the text: | increased non-communicable diseases (p16). | Document notes that the major areas for research in the public health sector shall be those priority areas identified in the Strategic Framework. The Ministry of Health shall encourage its officials to receive training in research, and provide funds for research, based on these priority areas. The Ministry shall promote a culture of inquiry into the best methods of delivering health care and evidence based practice.(p12). |

<p>| Republic of No reference list but reference to | | | |</p>
<table>
<thead>
<tr>
<th>Policy/strategy document</th>
<th>Number of citations</th>
<th>Number of research paper citations</th>
<th>Comment on use of research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botswana (1993) Botswana National Policy on HIV/AIDS</td>
<td>studies in the text (no citations) HIV prevalence studies 1992, 1993 1993 survey of HIV prevention Of the 3 all are household, population/sample and facility survey reports</td>
<td>The authorship of the three research studies are not clear.</td>
<td>Proposes Ministry of Finance use of epidemiological data to project the economic and human resource development impact for manpower and economic planning (p 8).</td>
</tr>
</tbody>
</table>
Appendix 3: Biographies

Dr Rene Loewenson is an epidemiologist who has worked as a senior lecturer in the University of Zimbabwe Medical School, headed a national and African Union trade union health department, and is currently director Training and Research Support Centre and founder and cluster lead in the Regional network for equity in health in east and southern Africa (EQUINET). She has experience in research, policy analysis, training and organisational development on different aspects of equity in health and health in employment, and has co-ordinated national and international research programmes. She has been a member/ chair of various national statutory and UN advisory bodies on health.

Dr Pongpisut Jongudomsuk contributed case studies and interviews from Thailand. He is a medical doctor trained in public health and with a wide ranging experience in health systems. He worked in rural district hospital in northeastern of Thailand, then in the Ministry of Public Health as Deputy Director of Health Insurance Office, National Project Director of the (EU-supported) Health Care Reform Project, Director of the Bureau of Policy and Planning at the National Health Security Office, and Head of the Technical Support Team of the Thai Minister of Public Health. Currently he is the director of the Health Systems Research Institute.

Dr Walter Flores contributed case studies and interviews from Guatemala, Ecuador, Brazil and Argentina. He is a social scientist trained in public health and has worked on health policy analysis, health systems evaluation and development, implementation research, health equity, right to health, democratic governance of public policies and community participation in public health policies in more than 20 countries from Latin America, Africa, Asia and Europe. Currently, he is the director of Centro de Estudios para la Equidad y Gobernanza en Sistemas de Salud (Center for the Study of Equity and Governance in Health Systems), a research center based in Guatemala and is an expert advisor for WHO/TDR initiative on 'Implementation Research for Access and Delivery of New and Improved Tools, Strategies and Interventions for the Control of Diseases of Poverty'.
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