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Strengthening health systems:

the role and promise of policy and systems research



Strengthening health systems: *the role and promise of policy and systems research*

ALLIANCE FOR HEALTH POLICY AND SYSTEMS RESEARCH

An initiative of the Global Forum for Health Research in collaboration with the World Health Organization



Strengthening health systems: the role and promise of policy and systems research.

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ABBREVIATIONS

ASSALUD	Colombian Health Association
CEHAT	Centre for Enquiry into Health and Allied Themes (India)
CMH	Commission on Macroeconomics and Health
COHRED	Council on Health Research for Development
CSO	Civil Society Organization
DALY	Disability-adjusted life year
DANIDA	Danish International Development Agency
DFID	Department for International Development (United Kingdom)
DGIS	Ministry for Development Cooperation (the Netherlands)
HNP	Health, Nutrition and Population (World Bank)
HRP	UNDP/UNFPA/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction
IDRC	International Development and Research Centre (Canada)
IHPP	International Health Policy Programme
INCLEN	International Clinical Epidemiology Network
MDGs	Millennium Development Goals
GAVI	Global Alliance for Vaccines and Immunization
GDN	Global Development Network
GRIPP	Getting Research into Policy and Practice
HEPNet	Health Economics and Policy Network for Sub-Saharan Africa
MIM	Multilateral Initiative on Malaria
NHS	National Health Service (United Kingdom)
ODI	Overseas Development Institute (United Kingdom)
PAHO	Pan American Health Organization
PEPFAR	US President's Emergency Plan for AIDS Relief
PMTCT	Prevention of Mother to Child Transmission of HIV
RED SALUD	Network for Health Systems and Services Research in the Southern Cone of Latin America
SAREC	Swedish International Development Cooperation Agency (SIDA) Department for Research Cooperation
SDO	Service Delivery Organization (UK National Health Service)
TDR	UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases
TRIPS	Trade-related aspects of intellectual property rights (WTO agreement)
ULP	User Liaison Program of the Agency for Health Research and Quality
WBI	World Bank Institute

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EXECUTIVE SUMMARY

Improved performance in controlling emerging and re-emerging diseases in developing countries is dependent on the quality, equity and efficiency of health systems. Rapid progress towards targets is greatly hampered by weak, poorly functioning or in some cases non-existent health systems. It is critical to know how best to approach health system strengthening, and what specific actions are appropriate in different settings. Much is known about the barriers or constraints to greatly increasing ('scaling up') health services. However, remarkably little is known about how best to relax these constraints, whether through reformed service delivery strategies, or different human resource management policies, or new organizational structures.

The central concern of this book is how knowledge of health systems can be increased and applied to improve the health of the worst-off of the world's population. Health systems research has much to contribute to our understanding of health systems and policies. Research can play a major role in policy formulation, especially when policy questions can be formulated in terms of clear and empirically verifiable hypotheses. The book provides case studies showing that the application of health systems research has contributed to problem resolution, and that a widely applicable scientific body of knowledge is developing. Progress is reviewed in the areas of equity, user fees, community health insurance, management reforms and the role of civil society organizations. Decision makers and community advocates can benefit from this knowledge for the design and implementation of sound policy.

Funding for health systems research in developing countries and by developing country researchers is meagre. Evidence suggests that such funding is at most 0.02% of health expenditure, far too low to have an impact on health system development. Funding should be mobilized from within national health systems as well as from science and technology budgets and international sources. Priority problems for research need to be identified in relation to health system and development goals and in consensus with policy makers. The book presents the results of a survey of priorities identified at country level, as an input to further thinking on national and global research agendas.

Much can be done to support the information needs of decision makers at all levels by strengthening the process of "getting research into policy and practice" (GRIPP). Analysis of successes and failures are used to develop a framework for systematically enhancing the use of evidence. Key GRIPP elements include:

- ▶ improving the capacity of decision-makers to recognize the benefits, and identify and use research information to strengthen health policies and practices;
- ▶ identifying and updating research priorities with participation from all key stakeholders, and applying financial and human resources to address the priority agenda;
- ▶ producing good quality, timely and credible research outputs for the identified priority agenda, including realistic recommendations that reflect understanding of the policy context and constraints, and synthesizing research into evidence that can support decision-making;
- ▶ communicating evidence in ways appropriate to audience needs, using advocacy strategies including mobilizing the influence of networks and key stakeholders to convey critical evidence to decision-makers;
- ▶ recognizing the pressures and elements that influence policy-making, and being opportunistic and enterprising in inserting evidence into decision-making processes.

The book assesses capacity for health systems research in developing countries, identifying project funding and skill levels, among other indicators. Capacity strengthening strategies are then proposed as an integral part of health system development. This demands an innovative and comprehensive re-thinking about how health systems research can be scaled-up and strengthened. Five challenges are put forward for the health systems research community to consider:

1. Health systems research in all its aspects, including capacity strengthening, must become a more integral part of **national** health system development—for example, contributing strongly to on-going evidence-based health system planning.
2. Health systems research must become **more visible** within the current movement for strengthening national health research systems.
3. A broader and more comprehensive view of **institutional** research capacity strengthening is needed.
4. More innovative applications of the **knowledge management** revolution should be considered.
5. The health systems research community should challenge itself to explore **problem-oriented alliances** with other disciplinary and topic-based groups who share the same concerns of strengthening health systems.

PROLOGUE

The Alliance for Health Policy and Systems Research is an initiative of the Global Forum for Health Research in collaboration with the World Health Organization. The Alliance was launched in 2000 to promote the generation, dissemination and use of knowledge for enhancing health system performance in developing countries.

The central problem faced by the Alliance is insufficient use of knowledge for enhancing health system performance in developing countries. The concept of ‘insufficient use’ is two-dimensional. In some cases there is very little available information on the performance of health systems and on how policies affect performance. This knowledge gap has become particularly acute against the background of ongoing efforts to expand funding for the health sector, engage in new forms of development partnership, and scale up health services for specific diseases. The second dimension is that even when knowledge is available, policy makers and programme managers are often either unaware it exists or are not using it.

To address these issues, the Alliance promotes the generation and synthesis of knowledge, supports capacity development and monitors and publicises the global progress in our field. This book, the first of an intended series of biennial reviews, was written to support health systems research in its mission of strengthening health systems in developing countries. The intended readership are health policy makers, programme managers and civil society organizations as well as those supporting health systems strengthening and research at the international level. Researchers will find in the review a useful update of the field covering important aspects of both its technical and institutional dimensions.

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OVERVIEW

Health is currently high on the international agenda. The report of the Commission on Macroeconomics and Health (CMH) made a strong case for increased investment in health [1]. New international initiatives such as The Global Fund for AIDS, TB and Malaria, the 3 by 5 Initiative (to provide access to antiretroviral therapy to 3 million people living with HIV/AIDS in developing countries by the end of 2005), and the Global Alliance on Vaccines and Immunisation, are increasing the funding available at country level to expand disease control efforts. The recent focus on clearer identification of the beneficiaries of health programmes is highlighting the extent to which they have failed the poorest populations, and stimulating a new focus on strategies to reach vulnerable groups [2].

These reports and initiatives share a common theme: rapid progress towards targets is greatly hampered by weak, poorly functioning or in some cases non-existent health systems. As expressed by the WHO, 'without significant health systems strengthening, many countries will make little headway towards the Millennium Development Goals (MDGs), the 3 by 5 target, and other health objectives' [3].

The key questions concern how best to approach strengthening, and what specific types of action are appropriate to specific types of setting. Much is known about the barriers or constraints to greatly increasing ('scaling up') health services [4; 5]. However, remarkably little is known about best how to relax these constraints, whether through reformed service delivery strategies, or different human resource management policies, or new organizational structures. The 1990s witnessed widespread efforts in health sector reform across the world; although progress was made in some countries towards improved performance, the reforms highlighted the need for better information and evidence to guide reforms.

The central concern of this book is how knowledge of health systems can be increased and applied to improve the health of the worst-off of the world's population. We use the term 'health system' to include all levels, from service delivery to policy making and implementation. The Alliance for Health Policy and Systems Research, which publishes this book, was created to

promote the generation, dissemination and use of knowledge for enhancing health system performance; this book is intended to demonstrate the value of health systems research to all stakeholders, and to identify outstanding gaps and challenges.

The importance of the health system

The health system encompasses all the organizations, institutions and resources that are devoted to producing health actions whose primary intent is to improve health. The four vital functions of health systems have been defined as:

- ▶ *Service provision*: encompassing both formal and informal service providers, whether public or private, and also service organization both at the level of service delivery and higher up the chain of management;
- ▶ *Resource generation*: encompassing key inputs such as human resources, physical capital, and drugs and medical supplies;
- ▶ *Financing*: the volume and sources of financial resources available for the health system, together with the mechanisms for pooling resources and transferring them to service providers;
- ▶ *Stewardship*: the role of oversight of the health system which falls to the government, and encompasses defining the vision and direction of health policy, exerting influence through regulation, and collecting and using key data [6].

Working Group five of the CMH noted that while lack of funding is often the ultimate constraint, it cannot be assumed that progress is ensured if money becomes available. 'Without a health system that can use money well, spending will not merely be inefficient – it maybe useless, or conceivably counterproductive' [7]. A plumbing system analogy was used: water cannot be provided to a building simply by filling storage tanks. There must be pipes through which the water can flow and these must not be too narrow, or clogged, or full of holes; there must be valves that direct it to where it is needed; and the system of pipes and valves must extend throughout the building.

In reality, constraints to using additional funds effectively exist at all levels of the health system. Table 1 summarizes these constraints by the level at which they operate. This table demonstrates the very substantial range of research which is required to support the process of health systems development.

The health research system

Health research is a driving force for improving the performance of health systems and the health of individuals and populations [8]. However, it is often a fragmented, competitive and highly specialised activity, with researchers in different disciplines often working in isolation. Moreover, the overall emphasis of research priorities, viewed internationally, is heavily skewed by the bias of the funding available in the rich world towards the rich world's problems: in the words of the Global Forum for Health Research, 10% of the world's research funding addresses 90% of the world's health problems [9].

In recent years, some progress has been made in efforts to shift priorities. For example, new research funding has been made available to tackle problems such as the absence of vaccines for key causes of mortality such as malaria and HIV/AIDS, the scarcity of effective drugs for malaria and TB, and the lack of adequate diagnostic tests. Initiatives to support researcher interaction include the Multilateral Initiative on Malaria (MIM) which is bringing African malaria researchers of all disciplines together and supporting information exchange and capacity development.

In order to improve the contribution of research to health outcomes and health equity, the concept of a national health research system has been proposed, linking the actors, resources and stakeholders in order to clarify interdependences and common goals [10]. The health research system can be seen as one of the subsystems of the broader health system. Conceptualising research in this way can help stakeholders address and debate priorities across the whole range of research, from biomedicine to health systems and services. As explored later, such country priority setting processes commonly lead to identifying health systems research as a neglected area.

Health systems research

Health systems research can be defined as 'the production of knowledge and applications to improve how societies

organise themselves to achieve health goals, including how they plan, manage and finance activities to improve health, as well as the roles, perspectives and interests of different actors in this effort' [11]. Health systems research includes research on health policies, though this is sometimes separately distinguished, as in the phrase 'health policy and systems research'. It also includes health services research, which could be seen as a subset of health systems research, focusing on service delivery.

Over the past decade, there have been calls for increased attention to be paid to health systems research, most notably in the report 'Investing in Health Research and Development' by the Ad Hoc Committee on Health Research Relating to Future Intervention Options. This study reviewed policy on investment in health R & D of particular relevance to the poor in low and middle income countries, and addressed how best to focus R & D investments when resources are tightly constrained [12]. It concluded that: "Health care systems vary greatly in their performance – in how efficiently they improve health conditions, extend access and contain expenditure growth; yet there remains a surprising lack of information on the performance of systems and on how policies have affected performance."

The industrialized world has been able to respond to this challenge with notable initiatives, some referred to in later chapters, to encourage research users and producers to work together to define priorities, to commission research, and to learn from and put into practice the findings. Furthermore, international publications in health systems for industrialized countries doubled from 91,900 papers per year in 1991 to 178,800 in 2001. In less wealthy countries, however, human and financial resources have been insufficient to mount an effort that reflects the enormity of the knowledge gap. While yearly publications on developing countries have more than doubled, they have done so from a very low base of 3,900 in 1991 to 8,200 in 2001. South/North publication differentials thus point to a 5/95 gap in health systems research (see annex 1).

Health systems research, more so perhaps than other areas of health research, has to be shaped by the need to ensure that research topics meet the needs of decision makers and that knowledge production and communication is managed in such a way that it maximises the chances that the knowledge generated will be used. It is therefore useful to think in terms of a research to policy and practice cycle (Figure 1). Key steps in the process can be categorised as:

- ▶ Managing the research agenda: setting research priorities and allocating resources to them;
- ▶ Producing evidence both through original research and a synthesis of existing knowledge;
- ▶ Promoting the use of evidence through, for example, advocacy channels, and specific mechanisms designed to link producers and users;
- ▶ Utilising evidence in decision making.

In practice, the cycle is a messier process, and politics can intervene at any point. Nonetheless, the influence of political and other factors on decision making does not detract from the importance of making evidence available to support the decision making process, as chapters in this book demonstrate.

The aim of the book

The aim of this book is to review progress in health systems research, identify outstanding gaps and challenges, and invite all stakeholders to reflect on these challenges. It also seeks to set out the case to national and international investors in health system development and health research for a much greater investment in health systems research. Investment is required to generate knowledge both at the global level, relevant to a range of countries, and at the more local level, relevant for decision making at national or sub national levels. Investment is required also to strengthen the capacity to manage the research agenda and to increase the utilisation of research outputs by multiple stakeholders.

While the need for investment in this area of research has been acknowledged in countries at all levels of development, the focus of this book is specifically on low and middle income countries, and within these especially the poorest countries and those facing the greatest difficulties in meeting the MDGs. The book does not pretend to be comprehensive and to cover all issues and developments in the field of health systems research. Issues such as research methodologies, governance and institutionalisation of health systems research at various levels are not discussed in any detail, and will be featured in future Alliance publications.

The next chapter describes how the field of health systems research has evolved, illustrating its close connection to policy. Annex 1 analyses trends in international publications in health systems research. Case

studies are used to demonstrate how such research can help produce better decisions on policy design and implementation at global, national and sub-national levels. The chapter concludes by reflecting on the policy and operational challenges that lie ahead. The chapter concludes by reflecting on the policy and operational challenges that lie ahead.

Chapter 3 addresses the question ‘what do we know now?’ and takes as examples the areas of equity in health systems, user charges, community health insurance, the role of civil society organizations, and human resources. In each case, the text briefly assesses the current state of knowledge and what areas need greater attention.

Subsequent chapters then address the instruments for establishing or expanding health systems research. Chapter 4 considers the important issue of the priority setting process. Commonly used methods for priority setting are reviewed, and their utility assessed for establishing health systems research priorities. Evidence from a survey undertaken by the Alliance for Health Policy and Systems Research is used to shed light on the current research portfolio of countries, and influences on it.

Health systems research is centrally concerned with the use of evidence by decision makers at all levels. The process that has come to be known as GRIPP (Getting Research into Policy and Practice) is addressed in Chapter 5. The chapter elaborates on the research to policy and practice cycle introduced earlier in this chapter. The barriers at each point in the cycle are considered, and strategies to combat the barriers discussed. Throughout, examples are given of successful country experiences in managing the process of using evidence for policy and practice.

Given the relative youth of health systems research as an area of study, countries at all levels of development face capacity constraints in capitalising on its promise. Chapter 6 focuses on country capacity to produce and use research. It reflects on the nature of the capacities required and, using data from an Alliance survey, highlights weaknesses in the skills available in research producing institutions, and in the nature of current funding patterns. The chapter reviews some international experiences in capacity strengthening for health systems research, drawing lessons for future programmes.

The final chapter summarises the key messages arising from the book. It emphasises that strengthening of health systems is urgently needed to improve health

and help achieve the MDGs, and that, with adequate investment, health systems research can greatly assist this process of strengthening.

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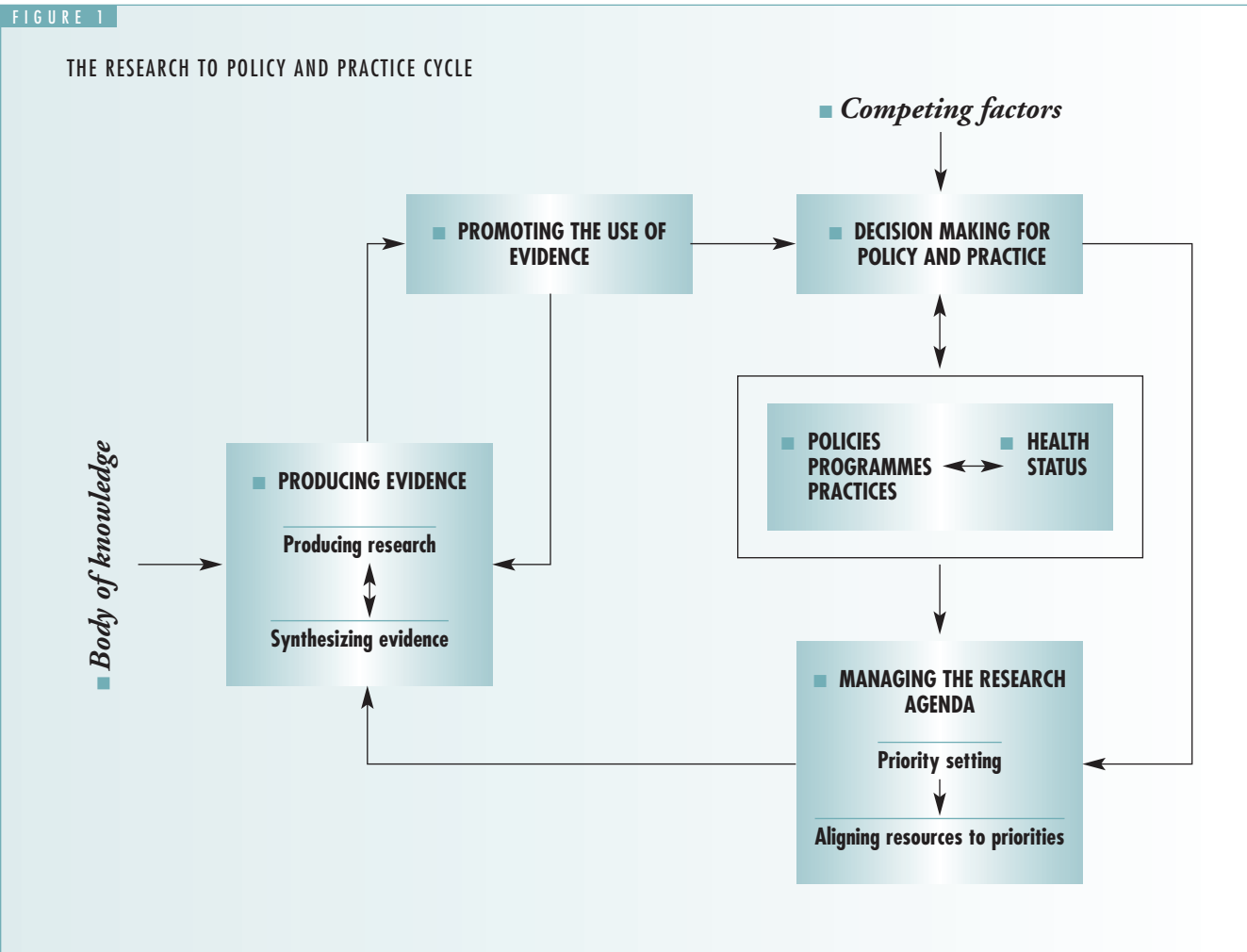
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TABLE 1

CONSTRAINTS TO SCALING UP HEALTH SERVICES

LEVEL OF CONSTRAINT	TYPES OF CONSTRAINT
I. Community and household level	<ul style="list-style-type: none"> ■ Lack of demand for effective interventions ■ Barriers to use of effective interventions: physical, financial, social
II. Health Services delivery level	<ul style="list-style-type: none"> ■ Shortage and distribution of appropriately qualified staff ■ Weak technical guidance, programme management and supervision ■ Inadequate drugs and medical supplies ■ Lack of equipment and infrastructure, including labs and communications) and poor accessibility of health services
III. Health sector policy and strategic management level	<ul style="list-style-type: none"> ■ Weak and overly centralized systems for planning and management ■ Weak drug policies and supply system ■ Inadequate regulation of pharmaceutical and private sectors and improper industry practices ■ Lack of intersectoral action and partnership for health between government and civil society ■ Weak incentives to use inputs efficiently and respond to user needs and preferences ■ Reliance on donor funding that reduces flexibility and ownership ■ Donor practices that damage country policies
IV. Public policies cutting across sectors	<ul style="list-style-type: none"> ■ Government bureaucracy ■ Poor availability of communication and transport infrastructure
V. Environmental characteristics	<p>A. Governance and overall policy framework</p> <ul style="list-style-type: none"> ■ Corruption, weak government, weak rule of law and enforceability of contracts ■ Political instability and insecurity ■ Low priority attached to social sectors ■ Weak structure for public accountability ■ Lack of free press <p>B. Physical environment</p> <ul style="list-style-type: none"> ■ Climatic and geographic predisposition to disease ■ Physical environment unfavourable to service delivery

Source: Mills A, and Hanson K (eds) [5]



Photo © WHO

ACHIEVING GLOBAL HEALTH GOALS: THE ROLE OF HEALTH SYSTEMS RESEARCH

The global community has set ambitious targets for improving the health of the world's poor. The Millennium Development Goals (MDGs) aim to reduce by two thirds the under-five mortality rate, reduce maternal mortality by three quarters and roll back the spread of AIDS, malaria and other common diseases. There are now serious concerns about the rate of progress towards these goals and even doubts about their ultimate attainability [1].

Many of the necessary medical procedures and interventions are already well established. If it were possible to guarantee that all children under five accessed effective immunization services and integrated management of childhood illnesses, and complied with the treatment provided, then infant and child mortality would fall sharply. Likewise, were it possible to ensure that all pregnant women accessed and complied with effective antenatal care and delivery services, then maternal mortality would fall sharply. However, there are multiple systemic barriers that prevent known medical technologies from being optimally delivered and used.

A lack of finance is undoubtedly a part of the reason why access to such services is not achieved for all. In most of Sub-Saharan Africa total health expenditure ranges from just US\$4 per capita per year to about US\$30 per capita per year at most, and much of this spending (60% on average) is private [2]. Interestingly, the upper end of this range does not compare unfavourably with estimates of the cost of delivering an essential package of health services, the lowest of which indeed start at around \$US 30 per capita per year.

However, it is becoming increasingly misleading to describe financial constraints as the ultimate brake on progress towards achievement of the MDGs. Major new initiatives such as the Global Fund to Fight AIDS, TB and Malaria, and the US President's Emergency Plan for AIDS Relief (PEPFAR) are dramatically increasing the financial resources available to the poorest of countries. As a consequence, these countries now have the MDGs in their sights. Unfortunately, a lack of national capacity to manage and programme these funds and lack of knowledge about how health systems can best be strengthened then become major constraints upon the necessary scaling up of services.

There is mounting evidence from all quarters pointing to the importance of health systems and the

urgency of developing an improved understanding of health systems. Sophisticated economic analyses point to the significance of the health care system: while the best-established determinants of health status achievements are economic growth and education (particularly maternal education), recent analysis also suggests an important role for specific aspects of health system development [3]. A review of progress and remaining challenges in the field of child survival noted the constraints that weak health systems placed upon further progress [4]. Those responsible for implementing the new initiatives, such as PEPFAR and the 3 by 5 Initiative (to provide access to antiretroviral therapy to 3 million people living with HIV/AIDS in developing countries by the end of 2005) are increasingly recognizing the barriers posed by poorly motivated staff, or ineffective drug supply and distribution systems.

Many of the constraints on health systems currently encountered, and a range of potential solutions now under consideration, have already been the subject of research, with the result that some highly relevant yet scattered knowledge does exist. For example, contracts with private sector organizations are currently being widely implemented as part of rapid efforts to scale up services. Such contracts have been previously evaluated and there is a growing body of evidence describing the circumstances under which they are likely to be effective [5; 6; 7; 8]. Similarly, fairly well-established approaches exist to assessing pharmaceutical management systems and identifying any weaknesses that need to be addressed [9]. But for many of the most fundamental health system constraints, such as inadequate distribution and/or poor motivation of health workers, very limited prior research has been undertaken and few answers exist.

The urgency of mobilizing around the MDGs is not the only factor driving renewed interest in health systems research. In developing countries, the environment in which health policy-makers, planners and managers work is becoming increasingly complex. In some countries, patterns of disease burden are changing rapidly. Health system reforms are widespread and sometimes initiated by actors outside of the health sector (commonly as a consequence of decentralization). The development assistance environment is also changing, with, on the one hand, many traditional donors finding new ways of working, and on the other, the emergence of new development assistance partners (such as the Bill

& Melinda Gates Foundation or the Clinton Foundation, or the Global Fund to Fight AIDS, TB and Malaria). Transitional economies pose particular challenges for policy-makers: many inherited over-staffed, highly bureaucratic and somewhat unresponsive health systems that have been subject to multiple shocks during the transition process. Policy-makers and practitioners in developing and transitional countries need health systems research to help them better understand and respond to the evolving context in which they work.

Until now health systems research has been the poor cousin of research on new health technologies and drugs, for reasons explored in Box 1. For example, of the US\$ 72 million allocated by USAID to health research in 1998, only US\$2 million was classified as health systems research: other funders demonstrate similar patterns [10]. While international publications on health systems have been growing relative to other

fields, they remain at a very low base. Thus, publications classified under health services research in Medline grew from 0.27% of the total in 1991 to 0.71% in 2000 (Annex 1).

Furthermore, health systems research has been extraordinarily biased towards research in industrialized countries. With the exception of a handful of research programmes in the industrialized North, and the notable exception of the former International Health Policy Programme and more recently of the Alliance for Health Policy and Systems Research, funding for health systems research has come in very small pots – with grants typically in the range of \$20,000–30,000. With such limited funding it has been challenging to build research capacity in this area and almost impossible to undertake any major operational studies. While yearly publications in health systems research for the North indexed in Medline amounted to 178,800 in 2001, those for the South represented only 8,200 or 5% of the total. Such differential between North and South is greater than the 10/90 gap identified for health research in general, where only 10% of the resources for health research are allocated to address 90% of the disease burden which is borne mainly by developing country populations.

For the MDGs to be achieved in the coming decade the global community needs to focus upon, and invest in, promoting understanding of how health policies and systems can be strengthened. It is imperative that research moves beyond scattered small-scale studies and that a serious attempt is made to develop a consolidated body of knowledge in developing and transitional countries.

This chapter describes how health systems research has evolved as a field and how that evolution has been inextricably linked to policy issues. A series of short case studies are used to demonstrate the role that health systems research can and has played in strengthening health policy and systems at the global, national and sub-national levels. These case studies also serve to illustrate the richness of methodological approaches used by health systems research and the distinctiveness of the field. Finally the chapter turns to the policy and operational challenges that lie ahead and reflects upon emerging challenges in the health systems research field.

BOX 1

WHY HAS HEALTH SYSTEMS RESEARCH BEEN THE POOR RELATION?

The available data suggest that investment in health systems research has been less than that made in clinical or epidemiological research relevant to developing countries. While there is no widely agreed answer as to why this might be the case, several arguments have advanced:

- The disciplinary base of health systems research is the soft sciences: anthropology, political science, sociology, or economics (in contradistinction to hard sciences, such as parasitology or other fields within the biological or medical sciences).
- Health systems research involves a range of disciplines applied to one field. As such it lacks an obvious institutional home in universities and other research institutes, and is equally likely to be found in faculties of medicine, economics or sociology. The lack of a fixed home also means poorly defined career structures for researchers in this field.
- The types of interventions that interest health systems researchers tend to be implemented as part of larger, messier reform programmes. It is fairly unusual for small-scale and controlled pilots of health policy and systems interventions to be introduced; studies with more rigorous experimental designs are even more unusual. Under these circumstances it is hard to reach definitive conclusions.
- The effects of health policy and systems interventions frequently depend critically upon multiple aspects of the environment in which they are implemented. This makes it hard to generalize from one context to another and may be a further factor deterring investment in health systems research.

The evolving role of health systems research

During the past thirty years there has been considerable growth in the number and significance of health systems research studies conducted (albeit from a very small base). Several indicators attest to this growth: the number of institutions that now conduct health systems research, the number of journals dedicated to the publication of such research, the number of articles published, the number of studies funded, and the number of funding organizations now willing to support such research. This growth of interest in health systems research is seen both in industrialized and in developing countries, although the number of studies conducted in developing countries still accounts for a small fraction of the total (see Annex 1).

Less evident from the numbers, but apparent from any historical review of the literature, is the growth in breadth, depth and diversity of the field. During the 1970s and 1980s the predominant forms of health systems research were either studies of service delivery, frequently based upon the principles of public health and perhaps anthropology, or economic studies of relatively narrow questions of cost-effectiveness, and to a lesser degree health financing issues. In recent years, published studies appear to be far more heterogeneous, drawing upon a wide range of disciplinary fields, such as management science, epidemiology, demography, sociology and political science, and encompassing topics ranging from trust and accountability, to new public management, to the nature of health care markets, and policy processes. Much of the explanation for this growth in interest in health systems research lies in changing views amongst policy-makers regarding the nature of problems within health systems and their increasing appreciation of the benefits of evidence-based policy-making.

In most countries the foundations of national health care systems are relatively recent (regardless of the level of industrialization). For example, the thinking behind the British National Health Service dates back only to the mid-1940s. The foundations of many Latin American health care systems were laid during the 1930s and 1940s with the development of social security systems linked to the growth in power of the labour movement [11]. The 1939 Public Health Act and the 1946 Bhole Report provided the vision behind the Indian health care system. Similarly, the national health care systems in many Sub-Saharan African countries were established upon independence from colonial powers (in the 1960s and 1970s).

In many national health systems, particularly those in developing country contexts, an initial period was devoted to expanding the health delivery network in an effort to ensure access to care for more remote, rural populations. The relatively few health systems research studies conducted at this time appear to have focused primarily upon health sector planning, particularly infrastructural aspects of planning (number of health centres needed, and their location), and to a limited degree understanding the cultural dimensions of accessibility (the apparent rejection of services by local populations despite physical accessibility). In many ways the 1950s to 1970s were the early halcyon days of health care systems. The belief was that with sufficient investment and political commitment it would be possible to achieve high standards of health care. This view was perhaps epitomized by the Alma-Ata Declaration of 1978 with its commitment to the achievement of Health for All by the year 2000. The Alma-Ata Declaration embodied a very broad view of the determinants of health and was ambitious in the range of interventions it prescribed.

Starting with the Alma-Ata declaration, Box 2 lists key international publications which reflect the growing interest in health systems research. The Alma-Ata Declaration gave an important boost to the recognition of research on health services as a critical tool in the reorganization of national health systems based on primary health care, recommending that "...every national programme should set aside a percentage of its funds for continuing health services research; organize health services research and development units..." Subsequently, numerous World Health Assembly resolutions defined health services research as an explicit priority component of the Organization's research effort, as did recommendations and decisions of the Executive Board, the regional committees and the global and regional committees on medical research. As a result, an increasing number of countries, particularly developing countries, embarked on a variety of activities dealing with the production, management, utilization, capacity strengthening and governance of health services research. For instance a progress report on WHO's efforts in health services research in 1979/80 noted health services research activities in no fewer than 130 countries, dealing with such issues as policy and management, intersectoral action and community development, economic aspects and financing, services and service infrastructure, appropriate technology, health manpower development and community behaviour and participation. The estimated cost of those activities was nearly US\$ 21m [12]. These studies and related analy-

KEY INTERNATIONAL PUBLICATIONS REFLECTING THE DEVELOPMENT OF INTEREST IN HEALTH SYSTEMS RESEARCH

1978 - *Alma-Ata Declaration, WHO*

First clear articulation of a global vision for health systems.

1987 - *Financing Health Services in Developing Countries: An Agenda for Reform, World Bank*

Challenged the status quo and provided stimulus for reforms, particularly in the Sub-Saharan African context.

1990 - *Health Research: Essential Link to Equity in Development, Report of the Commission on Health Research for Development*

Strongly emphasized the need to develop essential national health research, particularly country-specific research to inform decision-making on health action.

1993 - *Investing in Health, World Development Report, World Bank*

Argued for the importance of greater investment in health and used extensive burden of disease and cost-effectiveness analyses to support this. Also provided further impetus to the health reform movement.

1996 - *Investing in Health Research and Development: Report of the Ad Hoc Committee on Health Research Relating to Future Intervention Options, WHO*

Highlighted the shortage of data to inform health policy and drew attention to the substantial pay-off that could be generated by generic and comparative research in health systems and health policy (especially when combined with the development of performance indicators and tools).

1996 - *Health Policy and Systems Development: An Agenda for Research, WHO*

Initiated by the Ad Hoc Committee on Health Research, this was the first attempt to identify priorities for health systems research in a number of key topic areas.

2000 - *Health Systems: Improving Performance, World Health Report, WHO*

Further raised the profile of work on health systems and presented a new way to conceptualize the health care system. The extensive set of performance indicators included in the report proved highly controversial.

2001 - *Investing in Health for Economic Development: Commission on Macroeconomics and Health, WHO*

Argued strongly for further investment in health as a means to promote macroeconomic development, and provided a comprehensive review of research on the links between health and economic development, as well as some detailed reviews of research studies on health systems and the additional inputs required in order to deliver effective services to the poor.

ses contributed to an awareness of the multiplicity, variety, and complexity of problems arising within health care systems, and, in many instances, their evolution over time.

In India, for example, the Mudaliar Committee Report of 1961 highlighted the inadequacy of state funding of health care. In Latin America, concerns began to arise about inequalities and tiered access to health services, problems of cost containment within social security schemes and high administrative costs [13; 14]. In the UK, the Black Report [15] noted the high degree of social/geographical inequity even within the National Health Service. Problems such as these were exacerbated by the world economic downturn during the 1980s. In many developing countries, particularly those of Sub-Saharan Africa, macroeconomic decline shattered the vision that universal access to essential services could be achieved for all on the basis of government tax-financed health care. Even in countries where the economic downturn was not so severe, there was a realization that the need for health care was not fixed and that with the development of new technologies, demand was likely permanently to outstrip supply.

The first studies in developing countries that went beyond health services research – to health systems and policy research – responded to these concerns about lack of adequate financing for health systems, and persistent inequity in access to health systems. In 1987 the World Bank published an extremely influential report: “Health Care Financing: An Agenda for Reform”, that proposed the following four strategies to address the apparent lack of resources for health systems in developing countries: the introduction of or increase in user fees, the establishment of health insurance schemes, more effective use of non-government resources, and decentralization of government services [16]. This report marked a sea change in the health policy consensus. Subsequent to the report, many countries in Sub-Saharan Africa introduced user fees into previously free health care systems. This policy reform inspired a substantial body of evaluative research (see Box 3). Over time, the research built up clear conclusions regarding the likely effects of user fees. The research also served to highlight a range of issues about which little was known: how quality and price of services interacted, differences between health care systems and individual facilities within systems in terms of their ability to manage revenues from fees wisely, the effects of fees upon patterns of demand, and in particular the demand for private sector services.

While these reforms were under way in developing countries, many industrialized countries began to plan and embark upon more widespread reforms of their health care systems. Frequently these built upon experiences of privatization and commercialization in other sectors of the economy. Reforms pursued during the 1980s in New Zealand, the Netherlands, Sweden and the UK typify this sort of initiative [17; 18]. These reforms within health care systems in developed countries were typically driven by a broader ideology of reform: strengthening the role of consumers, creating internal markets, giving greater autonomy to and/or commercializing health care providers and facilities, and strengthening information systems and information flows to create greater transparency in the newly formed health care markets. These reforms were exported, at least in part, to low and middle income countries, giving rise to sophisticated models of reform in Colombia, Zambia and elsewhere. The breadth of such reforms gave further grist to the health systems research mill, leading to research on hospital autonomy [19; 20], decentralization [21; 22; 23], new public management and its relevance to developing countries [24], the nature of markets [25] and contracting for health care [5; 6; 20] amongst other topics.

What is health systems research?

In Chapter 1, health system research was described as the “production of knowledge and applications to improve how societies organize themselves to achieve health goals. It includes how they plan, manage and finance activities to improve health, as well as the roles, perspectives and interests of different actors in this effort” [26].

The World Health Organization’s detailed description and definition of a health system identifies four main functions of health systems: stewardship; financing; resource development and distribution; and service delivery [27]. These functions are likely to require national health policies, programmes, laws and regulations, organization and management structures and financing arrangements. In combination, these functions result in preventive and/or curative health services and public health programmes. Although an effort to protect the public’s health, and to provide some access to personal curative care services, is often sponsored by government, the coverage and quality of such public sector care is uneven. In many countries, the private sector is an important generator of diagnosis, treatment (including drugs) and palliative care. The private sector

BOX 3

TOPICS OF STUDIES AT PROGRAMME AND OPERATIONAL LEVELS WITHIN THE JOINT HSR PROJECT FOR THE SOUTHERN AFRICAN REGION

Maternal and Child Health/Family Planning and Nutrition

- Maternal mortality
- Neonatal, perinatal or infant mortality
- Utilization of child spacing services
- Malnutrition

Disease Control

- Late reporting/defaulting TB patients
- Malaria
- Oral Health

Primary Health Care, Water and Sanitation

- Drug provision and use
- Functioning of primary health care
- Coverage and use of sanitation

AIDS/Sexually Transmitted Diseases

- Condom use
- Information, education, communication
- Knowledge, attitudes and practices
- Incidence of gonorrhoea

Management and Quality of Health Care Services

- Staff attrition
- Patient overcrowding
- Collection of primary health care data
- Referral procedures
- Perceived quality of care

Source: [28]

includes the informal or traditional sector, as well as more formal private commercial or non-profit-making providers. Households themselves are also key actors within health systems: they can directly produce health services (for example, palliative care of HIV/AIDS patients), and also make important decisions about when and how to interact with the health system. Health systems research studies therefore take on board a broad range of issues.

Health systems research is useful at each level in the management hierarchy of the health system: not just at the macro level of policy and planning, but also at the programme and operational levels. The complexity of the problems dealt with at the respective levels ranges from highly complex at the policy level, to fairly simple at the operational level. Much of the information needed at operational level can be obtained through simple studies. Such studies can be designed and conducted by health personnel at district or regional level. For instance, within the WHO-based Joint Health Systems Research Project for the Southern African Region, some

TABLE 1

ILLUSTRATIVE TOPICS AND METHODOLOGICAL APPROACHES IN HEALTH SYSTEMS RESEARCH

LEVEL OF HEALTH SYSTEMS RESEARCH	POSSIBLE STUDY TOPICS	POSSIBLE METHODOLOGIES
HOUSEHOLD AND COMMUNITY	Patterns of individual demand for health care	Household surveys and economic modelling of demand
	Strengthening accountability of health workers to the community	Techniques drawn from anthropology such as mapping of social networks of health workers, studies employing public management concepts that document accountability relationships
	Effectiveness of community-based insurance schemes	Impact evaluation studies assessing effects of schemes on service utilization, equity of access, financial situation of provider etc.
FACILITY OR ORGANIZATIONAL LEVEL	Patient-provider interactions	Participant observation, "mystery patients"
	Approaches to improving health worker motivation	Operational research studies that implement interventions to improve health worker motivation and measure effects (such as changes in performance)
	Use of information and communication technologies	Economic evaluation of the use of new technologies
NATIONAL POLICY LEVEL	Policies that employ cash transfers to encourage greater service use by the poor	Quasi-experimental or natural experiment research designs that evaluate effects on care seeking behaviour in regions which have and have not employed cash transfers
	Resource allocation strategies	Economic modelling of alternative resource allocation mechanisms and implications for health care provision
	Strategies to promote quality of care in the private sector	Stakeholder analysis to understand the position of different stakeholders vis-à-vis regulation, accreditation etc.
GLOBAL OR EXTRA-NATIONAL	Impact of TRIPS (the WTO agreement on Trade-related aspects of intellectual property rights)	Comparative country case studies of the impact of TRIPS on pharmaceutical manufacture and procurement practices
	Alternative development assistance approaches	Assessments of institutional relationships between governments and alternative development assistance structures and the ease of administering alternative forms of development assistance
	Migration of health professionals	Anthropological techniques that employ in-depth interviews with migrating health professionals in order to understand decision making processes

100 research projects were initiated and completed between 1987 and 1995, most of them addressing issues at programme and operational levels (see Box 3).

At a broader level of planning, policy decisions require far more complex studies, drawing upon the specialized research expertise appropriate to research institutes and universities. For instance, studies on which interventions are likely to provide the greatest improvements in health for the available resources require specialized skills in cost-effectiveness analysis, comparative risk assessment and disease burden analysis. The complexity of the problem under consideration will determine the complexity of the research required and the type of research skills needed.

As emphasised earlier, health systems research is multi-disciplinary by nature and may employ any of a wide range of research approaches and methods. The range of disciplines typically applied in health systems research include sociology, anthropology, economics, organizational theory, epidemiology, and management sciences – to name but a few. Health systems research has encompassed a large range of research approaches and methodologies including operational research, economic evaluations, rapid participatory appraisals, case studies, pilot studies, conceptual analyses, and impact evaluations. Research may focus on the community or household level, the service delivery level, the national policy level, and, increasingly the supra-national or global level. Table 1 illustrates the range of topics that health systems research studies might focus upon, and

also the diversity of methodological approaches that have and can be deployed. The possible methods given in the final column of the table are not meant to be definitive, but rather to give a flavour of the multiplicity of research approaches that can be deployed.

The lack of a cohesive disciplinary or methodological approach for health systems research has been a barrier to the full acceptance of health systems research as a distinctive field of research. The disciplinary diversity has also sometimes given rise to the notion that health systems research does not require special training or research skills. As Table 1 indicates, the many research approaches are commonly rooted in well-established disciplines, and there is growing exploration within the health systems research community about the methodological approaches most appropriate to different issues. For example, case studies methods are relatively widely used in the field, and recent publications have examined when it is appropriate to carry lessons from one case study setting to another [29]. Similarly, there has been recent interest in the use of quasi-experimental techniques as exemplified by research in Honduras and in Mexico and there is increasing debate on the circumstances under which such approaches can be deployed [30;31].

Making a difference through health systems research

Chapter 5 discusses in depth the link between research and policy, and what can and should be done to help ensure that research findings are used to inform policy and operational decisions. In this chapter we consider a number of case studies that explore how health systems research has been used to strengthen policy and decision making processes in order to enhance the performance of health systems. The discussion is divided into two parts, considering first how health systems research has contributed to global policy debates such as that which has occurred around user fees. The second part examines contributions made by health systems research to national and sub-national policy and decision making processes. While some of these case studies neatly demonstrate a direct link from research findings to policy, others illustrate cases where the empirical base necessary to inform policy and decision makers was not adequately developed or adequately disseminated, and the consequent problems for policy.

BOX 4

RESEARCH AND COST SHARING FOR HEALTH SERVICES

The World Bank publication, "Financing Health Services in Developing Countries: An Agenda for Reform" called for new or increased user charges at public health facilities in developing countries. Three arguments were put forward:

- Higher user charges generate revenue that can improve quality of care;
- Revenue generated from user charges can extend services to the poor in remote and rural areas;
- Modest user charges create incentives for patients to use health care services efficiently.

The findings of two research studies in the Philippines and Malaysia were referenced to support this position [32;33]. These studies employed economic modelling of demand. Their findings indicated that household demand for health care services was relatively insensitive to price, and that proximity and quality were more important factors.

At the urging of the World Bank, many countries, particularly in Sub-Saharan Africa, adopted or increased user fees for health care. This was an unusually well studied phenomenon, addressed through simple studies comparing utilization rates before and after the introduction of user fees, as well as multivariate economic demand models. A review noted fifteen country level studies of the impact of user fees – most of which had been undertaken during the previous five years [34]. The studies found that in Sub-Saharan Africa, where incomes were much lower than in the previously studied countries, increased user fees tended to reduce utilization particularly by the poor and the most vulnerable. A new, more nuanced, policy position emerged, summarized as follows:

"User charges have a potential contribution to improving the financial base of the health sector. They also deter those people whose health needs are greatest. Carefully discriminating fee systems are therefore necessary to ensure that revenue is provided only by those who can afford to pay, and that resulting income improves the quality and accessibility of health care targeted at the poor."

While studies examining the effects of user fees and the nature of demand for health care continued to be undertaken, many now reflected the new global understanding. Several studies explored the interactions between quality of care and user fees, while others examined how fees could better target those able to pay [35; 32]. While there is evidence that, if implemented appropriately, user fees may have positive overall effects upon health systems, there is also increased understanding and good documentation of the multiple barriers that make it difficult to implement effective user fee systems [36].

During the past five years, the global position on user fees has shifted again. While this change is partly driven by changing political perspectives, it also stems from the emerging evidence base. The World Bank has revised its position on user fees and now advises great caution in their use in health systems. Uganda and South Africa have repealed user fees at the primary care level. Studies are beginning to explore the implications of this latest change [37; 38].

RESEARCH AND DECENTRALIZATION

In the mid-1990s, decentralization was one of the topics included in the WHO publication "Health Policy and Systems Development: An Agenda for Research". It was noted that there was "remarkably little hard research on the forms and impact of decentralization in the health sector" [39]. While there were several case studies of decentralization, only a handful of studies evaluated the effects of decentralization [40]. A series of priorities for research were proposed, including studies of:

- decentralization policy formulation and implementation;
- conditions necessary for effective decentralization;
- the effects of decentralization on such parameters as equity and efficiency [39; 41].

WHO subsequently launched a study of decentralization and health system change that aimed to identify the goals of decentralization, the forms that decentralization took and the effects of decentralization in 26 countries [23]. While individual country studies were produced and preliminary comparative findings were published in various forms, no final report for the multi-country study was ever published.

Since 2000, a number of other studies of decentralization have been published. Several of these address the effects of decentralization [22; 42; 43]. However, decentralization is likely to have complex and far-reaching effects, and studies tend to focus on one or two particular types of effects. So despite recent growth in this field, much remains to be explored. Some lessons on the conditions under which decentralization may be effective, and policy processes around decentralization, have emerged from the research conducted to date [44]. The importance of clarity of roles, careful management of political processes, development of plans for capacity building, and strong monitoring and evaluation have all been highlighted. Nonetheless there is still a relative dearth of literature on the specific forms and effects of decentralization. Despite this lack of evidence within the health sector, decentralization has continued apace in many developing countries.

Influencing global policy on health systems

Of all the areas in which research on health systems has been conducted, probably the most impressive body of literature addresses the question of user fees. As discussed above, user fees were part of the early generation of health system reforms and, unusually, their emergence on the policy agenda was driven by research findings. Over the years, the global consensus on the role and wisdom of user fees has shifted several times. Sometimes these shifts have reflected study findings, but changing political values and policy concerns at the global level are also an important motivator for change, frequently interacting with study findings (see Box 4).

While the link from research findings to global policy has not been entirely linear in the case of the user fee debate, it is nonetheless a powerful one. As new research has been conducted, policy questions have been refined

and narrowed, and new research has been undertaken to address them. A number of factors help to explain this rather direct link between global health policy and research. First, it is unusual for a new global policy to be underpinned by such strong technocratic input and research roots. This led to clear and empirically verifiable hypotheses for future studies of user fees: did increases in user fees really have very limited effect upon utilization? Did increases in user fees improve service and access for the poor? Secondly, the questions that the policy raised were tractable ones for which established research techniques existed. Thirdly, the research provided clear and generally consensual findings about the effects of user fees. Given the technocratic basis of the original policy initiative it would have been difficult to ignore these findings.

While user fees are a very positive example of how research can contribute to global debates and hence improved equity and efficiency of health systems, studies of decentralization have encountered greater obstacles in the path of consensual conclusions, reducing the likelihood of influencing global policy (Box 5).

There are many reasons why research on decentralization has thus far failed to exert an influence on international health policies comparable to that exerted by the research on user fees. First, it is difficult to compare and evaluate experiences of decentralization in different countries for a number of reasons including:

- ▶ the multiplicity of objectives which decentralization strategies may be used to pursue;
- ▶ the multiplicity of forms of decentralization, and to some extent the lack of a common and consistently applied framework for defining the form of decentralization;
- ▶ the fact that decentralization is commonly a complex and protracted reform (it is therefore often difficult to separate out the effects of decentralization from other concurrent changes in the health sector);
- ▶ even if common models of decentralization are adopted by several countries these models may be implemented in different ways (different sequencing of reforms, or different types of responsibilities being decentralized).

As a consequence of these factors, it is difficult to use those decentralization studies that have been conducted as a basis from which to generalize. On the one

hand the phenomenon studied varies enormously, and on the other the conclusions emerging from the studies are not consistent.

The studies of decentralization that have been conducted have been useful at the country level, but much stronger empirical evidence is needed to underpin internationally relevant findings on the effects of decentralization in health. It could be argued that, as decentralization is frequently initiated outside of the health sector, this evidence base – even if it existed – might exert only a limited effect on policy. Nonetheless, there remains a striking lack of clear evidence on the effects of such a widely implemented reform strategy.

Influencing policy at the national and sub-national level

Health systems research can contribute to the development of evidence-based policy and practices in many different ways at the national and sub-national level. This section documents three different cases, in India, South Africa and Thailand (Boxes 6-8), where research findings and processes have significantly affected the path of policy or operational practices. A fourth case,

that of Georgia, presented in Box 9, describes the problems that may arise when policy reform is embarked upon without an adequate understanding of certain aspects of the health system.

The four case studies in the Boxes addressed very different types of problem within the health sector, and accordingly employed different methodological approaches. The South African research study (Box 6) took the form of an evaluation of a pilot Prevention of Mother to Child Transmission of HIV (PMTCT) policy, whereby researchers used participant observation, document review and interviews to describe and analyse the effectiveness of policy implementation. The Indian research (Box 7) focused upon a series of studies in Mumbai that explored issues of quality of care in the private sector and attempted to use stakeholder analysis and workshops to develop consensus about appropriate approaches to improving quality of care. In Thailand, an even greater number of studies were conducted as part of the process of reforming Thai insurance schemes (Box 8). Research was used to advocate reform by highlighting the existing inequities in the system. Studies also contributed to the definition and design of the policy finally adopted. As noted above, the case study from

BOX 6

EVALUATING THE PREVENTION OF MOTHER TO CHILD TRANSMISSION OF HIV PILOTS IN SOUTH AFRICA

Towards the end of 2000, the South African Department of Health (DOH) decided to establish 18 pilot sites in which to launch the Prevention of Mother to Child Transmission of HIV policy. In South Africa, the issues around HIV/AIDS treatment are highly sensitive and politicized. The Government faces considerable pressure from AIDS activists, and civil society groups more generally, to strengthen HIV/AIDS services, and the PMTCT programme was seen as an important first step on this path.

The DOH decided, at the same time, to commission the Health Systems Trust to conduct an evaluation of the pilot sites with a view to drawing lessons for subsequent use, when the programme would be rolled out nationally. The Health Systems Trust is an independent non-government organization established in 1992 to support the transformation of the South African health system. The Health Systems Trust both conducts and supports research, and works as an advocacy organization.

In light of the sensitivities, a typical approach to evaluation (with a baseline and a follow-up survey some time later) was not thought to be appropriate. The Health Systems Trust recognized that it needed to provide rapid, almost continual feedback to the government about its findings, and that maintaining open channels of communication between Government and researchers was crucially important, so that government officials could be kept informed of any sensitive issues.

The research approach adopted by the Health Systems Trust made extensive use of interviews with health systems managers, coordinators and clinicians, document review, routine statistics, and participant observation in meetings at various levels of the health system. The researchers provided regular informal feedback to officials within the DOH and an interim report was released in February 2002 – just over a year after the launch of the initiative and the study. The interim report focused upon the process, progress and extent of service implementation in the pilot sites and noted much unevenness between pilot sites in implementation. This unevenness was attributed largely to differences in health systems capacity, and practical recommendations were made as to how these health systems constraints could be addressed so as to ensure a smooth and effective expansion of the PMTCT programme.

Despite some press coverage of the interim report that did not always reflect well upon the DOH, in a statement to Parliament in May 2002, the Minister of Health provided unreserved support for the research findings (even suggesting that they be “compulsory reading” for members of the house) and offered a detailed and informed summary of key study findings and what the Department was doing to respond to them.

Source: Personal communications with David McCoy [47].

Georgia, contained in Box 9, is rather different from the other Boxes. It describes how recent research on informal institutions and networks in Georgia has contributed to an improved understanding of design flaws in the programme of health sector reform that was initiated in the mid-1990s, and argues that if some of this research evidence had been available earlier, then the reform design could have been improved substantially.

The research studies described here reflect a wide variety of relationships with policy-makers. In South Africa, the research was commissioned by the Department of Health and thus a policy-maker's interest in the research was evident from the outset. In India, researchers sought international funding to work on a topic that they knew to be of considerable relevance to policy, but at the beginning of the study period no policy-maker was directly involved. In Thailand, while initial analyses originated from senior researchers and policy-makers in the Ministry of Public Health, several research partners were later engaged in the work, and policy-makers played a key role in synthesizing, analysing and distilling research findings.

These four cases also reflect very different methodologies and research approaches. In South Africa, the study took the form of an evaluation, but its approach and philosophy were quite different from those typical of evaluations [45], and involved much short-term monitoring, tracking and reflection about the procedures implemented. In India, several surveys of private health care facilities were undertaken. Such surveys are a relatively standard health systems research tool, but it was not until they were paired with analyses of the position of different stakeholders on issues relating to regulation and accreditation that they became truly useful. In Thailand, 18 studies and papers contributed to the development of the universal coverage of health care policy. Many of these studies were financial in nature, addressing the budgetary implications of the reform and the appropriate means of paying health care providers. In Georgia, while a number of studies were undertaken to inform the health sector reform strategy implemented during the mid-1990s, there was very limited information about the informal networks and institutions that underlie the health system. These have been explored through qualitative research studies since 2000. As noted previously, the field of health systems

BOX 7

REGULATING PRIVATE HEALTH PROVIDERS IN INDIA

India has a large, heterogeneous and relatively unregulated private health sector. In 1989 the Municipal Corporation of Mumbai was directed by the Mumbai High Court to form a committee of experts to look into activating the Bombay Nursing Home Registration Act of 1949 that had never been fully implemented. This was in response to a medical negligence case heard by the High Court. The Committee's findings, published in 1992, detailed substantial and often shocking problems in private hospitals and nursing homes, and it formulated and recommended minimum standards. Despite this report and further complaints of medical negligence and malpractice in the early 1990s, there was a stalemate in policy development.

In the mid-1990s two local research groups, the Centre for Enquiry into Health and Allied Themes (CEHAT) and The Tata Institute of Social Sciences, conducted further research documenting actual standards in the private sector. CEHAT then built upon the earlier information to conduct stakeholder analysis of the issues around regulation, and particularly accreditation.

CEHAT is the research centre of the Anusandhan Trust, and aims to conduct socially relevant and rigorous academic health research and health action for the well-being of the disadvantaged. CEHAT recognized that, although private health facilities had hitherto resisted stronger regulation, greater interest on the part of private providers might well be aroused by the development of private health insurance, and the unpalatable prospect of health insurers developing their own standards for providers.

CEHAT interviewed 113 hospital managers/owners, eight medical associations and two consumer organizations and found that the majority supported the notion of an independent accreditation process. Findings from the stakeholder survey, the survey of standards in health facilities, and recommendations on minimum standards were presented to key stakeholders at a workshop. The minimum standards prepared by CEHAT were well received by all stakeholders. CEHAT worked hard to overcome resistance from the Private Nursing Home Owners Association, and made sure to include this group in further meetings and discussions on the topic.

After extensive discussion with key stakeholders, draft legislation was completed by the government in June 2001 under the title "Maharashtra Clinical Establishment Act". This reflected much of the prior research and thinking done by CEHAT. In addition, the idea of establishing an independent accreditation body has also developed. Building upon the broad consensus about the need for accreditation, CEHAT established the Forum for Health Care Standards which, it is hoped, will become the future accreditation body. Together, these initiatives should have far-reaching effects upon improving the standards of care in the private sector.

Source: [48; 49].

research is broad. It is important to be able to identify research methods and approaches appropriate not only to the question in hand, but also to the time and resources available to the researchers.

In each of the cases, the research undertaken had an identifiable and tangible effect upon the development and direction of health policy and systems in the country. In Maharashtra, India, the research, and discussions around it, led to new regulatory legislation. In Thailand, the many studies conducted, and briefing papers based upon them, not only put the idea of a universal coverage of health care policy onto the political agenda, but also helped resolve many of the decisions faced by the Government as it attempted to flesh out and implement the policy. In South Africa, the evaluation contributed a series of recommendations on how best to extend the delivery of PMTCT services; these recommendations are now being adopted by government at all levels. All the resulting policy or operational

changes are contributing to improved equity, efficiency and quality in the national health care system.

The case studies described here share a number of features conducive to their successful influence on policy. Firstly, all the research organizations involved were perceived to be credible and objective. They were generally well established, independent and enjoyed a reputation for high quality work. Furthermore, the researchers frequently worked hard to establish a relationship of trust between themselves and key policy-makers and the broader group of stakeholders. In all of the successful cases, researchers were willing to approach policy-makers and to communicate in more direct and immediate ways than formal academic publications.

The nature of the relationship between the researchers and policy-makers varied considerably, and frequently reflected the maturation of the policy within the policy implementation cycle. For example, in the

BOX 8

THE ROLE OF RESEARCH IN THE DEVELOPMENT OF HEALTH INSURANCE POLICY IN THAILAND: THE UNIVERSAL COVERAGE OF HEALTH CARE POLICY

The system of public health care financing in Thailand formerly depended upon a web of different benefit and insurance schemes that offered substantially different benefits to different population groups. This created concerns about equity in health care financing and access. In 2001, the recently elected Thai Government introduced the universal coverage policy to pool and expand two existing, subsidized health care schemes to create a universal coverage scheme – known as the 30 Baht Scheme. Its features include predominantly tax-based financing with a minimal co-payment of 30 Baht per medical visit, and a comprehensive benefit package covering both prevention and curative care. The universal coverage policy shifted resources to primary care and incorporated private provider collaboration. The scheme covered about 80% of the population, excluding only those in the formal sector who were covered by the social security and civil servants schemes.

Several factors pushed the universal access policy onto the political agenda and facilitated rapid implementation. One of these was the extent to which a large body of national research provided evidence to support the policy. The idea of universal coverage was first communicated to the political party – the Thai Rak Thai Party (TRTP) – then in opposition, by a MOPH researcher in a brief paper which was subsequently developed as a booklet [17]. The booklet suggested that universal coverage was financially feasible through a reform of the financing system, and that a single scheme, financed by tax revenues and a minimal co-payment of 50 Baht per visit, could replace the multiple schemes in existence. The evidence came from a synthesis of both international literature and domestic studies. The booklet was effective at disseminating the universal coverage idea to political parties because it was concise (24 pages). This booklet was also distributed to gain NGO support.

Universal coverage attracted the TRTP because it was seen as legitimate, feasible given existing infrastructure and budget, and also congruent with the reform intentions of the Party. Three separate cost studies convinced the TRTP that sufficient resources existed to provide everyone with a comprehensive health care package, but improvements in the efficiency and equity of health expenditures were required. Substantial debate took place over the size of resources per capita which the government would need to allocate to the scheme. After the policy was adopted in principle, different research groups proposed three alternative estimates. Ultimately, the proposal made by a MOPH study group, set up specifically for this purpose, was accepted and an allocation of 1,202 Baht per capita was agreed upon [50]. The methodology behind this figure was criticized for not using illness rates adjusted for age and sex, or considering the cost at teaching hospitals [51]. All stakeholders were invited to participate in a working group for the cost calculations for subsequent years.

The health policy research community in Thailand has strengthened considerably during the past decade, and played an important role as policy entrepreneurs in this reform. The development of several independent research organizations has created competition and complementarities which serve policy-makers well. Despite the strength of the health systems research community in Thailand, the extent to which research is used for making decisions still depends considerably on its quality, simplicity, timing, and the extent to which it responds to policy-makers' concerns.

Source: Personal communication with Siriwan Pitayarangsarit

case of regulation in Mumbai, although there was some agreement that the Government needed to act to develop policy in this area, there appeared to be a stalemate. In this instance the researchers involved acted as policy entrepreneurs, shaping their research to address issues (such as stakeholder perspectives) that they thought would move the policy debate along. In this particular instance the researchers not only prepared and presented findings in a manner relevant to policy, but went beyond pure research, in terms of drafting proposed legislation and acting as brokers between different interest groups.

In South Africa, the policy had already been implemented and there was no comparable need to push a policy agenda, but in this case the Health Systems Trust, and its researchers, invested a lot of effort behind the scenes in briefing key Department of Health stakeholders. This was perceived to be particularly important given the sensitivity of the topic. The researchers wanted to ensure that policy-makers and managers were well briefed on study findings – both so that they could act upon them, but also so that they could respond to questions raised in the press or by the public. In Thailand, the policy has gone through several steps in the policy implementation cycle, and researchers have contributed

BOX 9

CONSEQUENCES OF RESEARCH GAPS: RESEARCH ON INFORMAL INSTITUTIONS AND NETWORKS IN GEORGIA

In 1995 the Georgian Ministry of Health embarked upon an extensive programme of health system reform. Primary elements of the reform strategy included:

- decentralizing health system management, including changing the ownership structure of health care providers;
- prioritizing the primary care sector;
- reforming financing with the establishment of a national health insurance scheme and mandatory employer and employee contributions;
- downsizing (or “rightsizing”) the health labour force;
- separating purchasers and providers, and generating competition between providers for clients.

The Georgian programme of reforms was ambitious. Public attitudes to the reform remain rather negative and there is also objective evidence to suggest that in several respects the reforms have not yielded the benefits anticipated. There is a multiplicity of reasons for these failures, but a particularly salient one was the failure of those involved in the reform design – particularly external partners – to understand the complex dynamics of the “informal” part of the health care system that emerged with the country’s transition from a centrally planned economy to a more market-oriented system.

Several recent studies have begun to address the role of social networks, informal institutions and trust (or mistrust) with respect to the health care system. Findings suggest a number of respects in which the initial design of the health system reform was flawed. For example:

- The reform design anticipated that devolving financial responsibility to health care facilities, and reducing government subsidies, would result in downsizing of the health workforce (which was critically needed). In practice this has not occurred to the extent desired. A recent study found that informal payments were extremely widespread and suggested that they have grown to fill the financing gap [52]. Another study suggests that, with declining workloads and salaries, social networks are one of the most important motivating factors for health staff. These close social networks within the workplace, combined with the common practice of paying bribes to secure public sector jobs, make it difficult for hospital directors to lay off staff [53; 54].
- A social health insurance scheme has been established, but is frequently under-funded. Recent research in Tbilisi, based upon focus group discussions and a household survey, found very widespread distrust of government and financial institutions associated with government [55]. Respondents suggested that they would have far greater trust if they were contributing to schemes run by other providers, e.g., NGOs, whom they believed to be more trustworthy.
- Each of the three studies referenced above underlined the importance of strengthening accountability within the Georgian health care system. While the initial wave of reforms made substantial changes in ownership structures, they did very little to strengthen the accountability of health providers to the community.

Although a variety of factors contributed to the inappropriate design of the reforms undertaken in the mid-1990s, it is highly likely that better information about informal networks and institutions, as well as governance and accountability structures, would have strengthened the overall reform design. The experience of Georgia is not unique; lack of research evidence also hampered the design of early reforms in neighbouring states.

Sources: [52; 53; 54; 55].

both as policy entrepreneurs (putting the policy onto the agenda) and in supporting government decision making processes.

The time frame for the studies described in the Boxes varies enormously. In both South Africa and Thailand the time frame for research had to meet the demands of policy-makers. In South Africa, there was barely more than a year from the onset of the study (and the initiative) to the development of the interim report. In Thailand, a large number of research studies and reports were generated within a two or three year time frame in order to inform the policy debate. In contrast, in India, where the researchers themselves were the primary drivers of the reform agenda, the process of research has lasted for almost a decade. During that period the local research institution, CEHAT, has built up a series of different studies around the same topic area, and a reputation for expertise in that area.

Many of the factors identified for a case study in Mexico enabling health research findings to influence policy appear relevant to the case studies reviewed here, including the personal connections of the researchers, the perceived credibility of the researchers and their research organization, and their willingness to disseminate findings via non-traditional means [46].

In Georgia, the studies described in Box 9 were not initiated in response to the concerns of policy-makers, but responded to more basic research interests on the part of researchers. The study findings on informal payments, trust and health worker motivation suggest that the assumptions underlying earlier health sector reforms in Georgia were fundamentally wrong in a number of respects, and hopefully these findings will influence a future reform agenda.

Influencing decisions at programme and operational levels

The benefits of health systems research can also be illustrated at the programme and operational levels within the management hierarchy. Much of the information that is needed for decision making on programmatic and/or operational issues can be obtained through simple studies. An increasing number of developing and developed countries have indeed been using this type of health systems research over the past two decades to address and solve managerial problems at these levels.

A good example of this approach can be seen in the Joint HSR Project for the Southern African Region, sponsored since 1987 by WHO, the Netherlands Ministry for Development Cooperation and the Netherlands Royal Tropical Institute. With its explicit focus on programmatic and operational issues in the reorientation of national health systems towards health for all and related capacity strengthening efforts at sub-national levels, the Project invested substantially in analysing and documenting the implementation and utilisation of the findings of the more than 100 projects it facilitated. One case in point was research undertaken in 1989 in Ghana to reduce obstacles in the way of the Bamako Initiative. This Initiative involved the sale of essential drugs to patients at cost price with some profit to generate funds for the primary health care system. However, the majority of the community clinics had collapsed and ineffectual community clinic attendants obstructed implementation. Research investigated the role that existing although often illegal community drug outlets could play to distribute essential medicines [56].

The challenges ahead

The lack of understanding of how best to strengthen health systems and health policies constitutes a critical barrier to the achievement of the Millennium Development Goals and other health sector targets. There is within the global community a sense of urgency regarding the need to improve health sector performance and consequently health status. The case studies presented above demonstrate the varied ways in which health systems research can inform and strengthen policy-making, and improve health service delivery. Given the challenges currently faced by health policy-makers and practitioners, what can health systems research contribute in the short term to the achievement of the Millennium Development Goals and other similar targets?

Many of the topics on which health systems research has traditionally focused – health financing, facility and programme organization and management, decentralization, understanding the nature of demand for health care – are all areas which continue to be important and deserve further research and research synthesis. However there are certain topics whose significance, in terms of policy or operations, would appear to suggest that they are sorely under-researched. This section briefly describes an assortment of such research topics that appear to be particularly important given existing challenges. The subjects described below

are illustrative, and do not constitute a formal attempt to define priorities.

Firstly, human resources are the most important of inputs in the health sector, frequently accounting for 60-70% of health care costs. Without appropriate staffing profiles, fair distribution of staff and motivated workers, health systems are unlikely to function well: the quality of interpersonal communication will be poor, patients will be deterred from visiting facilities, technical quality may also be poor, and absenteeism may be high. During the past five years there has been a heightened interest in the role of human resources in health as evidenced by some key publications but much remains to be done [46; 28]. More modelling is required of alternative patterns of staffing for scaling up services, and cost and training implications need to be assessed. The brain drain, both internally from public to private sectors, and globally, continues to be a major issue for many developing countries. The issue needs to be better understood if effective interventions are to be developed to prevent it. Poor motivation and high absenteeism still plague many health systems in developing countries, and operational research needs to be undertaken to examine the effect of financial and non-financial incentives, and sanctions imposed on absentees. The recently established “Human Resources for Health and Development: A Joint Learning Initiative” represents an important first step in building up a programme of work in this area: further steps are now needed.

A second area that requires substantially more research, and which might, in the short term, offer important policy and operational insights, concerns the role of the private sector, and in particular how greater use of the private sector might serve to expand access to care. During the past decade there has been a growing interest in the nature and composition of the private sector, the success of contracting arrangements social marketing via the private sector, public/private partnerships and the nature of markets both for commodities and for health services [57; 5; 58; 59]. Some notable lessons have been gleaned – involving, for example, clear evidence of the heterogeneity of the private sector, or the difficulties that many governments face in developing contractual relationships, or the complexity of instituting appropriate pricing structures and regulations – but this remains a highly complex field that requires further study.

In each of the areas identified above there is an emerging body of research, but for these research find-

ings to influence policy-makers at the national and global levels, much more research needs to be undertaken so that lessons can be generalized across countries, and research synthesis undertaken to pull together key findings.

The current focus upon particular high priority diseases, most notably HIV/AIDS, raises again the ongoing debate about the relative advantages of verticalized (sometimes called selective) approaches to health services, versus more integrated and comprehensive approaches. While much of the older literature provides insights that are still pertinent [60], there is a new twist to the current debate. Is it reasonable to expect that initiatives focused upon particular diseases will breathe new life into the broader health care system and develop positive spillovers for other health sector interventions, or will such high priority interventions lead to distortions throughout the sector? While this should be an important focus for evaluative work over the next few years, there are many other elements of the scaling up of health services that also require evaluation. A range of phenomena have yet to be properly investigated: the effects of scale-up upon patterns of deployment of health staff; the effects of increased donor resources upon government spending in general; the effects of new development assistance mechanisms upon country ‘ownership’ and established ways of working; and the effects of complex drugs such as antiretrovirals upon the broader pharmaceutical management system.

The above topics are all matters of urgency. Yet it is equally important that more exploratory research be initiated on certain issues that are currently less prominent in international and country debates. For example, although there is increasing understanding of the importance in general of good governance to the success of development initiatives there is very little understanding of the importance of the same themes within the health sector [61; 62]. How can the accountability of health care providers and managers be promoted, and what effect will this have upon the quality and efficiency of health service delivery? The other side of this question – corruption – has recently received some attention [63]. Corruption not only wastes resources but can lead to distortions with even more disastrous effects, such as the administration or distribution of prescription drugs by people lacking the necessary skills, or promotions to senior positions on the basis of bribes rather than skills and experience. A growing literature on informal payments has greatly enhanced understanding of the reasons underlying such payments, and their effects, but it has stopped short of providing solutions [64].

Finally, the evolving context also offers new challenges. For example, globalization highlights the importance of work that the health systems research community has been engaged in for some time, in terms of understanding questions of equity and access to care, but globalization also spotlights new areas in need of research. The application of TRIPS to the pharmaceutical industry raises key questions concerning how pharmaceutical companies in developing countries such as Thailand and India will react, and the implications of the agreement for access to pharmaceuticals in the poorest countries. Similarly, there is a need for increased analysis of the implications of transfers of health workers and diseases across national boundaries, and appropriate policy responses.

Conclusions

Over the past fifteen years the range and volume of research on health systems in developing countries has grown enormously, albeit from a very low base. Health policy and systems research has emerged as a distinct research field that has contributed significantly to our understanding of health systems and policies, and in turn to the improvement of those systems and policies. Health systems research is distinctive in several respects. Firstly it draws upon a multiplicity of disciplinary perspectives and involves various research approaches, from basic research to highly applied operational research. A further defining characteristic of health systems research is that, in contrast to other fields of health research, it

BOX 10

IMPROVING DECENTRALIZED PERFORMANCE AND HEALTH OUTCOMES THROUGH RESEARCH IN TANZANIA: THE TEHIP EXPERIENCE

The emphasis on decentralization and the sector-wide approach to health basket funding in the mid-1990s quickly illuminated the challenge of how district-level health systems could undertake evidence-based health planning that would improve technical and allocative efficiency with regard to local choices for resource allocation and services offered. In Tanzania this was taken up by a large-scale demonstration project by the Ministry of Health called the Tanzania Essential Health Interventions Project (TEHIP) [29], involving districts with a combined population of over 700,000 people. The district health systems received health basket funding of less than US\$0.92 per capita per year over and above conventional district health budgets that covered salaries, supplies, drugs and vaccines. According to National Health Accounts data, the average health expenditure per capita in Tanzania at the mid-point of this study was US\$11.37, of which 47% was private out-of-pocket expenditure [65].

TEHIP benefited from a parallel health research programme that followed health system changes, health-seeking behaviour trends, and health impacts. It also had a research and development component tasked to invent practical tools for decentralized planning that would address needs encountered in district health planning and priority setting. The latter provided a number of new tools and processes for the district planning toolkit including: 1) an annual District Health Intervention Profile that provided a graphical display of the regional burden of disease in terms of intervention addressable DALY (disability adjusted life year) shares from sentinel demographic surveillance systems; 2) a computer based District Health Accounts tool that allowed districts to undertake budget and expenditure mapping in terms of allocation of health resources; 3) a computer based Health Mapping tool that could be used to visualize local Health Management Information System data at district level; 4) a District Integrated Management Cascade process that improved the efficiency of supportive supervision of health services; 5) a Community Ownership of Health Facilities Strategy that freed up resources to renovate physical infrastructure; and 6) a number of capacity building processes for strengthening District Health Management and Administration [66].

The net effect of the decentralized basket funding plus these health system inputs was: 1) a proportional and absolute increase in resources for more efficient delivery of prioritized, cost-effective interventions addressing large shares of the local burden of disease (e.g. integrated management of childhood illness for under-five care, insecticide-treated mosquito nets for malaria prevention, syndromic management of sexually transmitted diseases for HIV prevention, TB DOTS, etc.); 2) an increase in the utilization of government health services; and 3) a decrease in mortality in infants, children under five, and young adults.

One of the prime health indicators embodied in the Millennium Development Goals is the target to reduce the 1990 under-five mortality by two thirds by 2015. In Tanzania, these districts had by 2003 already brought the under-five mortality rate down to less than 60% of the 1997 level. At this rate of improvement, they will almost certainly achieve the MDG target ahead of schedule, using resources already available. This performance is a consequence, not of a single intervention done well, but of greater attention to optimizing the decentralized district health system as a whole, through focused improvements in the technical and allocative efficiency of existing interventions.

This is an example where health systems research, closely associated with health reform initiatives, has been able to contribute to the development, and also the evaluation, of substantial progress in health system performance.

Sources: Personal communication with Don de Savigny [66; 67; 65]

maintains a central focus on the use of results by health policy-makers and programme managers. Indeed the evolution of health systems research has been inextricably linked to the emergence of new policy and operational issues.

Today the global community faces a set of pressing questions about how quality health services can be rapidly and effectively scaled up to meet the health care needs of the world's poor. This chapter has argued that health systems research can and should be part of the strategy employed to address this complex challenge. Box 10 provides an example from Tanzania that clearly illustrates how health services research can contribute to the achievement of the Millennium Development Goals. The contributions to date of health systems research already include an enhanced understanding of appropriate financing arrangements, alternative organizational forms, and mechanisms for working with the private sector. However, much more needs to be done, and the funding, research and policy-making community must come together to facilitate the required scale-up of health systems research.

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THE STATE OF THE ART IN SELECTED AREAS OF HEALTH SYSTEM RESEARCH

A few years ago it would have been easy to organize an overview of the state of the art in health systems research in low- and middle-income countries because there were so few studies. Epidemiologists, public health specialists and economists dominated the field. The situation has changed a lot, as policy-makers, researchers and other stakeholders have become aware of the seriousness and complexity of the problems that health systems face. The field is now very broad and changing rapidly. This growing diversity is predicated on an awareness that countries, and regions within countries, differ greatly in their economic and institutional arrangements and, consequently, the performance of their health systems and the issues to which health systems research can contribute.

There is no consensus on how to classify countries in terms of health system development and relevant contextual factors. One approach is to classify in terms of per capita GDP and region, although this approach does not capture factors that influence health system performance such as human resources, institutional arrangements and governance [1]. For the purposes of this review, three categories of country have been identified in terms of their institutional arrangements. These are not sharply defined categories and many countries have intermediate characteristics. Also, the level of development has an independent influence on the kinds of health problems people face and the kinds of services health systems can provide.

Health system research first developed in advanced market economies, which have highly structured health systems, created in a context conducive to the functioning of complex arrangements. This context includes economic stability, a relatively slow pace of social change, efficient tax and social security systems, a well-organized legal and regulatory framework and enough trained people to operate these institutions. Some low and many middle-income countries also have stable and complex arrangements that include relatively strong government administration and professional regulation. They tend to have well-established public health services. Research findings in the advanced market economies are most relevant to these countries.

Another set of countries have weak government administrative systems and professional regulatory arrangements. This type of country can be found in all regions. A typical country of this type frequently has

very low income, and might simultaneously face two or more severe challenges, such as prolonged economic crisis and/or the epidemic of HIV/AIDS. Government administrations that were weak during the post-colonial period have been weakened further as a result of financial problems, political crises, conflict and institutional decay. Meanwhile, community-level arrangements to help households cope with shocks have been stretched to breaking point, putting further pressure on health services. Donor initiatives are an important aspect of the institutional environment within which these health systems operate.

A final set of countries are experiencing rapid economic and institutional change associated with transition to a market economy. Their health systems have had to adapt to radical changes in their economic environment and confront an ideological shift involving increased doubts about the role of the state. The experience of these countries is uncovering important lessons about the influence of rules-based legal and administrative arrangements and of public understanding and expectations of the performance of health systems.

This review has identified two major contributions of research to the development of health policy. First, international policy discourse has moved beyond ideological debates about alternative visions of ideal health systems to discussions about appropriate institutional arrangements for different circumstances, informed by systematic analyses of experience. Second, many countries now recognise that the creation of effective health services is a long-term project, to which research can make an important contribution. This is associated with a realization that there are no simple prescriptions for health system organization applicable to all situations.

This chapter illustrates both kinds of contribution. It was impossible to do justice to a field that includes studies of national economic and social policy, the design of health programmes, the management of health facilities, community and household adaptation to ill health and many other topics. It was necessary to choose a small number of topics for review. The chapter begins with a discussion of recent developments in the understanding of equity, an issue with considerable political resonance. It then explores three topics connected to health system organization and finance, chosen because of their direct relevance to policy issues and the amount of research attention they have received. It

would have been possible to choose many other topics with equal justification.

Equity in health systems

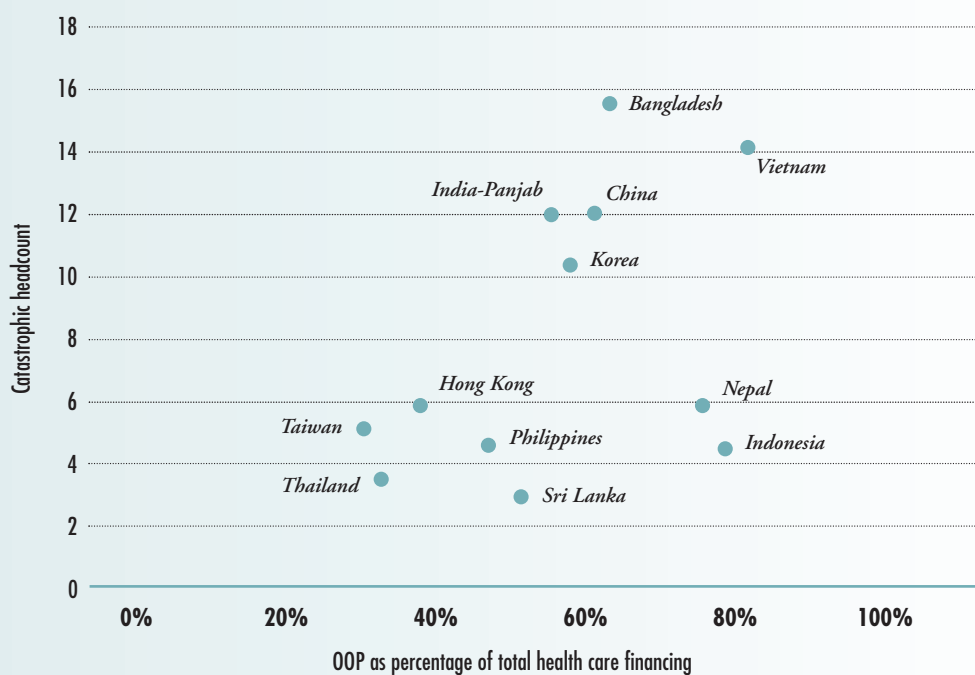
There is a long history of concern about the degree to which health systems meet the needs of different social groups. This was a major theme of policy discussions in Latin America throughout much of the 20th Century; it was a major concern of the command economies and it was a driving force in the health policies of many former colonies during the post-independence period. At the international level this concern was expressed in the “Primary Health Care” concept and more particularly in its subsequent “health for all” strategy [2]. A number of low and middle-income countries have achieved substantial health improvements by ensuring that people have access to affordable and effective basic health services. Interest in this issue waned for a time but has revived with the return of poverty reduction to the top of the international development agenda.

Over the past decade, a large volume of empirical work has documented the performance of health systems in terms of equity [3; 4]. Out of all publication indexed in Medline for developing countries in the period of 2001-2003, 500 or about 6% of the total can be classified under this field. Researchers have used surveys of household expenditure, public sector administrative data and national health accounts studies to measure and analyse access to services and the financial burden of care. They have also undertaken case studies to assess the impact of particular innovations. Several regional studies have applied methods used to document inequities in OECD countries to Latin America and the Caribbean and Asia and the Pacific [5; 6; 7; 8]. This section outlines some findings, focusing on Asia, where recent studies have generated a great deal of comparative data.

Households face severe financial pressure when a family member falls seriously ill. Research has shown a positive relationship between the share of out-of-pocket payments in total health expenditure and the catastrophic headcount, defined as the proportion of house-

FIGURE 1

OUT-OF-POCKET PAYMENTS (OOP) AND CATASTROPHIC HEALTH SPENDING IN ASIA



Source: EQUITAP [8]

holds spending more than 10% of annual income on medical care (Figure 1). These findings have been confirmed by other studies [9]. This finding reflects, in part, poor implementation of exemption policies [10]. Viet Nam is an example of a country that has been studied intensively in this regard, demonstrating that out-of-pocket payments account for a very high proportion of total health care finance. The rising importance of user fees has been associated with large inequalities in access, problems with the quality and cost of health services and a growing problem with health-related poverty [11; 12; 13].

Sri Lanka and Thailand are exceptions to this rule, since the richer households, which choose (relatively expensive) private hospital care, are more likely to incur heavy costs, whilst the poor are relatively well protected because they use inexpensive government hospitals [8]. This illustrates how difficult it is to formulate rules regarding the impact of a particular modality of finance that are both simple and independent of context.

Inequity in health service utilization

While early research focused on the public supply of services, the past decade has seen increasing attention to the choices that people make when faced with ill health and the factors that influence these choices. Such factors include cost, ease of access and perceptions about the quality and trustworthiness of service providers [14]. Decisions about where to seek care vary with the medical condition, with individuals often choosing from a variety of providers (traditional healers, midwives, kin, NGOs, private doctors, public health facilities and so forth), based on a combination of beliefs, knowledge and experiences. It is not surprising to find differences across cultural and ethnic groups, as well as between men and women, reflecting different understandings and power relationships [15].

Of the various determinants of health service demand, many studies have focused on how economic incentives interact with household income and assets. Faced with heavy out-of-pocket expenses, poor individuals may choose to forego medical care. Almost every study that has looked at health care seeking behaviour has found evidence of an income gradient, particularly where out-of-pocket payments are significant. In China, 70% of those in the lowest quintile in China who reported illness and did not seek medical attention cited financial difficulties as the main reason [16]. In countries where there was at least partial insurance cover for

poor households, like Sri Lanka and Thailand, the income gradient was flat or even reversed [17; 18].

Large variations have been found in the use of maternal and child health services between income quintiles [19]. Women in the poorest quintile in seven Asian countries are much less likely than those in the richest quintiles to have medically assisted deliveries. In Bangladesh, Nepal and Pakistan, the use of hospital services for delivery is heavily concentrated amongst wealthier women. In the Philippines and Viet Nam there is a much smaller gradient between rich and poor, largely explained by the better access of poor women to public facilities. A public sector oriented towards the poor enables poorer women to gain better access to safe medically assisted deliveries.

If health provision is universal, through taxation or social insurance, horizontal equity in use of services should be high. However, if the distribution of health facilities favours the urban population and formal sector workers, there can be differences in access to care. This is the case in South Korea, where despite an expansion of social health insurance to the entire population, the poor, the elderly and those in rural areas have less access to health care [20].

The type of provider chosen can vary significantly with income. A study in three Asian countries showed that 85-90% of care in Sri Lanka is provided by modern qualified practitioners, with no difference between income levels, compared with 15-40% in Bangladesh and 40-75% in Nepal [18]. Much care in Bangladesh is provided by non-modern or non-qualified practitioners; wealthier individuals are more likely to use modern, qualified providers, and much more likely to use inpatient services. In Sri Lanka, government hospitals provide inpatient care at low cost to users; it is therefore not a particular preserve of the rich.

Equity of different compensatory policies

Results from the studies in Asia thus far reviewed indicate that the best financial protection is provided by widespread risk pooling, minimal user fees and benefit packages that cover hospitalisation. Tax-financed systems that include cover for hospital care generally meet these criteria (e.g. Sri Lanka, Hong Kong) as long as out-of-pocket charges are modest (e.g. Bangladesh). Social insurance financing, combined with a comprehensive benefit package, offers reasonable financial protection, but its population coverage depends on the ability of the government to make significant contribu-

tions for those in the informal sector, the unemployed and other vulnerable groups (e.g. Thailand, Mongolia).

Research has shown that well-targeted government subsidies can protect vulnerable groups from catastrophic expenditure on health and reduce inequalities in the population as a whole. Research has also shown that government subsidies are often not well targeted. Benefit incidence analysis examines the extent to which government subsidies reach the poor. The study of three Asian countries found that the distribution of outpatient care subsidies in Sri Lanka is slightly more in favour of the poor than those for inpatient services [18]. In Bangladesh, there is equal benefit across income deciles from public outpatient service subsidies, but a steep gradient in favour of the rich for inpatient services. A benefit incidence study in India showed that government health spending benefits the better-off more than the poor; the bias in favour of the rich is more pronounced in rural than in urban areas and the benefits from primary and outpatient care are less unevenly distributed than those from hospital services [21].

Research has revealed a similar pattern of pro-rich bias in Africa. Wealthier social groups in urban areas get access to hospital services, which take a large share of public health spending in most countries [22]. They have the financial and social power to ensure that they receive preferential treatment in public facilities. In addition, they are better able to pay for private medical care.

The pattern is different in Latin America. Since large segments of the population have access to some kind of care, additional spending by the public sector is often biased in favour of the poor. Studies in Mexico, Bolivia, and Peru have shown that the poorest deciles receive a larger than proportional share of benefits from spending by the Ministry of Health [23]. However, spending by social security institutes is often regressive because they tend to serve formal sector workers who are relatively well off [5; 24; 25].

A decade of research has afforded us a substantial body of knowledge about the relationship between different financing instruments and equity of access to services and the financial burden of care. However, we need to know more about the most appropriate modalities of finance for different social and economic contexts and for health systems at different stages of development [26]. We also need to know more about how the design of a financing strategy affects performance and about the factors that influence the outcomes of different financing arrangements.

Health system reforms and change

Studies of health systems around the world have revealed many different organizational arrangements. Health systems are now understood to comprise complex relationships between different parties. Governments have increased this complexity by introducing a variety of reforms. There has been a trend towards dividing responsibility for finance and provision of services between different agencies. Some countries have established formal contractual relationships between purchasers and providers of services. There is also a trend towards the devolution of responsibility for planning and monitoring of services to local governments or special health authorities. In some countries this has been associated with the devolution of financial management and political control. There has also been a growth in special institutions for pooling the risk of major medical expenses such as nationwide social insurance schemes and local community health insurance. Many countries have also experienced the growing involvement of a variety of non-governmental bodies in the health sector and/or a rapid increase in the role of formal and informal charges.

This section focuses on user charges, community health insurance and civil society organizations. The first has been the subject of intense debate, to which research studies have made an important contribution; the second provides an important entry point to health system reconstruction in countries where public health services are experiencing severe difficulties; and the third points to new kinds of partnerships that may become important in future years. Box 1 outlines the contribution of health systems research to the efforts by China's policy-makers to respond to major challenges associated with the transition to a market economy. It illustrates how researchers can help policy-makers cope with sustained and rapid change.

User charges

A major debate emerged in the 1980s over the introduction of fees for previously free public health services (see chapter 2). This debate was more intense in Africa than elsewhere because many health systems had been established during the post-colonial period on a non-charging basis, and most countries experienced severe economic crises or economic stagnation through the 1990s. During the 1980s and early 1990s, many African countries introduced or substantially increased charges in the public sector (without any evidence of the

likely impact). In contrast, although health services in Latin America commonly required co-payments, very few reforms in the region actually introduced fees, and in the 1990s public spending on health services recovered in most Latin American countries. In Asia, charges had always been a regular part of accessing services, even if they were informal or illegal.

Recent reviews have clarified the main issues related to introducing fees. The key concern is that fees will discourage utilization of required health care, and that this will disproportionately affect the poor. Fees were introduced in the expectation that they would mobilize additional financing for resource-poor health programmes, improve health service quality (often mainly by assuring the availability of drugs or staff), discourage unnecessary care or use of high cost facilities, and still provide a cheaper alternative to private services (including those purchased by the poorest families). Empirical studies have largely focused on the impact of fees on utilization, paying little attention to the impact of fees on the performance of public and private providers or on health outcomes.

The main body of evidence demonstrates that fees usually lead to reduced utilization. The conditions under which fees are accompanied by improved access are quite clear: funds have to be retained at the local level and deployed effectively to improve health service quality. Otherwise, the overall effect is negative. The use of exemptions, to mitigate the effect of fees on poor families, has not been a particularly promising experience, although a great deal has been learned about the forms of waivers more likely to succeed [27].

A recent review of over 40 studies in 22 African countries found that, after the introduction of charges, utilization rose in eight of the countries (Benin, Burundi, Cameroon, Guinea, Mauritania, Senegal, Sierra Leone, and Togo) and fell in seven (Burkina Faso, Ghana, Kenya, Lesotho, Mozambique, Swaziland, and Zimbabwe) while there were mixed results in the remaining seven [28; 29; 30; 31]. The user charges policies varied widely in objectives and design. In most cases where utilization rose, fees were retained locally and charges were aimed at ensuring the availability of drugs. Exemption mechanisms were rare; there was not always evidence of how the very poor were affected.

Numerous studies have analysed the equity implications of different financing mechanisms in Asia, with special attention to fees [32; 33; 34; 35; 21]. The strong conclusion emerging from these studies is that reliance

on fees is highly inequitable; however, the studies recognize that formal fees are embedded in a broader context of health system charges that include numerous informal or illegal payments.

Two broad messages emerge from reviews of studies of charges to users of government health services. The first is that many studies are methodologically and empirically weak. Many lack a baseline for comparison, and those that have “before and after” data frequently lack counterfactuals that would allow them to discard alternative hypotheses for observed changes. The second message is that fees are one factor amongst many that affect health service utilization and health outcomes. Fees must be seen in the context of the entire public health spending programme – including management initiatives and government revenue. Where the government links the elimination of fees to increases in funding of health services from other sources, the policy may be highly beneficial. However, where a broader policy is not being constructed, simply eliminating formal fees is unlikely to be beneficial and can lead to higher informal charges.

An increasing number of studies in economies in transition and weakly organized low-income countries locate formal charges by government institutions within a broader context of blurred boundaries between public and private health sectors [36]. Some describe the variety of legal and illegal payments that people make when they use public health services [37; 38; 39; 40]. Others document the growing market for drugs [41]. Still others look at the incentives for health workers on extremely low salaries to boost their income, by employing various strategies at work, or in sideline private practice [42; 43].

The practices described above are so ubiquitous in some countries that they can no longer be regarded as exceptions. The health sectors of such countries increasingly resemble a publicly subsidised and poorly regulated private system [14]. This has important implications for international initiatives to supply large quantities of pharmaceutical products to low-income countries. It is possible that a substantial share of these products will find its way into formal and informal markets, with serious consequences: the inappropriate use of drugs and the impoverishment of those who buy them.

These developments pose important research challenges. We need to know more about the workings of formal and informal drug markets and of strategies for reducing inappropriate drug use, where regulatory sys-

tems are weak. We also need to understand more about how the combination of formal payments and informal charges influences health workers, and to test strategies to encourage them to pay more attention to the interests of patients. The emphasis of research has shifted from documenting the impact of formal charges for government services to posing fundamental questions about how incentive systems influence provider and user behaviour and how government intervention can take this into account. This has led to an increasing need for the insights and methodologies of anthropologists, sociologists and political scientists.

Community Health Insurance

One topic that has generated much interest is the role of community health insurance (CHI) in opening access to healthcare and protecting the poor against medical expenses. Three main streams of research can be observed: field-based studies on the performance of specific CHI schemes, looking at their capacity to enhance access to health care and improve equity of this access; broad descriptions of studies based on secondary analysis of the literature on the functioning of CHI schemes; and analytical studies considering the systemic underpinnings needed to sustain these schemes.

The field-based material on CHI schemes has moved the boundaries of knowledge beyond general descriptions to detailed investigations. Although not all studies have resolved methodological problems (such as absence of a baseline to compare to, or sampling which must often be purposive rather than random) the topics of field research deal with some of the main policy-shaping concerns.

- ▶ Can community health insurance schemes shield the poor against the downside health effects of economic reforms in rural Ethiopia [44];
- ▶ Why do the CHI schemes in certain areas in Maliando, Guinea-Conakry, have declining subscriptions [45];
- ▶ What is the effect of gender on willingness to pay [46; 47];
- ▶ Is there differential willingness to pay for different members of the household [48];
- ▶ What is the feasibility of the CHI at given levels of willingness to pay in Burkina Faso [49];

- ▶ What is the evidence on enhanced healthcare utilization in several CHIs in Philippines [50];
- ▶ How has equity been improved by CHI in Gujarat, India [51], in Rwanda [52] and in Philippines [53].

China has a unique experience with widespread experiments with community health insurance in rural areas [54; 55] (see also Box 1). These studies, in addition to their intrinsic value relative to the specific CHI schemes they deal with, also provide a sounder basis for broad secondary-level studies on CHI.

Among the secondary analyses of the primary research, some retrospective studies have suggested that CHI schemes are simple replications of the mutual assistance schemes in Western Europe in the 19th and early 20th centuries. Others trace their origin to the WHO's Alma Ata Declaration of 1978 [56]. The prevailing thought, however, is that CHIs come into existence mainly as a response to the inactivity of governments and the private sector in disfavoured catchment areas of the poorer, harder-to-reach, rural and informal sectors in low- and middle income countries [57]. This response sets today's CHI apart from those schemes in 19th & 20th century UK and Continental Europe. Indeed, these earlier schemes were particularly prevalent among the growing numbers of industrial employees, civil servants, organized farmers and wage earners, and were supported by a regulatory framework which eventually evolved to modern universal coverage in many countries. An international review which drew on 66 studies (published between 1976 and 2003) concluded that CHI has so far exhibited modest outcomes, can play a secondary role and offers but one solution out of many other financing options [56]. Another review drawing on 127 reports of schemes in Latin America, Asia and Africa flagged mainly the discrepancies in definitions of the concept of CHI and thus difficulties in establishing internal validity of the comparison [58]. A survey of 66 community health schemes in the Philippines by the Ministry of Health, PhilHealth and GTZ helped elaborate a taxonomy of CHI types and distinguish them from other community health schemes which do not include insurance [59].

The most recent review is based on 45 published and unpublished reports on community financing dating between 1990 and 2001 [60]. This review provides rich detail on scheme design and on various aspects of implementation. Three salient points arise from this review: (i) CHI mobilize significant resources for healthcare, although it is difficult to provide systematic

estimates of the share these schemes represent in the total resources available at the local level; (ii) CHI schemes systematically reduce the out-of-pocket share of members, while increasing utilization of health services; (iii) these schemes are effective in reaching large numbers of low-income populations, even though there are indications that the poorest, and those who are socially excluded, are not automatically reached by these initiatives.

Some of the analytical studies look at causes for financial vulnerability of CHI as insurance systems, and at possible responses to their risk of insolvency. Surplus capital is the classical solution, but how much capital, and what alternatives can one conceive to capital? One approach has been to design a reinsurance model for CHI, called “Social Reinsurance”, which combines access to reinsurance (which can replace retention of capital reserves) with systematization of the technical capacity of CHI to manage complex health insurance [61], [62]. A recent empirical estimate of capital needs to support CHI marks a shift from simulated data to using a large real-life database for these assessments [63]. A desk evaluation of the Social Reinsurance model concluded that it would be more expedient for development agencies to prioritize technical support to CHIs, at least initially [64]. Yet some federations of CHI have requested an evaluation of the feasibility of implementing a reinsurance solution, notably in the Thies region in Senegal [65].

Others contend that a successful self-help approach in CHI requires political acceptance, financial support and access of lay people to health-related information. The focus here is on the necessary basic ‘enabling environment’ for CHI, composed of a stable social structure and a functioning basic health care system offering a minimum standard of quality. It has been claimed that there is a risk of political use of evidence (both of successes and of failures of CHI) to shift responsibility for health care from the State to individuals even where the necessary ‘enabling environment’ is absent [66]. Yet another study stresses that improvements in the performance of CHI, notably by attracting larger numbers of customers, does not hinge on developing an ideal model, but on a tailored solution for each context, which combines technical, financial and societal dimensions as well as its integration in the given institutional settings [67]. Finally, a preliminary conceptual framework has been proposed for understanding how CHI schemes interact with other elements of a health care financing system in low-income countries, highlighting the need for empirical research on such questions as

effects of CHI upon non-members of schemes, government subsidies to providers, government subsidies to schemes, and issues raised by the existence of multiple risk-pooling schemes in a particular context [68].

In summary, the research on CHI published in the last few years fleshes out more detail on schemes’ operation, their successes and failures, and how these relate to the context of schemes. Research is also beginning to address the systemic problems linked with integrating CHIs into the larger framework of health financing. If future research follows the proposals made in the literature surveyed here, there will be greater understanding of the role of CHIs in the overall health financing system, and evidence rather than ideology will inform the debates on the value of CHI.

Management reforms and the role of civil society organizations

There is growing interest in the institutional framework within which health systems operate [69], [70]. A number of studies have focused on the influence of these arrangements on provider behaviour. Some have looked at branding: the association of high quality of service with a particular type of organization. For example, studies have explored why facilities run by religious organizations or NGOs often enjoy a good reputation. Others have looked at professional organizations. It is worth noting that nurses have continued to maintain high standards of performance in some countries despite low pay and difficult conditions [71]. The effect of professional organizations however can be mixed: they may encourage licensed practitioners to behave ethically while seeking to deny other health workers access to appropriate training and supervision [72]. Other studies have looked at local influences. A study that compared several hospitals in Tanzania identified a variety of influences on the attitudes, expectations and behaviour of their employees [73].

There is increasing interest in formal and informal partnerships involving a variety of organizations with a common goal. Some studies look at traditional organizations, such as local burial societies [74]. Others document the role of private corporations in organizing care for their employees or for people living nearby. Still others focus on civil society organizations (CSOs), which provide the institutional articulation, beyond the ties of immediate family, whereby shared interests are served, shared needs are met, and the state can be accommodated. This category includes local NGOs. This section

ADAPTING TO ECONOMIC TRANSITION IN CHINA

The Chinese health system heavily influenced international policy during the 1970s, when it became apparent that the provision of simple, cost-effective interventions had contributed to dramatic improvements in health. Since the end of that decade, China has been in transition to a market economy. It has experienced sustained economic growth, associated with a dramatic fall in the number of people living below the poverty line. However, changes in the economic and institutional environment have created serious problems for the health sector [92; 93]. The Chinese experience offers insights into how research can help policy-makers cope with rapid change.

During the early years of economic transition, researchers documented changes in urban and rural health services. A number of studies reported the growing proportion of health expenditure derived from user charges [94]. They also showed that government health expenditure was much higher in the rapidly growing cities and surrounding areas. Other studies showed how the pricing system encouraged a costly, hospital-based style of medical care [95]. These findings were published in scientific journals and presented at meetings for policy-makers. As a result, researchers and many government officials share an understanding of the basic concepts of health economics and of the problems that have emerged with the transition to a market economy.

By the mid-1990s there was increasing public concern about problems in the health sector. Public opinion surveys found that the high cost of medical care was one of the greatest concerns of urban residents [96]. There were also mounting concerns amongst rural people. In 1996 the Government organized a national conference to discuss health policy options and since then it has undertaken a series of policy initiatives.

Several features of China's management of transition have influenced the kinds of research undertaken. One is the rapidity of change. As China radically changes its economic system it is simultaneously urbanizing, industrializing and undergoing a demographic and epidemiological transition. The political leadership has coped with these multiple challenges by defining broad objectives for sector development, whilst giving localities considerable freedom of manoeuvre [97]. This approach attaches great importance to local innovation. Researchers have played an important role in alerting government to emerging problems and assessing the performance of innovative approaches.

The example of health finance can be used to illustrate the evolution of health systems research. In urban areas, the pre-existing system has come under increasing pressure due to ageing of the insured population, rising costs of medical care and the financial pressures on the many state-owned enterprises through which health and social care is still commonly provided. The central government encouraged city governments to test new models of health insurance. Towards the end of the 1990s it decided to shift responsibility for urban health insurance to the Ministry of Labour and Social Security. Studies have documented the increasing difficulties experienced by people on lower incomes in paying for health care [16; 96; 98; 99]. The research also documents the unsustainably high costs generated by a combination of a rapidly ageing population and the dependence on hospital-based care for the elderly. These findings have stimulated efforts to make services more cost-effective and provide a safety net for the poor.

A number of studies have documented the dependence of rural health facilities on user charges. They have shown how health workers give increasing priority to curative care and the sale of drugs [100; 101]. During the period of the command economy the communes had organized the so-called collective medical system, which reimbursed a proportion of the costs of hospital care and other services. By the mid-1980s, studies had documented the collapse of most of these schemes. The Government has encouraged localities to test alternative financial models.

During the 1990s there were several experiments with rural health insurance. The early focus was on the design of benefit packages. There was extensive discussion of the advantages and disadvantages of covering routine care and major illness. It turned out to be unexpectedly difficult to establish new schemes, for a number of reasons. Some local government units diverted resources for other purposes. Some overstuffed health facilities sold more drugs or acquired new equipment to generate more revenue. Many schemes eventually lost public support and recent studies have highlighted the importance of public trust in insurance schemes and the health facilities that provide services [102; 103]. They emphasize the need to make schemes more accountable to the population.

A parallel set of studies looked specifically at the needs of the poor. This began in the context of a large rural health project, which tested a targeted benefit for the poor. Studies demonstrated that the funds are reaching poor people, but that there are problems in the selection of beneficiaries and the use of funds to purchase cost-effective services. The Government has announced that it will establish a nationwide programme of health benefits for the rural poor. Research will be needed on, among other things, targeting, selecting appropriate benefit packages and control of hospital performance.

The recent SARS outbreak has brought the importance of a coherent and effective health system to the attention of senior policy-makers in China. This has created an important window of opportunity for change. Researchers will play an important role in assessing the impact of new policy measures in different regions and contributing to the refinement of health system strategies on the basis of experience.

focuses on CSOs. A recently produced annotated bibliography [75; 76] identifies the following roles for CSOs:

- ▶ providing a service, either in cooperation with the state, contracted by the state, or in areas where the state has ceased to operate.
- ▶ mobilising resources for health, including direct financing of services and infrastructure.
- ▶ providing the social mobilization required to change or implement public health policies and campaigns and enhance the involvement of communities in health services and make health services more accountable to the public.
- ▶ linkage to community traditions of mutual support, to community values, or to struggles for rights or social justice [75].

Studies have documented a variety of innovative approaches by CSOs [77; 78; 79; 80; 81; 82; 83]. Some have assessed their success in meeting the needs of the poor [84]. One study in Senegal revealed that private providers are highly heterogeneous, although they tend to offer better quality services. Catholic health posts constituted an important group of providers found to be significantly more efficient than either public or other private facilities [85]. However, it is often not possible to generalize results beyond the immediate settings or programmes described. For every study showing positive outputs and outcomes from CSO contributions, there are others with negative outcomes. This partly reflects the great differences between contexts, but it also reflects the need for greater involvement by sociologists and political scientists in studies of these new institutional arrangements in order to understand them better.

A research programme which explored the links between small-scale innovations and health system reforms in eight African countries found that previous experience of innovative small-scale projects contributed to more effective implementation of reforms [79]. These projects helped demonstrate the feasibility of certain approaches and supported the development of trust and collaborative relationships and networks among health professionals.

There have been many studies of contractual and partnership arrangements. An interesting one concerned a contractual arrangement for HIV/AIDS in

Brazil that was judged by both CSOs and the state to be successful. The study explored the factors behind this success. It found that the arrangement was part of a larger national strategy that involved CSOs in the design of the contracting programme and was backed by a dedicated government unit working with the CSOs. The programme built on existing CSO and Ministry of Health capacity to implement contracts and provided technical assistance to CSOs in the preparation of proposals, accounting, monitoring and evaluation [86].

The positive features identified by the above study are often absent from contractual arrangements elsewhere. Default on contracts arises due to lack of skills and experience and inadequate provision for necessary administrative and communications tasks or for management of the political dimensions of cooperation between state and non-state agencies [1; 87].

The findings cited above highlight the need for legal recognition of CSO roles, such that the state provides a positive framework for CSO operation [88; 89]. This would entail acceptance by political authorities of a more active role for civil society in governance, matched by a willingness on the part of civil society to use the mechanisms available to advance community issues, without compromising the autonomy of either civil society or government. Where parallel or competitive relations exist, opportunities for making health gains can be missed. For example, state services can miss out on the positive contributions of community voice, participatory methods for identifying poor communities [90] and methods to enhance community input into and uptake of services [91]. Non-synergistic relations undermine the opportunity for CSOs to scale up innovations or to coordinate with other public services.

Conclusions

Health systems in low- and middle-income countries face many challenges contingent upon the needs to improve health and protect people from poverty when a family member becomes seriously ill. The experience of several decades has shown that the development of a health system is a long process. Discussions of strategic options are now much less likely to be couched in ideological terms and many policy-makers have come to recognize that there are no simple blueprints for health system organization. Governments have to tailor strategies to the context within which their health systems operate. This often involves an iterative process in which

interventions are modified on the basis of experience and systematic research evidence. Some of the most important lessons arising from research on recent experience can be summarised as follows.

In analysing health systems it is important to understand both formal and informal transactions. Where government systems have failed to meet needs, informal arrangements between users and providers can predominate. Policy initiatives that do not take informal arrangements into account may have unintended consequences.

The greater the structural inequalities and the constraints on resources, the more likely are health systems to be inequitable. Some countries manage inequity better than others. Systems with a greater proportion of funding from social sources are more equitable, but the overall picture depends principally on whether equity considerations influence public finance.

People are strongly influenced by the cost of health services. This is particularly important to the poor, who have to make difficult decisions about the use of scarce resources. Health-seeking behaviour is also influenced by convenience of access, perceived quality, availability of credit and trust in the provider. When designing interventions aimed at meeting the needs of the poor, policy-makers need to understand how people are likely to respond.

Many advanced market economies have established social security systems to protect individuals against the financial cost of serious illness. Some middle-income countries have improved social equity through expanded versions of such schemes, but others have found that they had actually widened inequalities between social groups. Governments need to be aware of this risk, and therefore monitor the effect of social health insurance schemes on different social groups, with a view to subsequent modifications.

Some community health insurance schemes have resulted in better access to services and/or improved provider performance. Two important indicators of success are the trust of the community in the management of their funds and the capacity of providers to meet user needs. Expectations regarding these schemes are shifting. They are increasingly regarded as “entry points”, complementing public health financing systems, rather than as self-sufficient insurance pools. Many initiatives have been on a small scale and it will take time and continued support for them to evolve into nationwide schemes

The involvement of civil society organizations can improve health system performance, particularly where they complement government functions. Experimentation with new kinds of partnership is at an early stage and there is a great need for systematic knowledge of what works in different circumstances. Health systems are complex arrangements in which commonly accepted behavioural norms and trust play important roles. Policy-makers often have to balance short-term measures to address immediate problems against the longer-term need to establish stable institutions. Both perspectives must be maintained.

There was a time when health system research could be regarded as a minor adjunct to the work of doctors and medical administrators. This has changed with increased understanding of the magnitude of the challenge that many health systems face. Experience has shown that unprofessional research contributes little, but that high quality studies by well-trained experts from a number of scientific disciplines can provide important guidance to those responsible for making the benefits of medical knowledge available to people living in the complex environment of many low and middle-income countries.

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SETTING PRIORITIES IN HEALTH SYSTEMS RESEARCH

Previous chapters have put the case for the additional funding necessary to produce the benefits of research knowledge. Furthermore, an expanding researcher base is giving rise to an increasing demand for funding. All this is happening amid pressure to spend more on specific diseases and above all to respond to emerging and re-emerging threats such as HIV, malaria and TB. Efficient allocation of funding will depend on setting priorities both for research overall and for health systems research.

Priority setting in the allocation of resources is the process of choosing among competing research institutes, programmes or projects or in other words the application of appropriate principles and mechanisms to the evaluation of investment in research [1]. Priority setting is all about the optimal allocation of scarce research resources using explicit decision criteria. It therefore requires first of all the identification of resource flows that will be subject to competitive allocation. In turn, well defined research alternatives have to be identified, all stakeholders need to participate and a set of methods has to be implemented to enable a consensus to be reached [2]. Last but not least, the fairness of priority setting must be assessed, alongside the extent to which priorities result in new knowledge and its utilization.

There are valuable lessons for priority setting for health systems research which can be derived from health, development, education and agricultural research and from disciplines as far afield as astronomy and space science. A common theme is that, to compete successfully for funding, priorities have to be identified with a high degree of consensus. Priorities then have to be applied to manage common resource constraints, including not only funding but also access to research instruments and data. For this to be possible, researchers need to be well organized nationally and internationally.

This chapter argues for priority setting processes that take fully into consideration the resource flows within the health and development sectors and the cost-effectiveness of research investments vis-à-vis alternative uses of funds. Priority setting can thus help mobilize funding for research as an integral part of health and development planning as well as produce a mapping of needed research. This chapter therefore starts by analysing the flow of resources for health systems

research in developing countries and the potential resources that remain untapped. The chapter then moves on to present diverse priority setting approaches and discuss how they can respond to different levels of resource flows as well as social and financial situations. This is followed by examples of applications of priority setting within different institutional and country settings. Finally, information from a survey of health systems research priorities in developing countries is presented, as a basis on which to develop further priority setting at the international level.

Funding for Health Systems Research

The Commission for Health Research for Development recommended in 1990 that total health research expenditure in the developing world should be increased to about 2% of total health expenditure, the same proportion that was then observed for the developed world. [4]. The Commission on Macroeconomics and Health (CMH) recommended more recently the establishment of a Global Health Research Fund to provide US\$ 1.5 billion per year for basic research on epidemiology, health economics and health systems research together with biomedical research [5].

How much is actually being spent in health systems research today at country level, and what are the sources of these funds? Funding for health systems research undertaken within developing countries was estimated by the Alliance for Health Policy and Systems Research at around US\$ 134 million per annum in the period between 1999 and 2003 (the study methodology is described in Box 4 of Chapter 6). This takes into account project funding only, and excludes institutional costs which are likely to account for about half of institutional resources. International donor funding accounted for about 69% (US\$ 92 million) of project funds, governments for 17% (US\$ 23 million) and the private sector for the remaining 14% (US\$ 18 million). As a whole, project funding amounted to a meagre 0.017% of total health expenditure. The inclusion of institutional costs might raise this total to around 0.034%. This funding amounts to only one fiftieth of the 2% recommended by the Commission on Health Research for Development. Clearly a very substantial increase is required for health systems research: how best to tackle this?

The majority of international funding for health systems research in developing countries is most likely sourced from bilateral agencies such as the UK Department for International Development (DFID), the International Development Research Centre (IDRC) of Canada, The Swedish International Development Agency/Swedish Agency for Research Cooperation with Developing Countries (SIDA-SAREC) and from the European Commission, among others. Their funding of health research in general for 1998 was estimated at US\$ 350 million [6]. The total international funding estimated in the Alliance study therefore accounts for about 26% of bilateral assistance for health research. Government spending includes resources allocated by multilateral development agencies such as the World Bank and the Inter-American Development Bank through loans and technical cooperation to governments. World Bank funding for health

research was estimated for 1998 at US\$ 55.8 million, or 4.7% of total health lending approved for the year. Most of these funds were earmarked for policy and health systems research [6]. If governments are spending about US\$ 23 million per year on health systems research, it follows that at most only half of World Bank funding is actually being used by national institutions. If this gap were closed, total health systems research spending at the national level would be increased by a not insignificant 17%.

It may be that multilateral support for health systems research is either spent outside the country through contracts to agencies in the North or is not spent, despite being earmarked as part of development projects. Some country evidence suggests that a large part of government resources made available by multilateral institutions and earmarked for health systems

BOX 1

HEALTH SYSTEMS RESEARCH FUNDING IN COLOMBIA

Currently, health systems research is scarce in Colombia. Of the research projects undertaken between 1990 and 1997, 40% were in the area of biomedical science, 29% in clinical science, 23% in epidemiology and only 8% in health systems research. The Ministry of Health has not had a clear health systems research policy, or indeed a health research policy overall. As a result it has allocated research resources haphazardly. This is a vicious circle; if there is no policy to strengthen health systems research capacity it will be impossible to attain a critical mass of investigators and there will be no increase in the number of health systems research proposals for funding.

In December 1993, the Colombian Government approved a radical health sector reform leading to a new national health insurance system which changed the role of the Government from public provider to purchaser of private health services. These changes made very clear the need for extensive and intensive health systems research and US\$ 60 million was assigned through a loan from the Inter-American Development Bank. However, the ensuing bureaucratic overload within the Ministry of Health led to several "non-assigned biddings", loss of precious time, economic losses for many participants, and incomplete use of resources. Only US\$ 20 million was spent. Furthermore, most of the commissioned projects were not completed quickly enough for the results to be of any use.

Resources for health research in Colombia have significantly increased, thanks to a new law that sets aside a percentage of lottery revenues to finance health research. The Ministry is currently pondering two alternative mechanisms for allocating health systems research funding, mindful of past experiences.

Colombia's health sector depends on two mechanisms to sponsor research: the Science and Technology Institute (Colciencias) and the Ministry of Health. While Colciencias mainly sponsors biomedical and clinical research, responding to bids by researchers, the Ministry supports operations research based more on demand by policy-makers and implemented through a mix of competitive and non-competitive commissioning.

One option is for the Ministry of Health to use these extra resources by setting priorities, selecting relevant research and purchasing the specific research from a national and international market. On the downside, this alternative exposes research to non-technical influences, risks lack of continuity due to frequent political changes and would impose bureaucratic restrictions on the use of information. Past experience of funding research for health sector reform does not bode well for this option.

The second option would see Ministry of Health resources placed in Colciencias. This alternative would assure peer-reviewed selection, administration by a more stable institution experienced in research management, and unrestricted use of information. However, it opens up the process to the interests of the supply side (researchers and research institutions) which may not coincide with the Ministry's priorities. The Ministry would have to negotiate with the research community if it wants its voice heard [7]. Clearly there is a need to fashion appropriate mechanisms to coordinate supply and demand so that research is fully relevant to health system needs.

research may go unspent due in part to the low priority assigned to research by decision-makers and the lack of explicit priorities for health systems research [7; 8] (see Box 1).

Approaches to priority setting

Priority setting, involving governments, multilateral and bilateral institutions, researchers and other stakeholders is therefore a vital means of raising resources for health systems research. Approaches to governments should involve the finance ministries responsible for negotiating and approving loans, as well as ministries of health. This speaks to the importance of addressing health systems research in the context of development investments and not only within the health research systems. International and bilateral agencies can also support the identification of regional priorities through coordination with their peers and representatives of diverse sectors at country level. However, research capacity at country level is highly fragmented, making coordination difficult (see chapter 6 on Health Systems Research Capacity). It is therefore important to help national researchers mobilize through networking and health systems research organizations. This can be initiated by the larger and better recognized research institutions as well as by the health research units within ministries of health.

How can priority setting help health systems research to raise its profile and ensure the resources needed to meet its promise? Diverse approaches and criteria for priority setting have been extensively reviewed elsewhere [9; 10; 11]. This section analyses how these approaches can be used at various levels and in relation to different research arenas. First of all, an increased focus on health policy is leading to the development of global frameworks for research (supported by a commensurate allocation of resources) [12]. At country level, health systems research has to demonstrate the power of its application, just as any other investment or intervention in health and development. Health systems research also has to compete with other sciences within health research, as well as in other arenas, in terms of its promise of knowledge generation, technological development and social gains. Finally, different branches or levels within health systems research need to be prioritized to ensure efficient resource allocation within the field. We analyse the implications of priority setting processes for each of these levels in turn.

Priority setting for the global agenda

The Ad Hoc Committee on Health Research Relating to Future Intervention Options formed under the auspices of WHO suggested an approach to priority setting that was intended to assist governments, industry and other investors in allocating funds to and within health R & D [14]. The approach, applicable at a global level, focuses on refining methods of using information on burden of disease, disease determinants and risk factors, together with information on interventions, their cost effectiveness and the resources spent on specific health problems. This method needs further elaboration to focus adequately on overlying issues which cut across a narrow definition of disease control (see below).

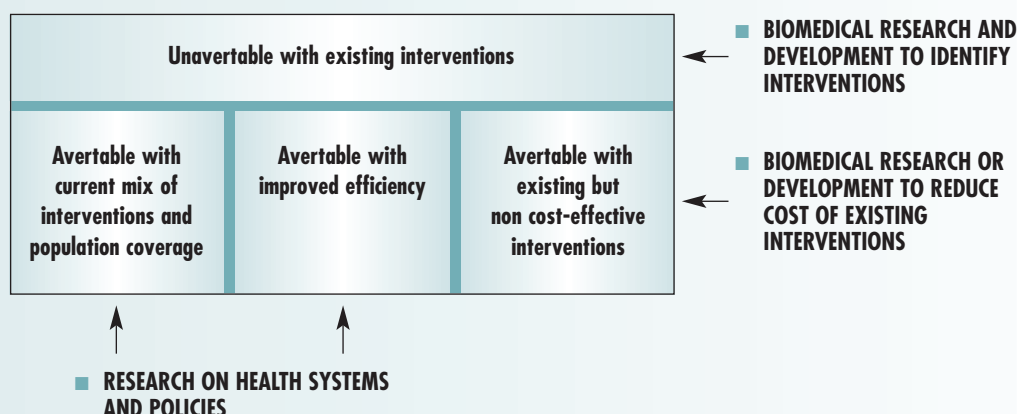
The Ad Hoc Committee proposed three types of research and development instruments according to their capacity to deliver on health system needs (Figure 1). Health problems may be identified for which there is no known completely effective medical intervention (such as vaccination against HIV-AIDS or malaria). Discovery-oriented research is the intervention of choice in these situations if there are promising pathways and principles leading to new, cost-effective products and processes. Human society may have discovered efficacious but costly interventions for severe problems and diseases, such as anti-retroviral therapy for HIV-AIDS, or artesimnin treatment for malaria. In such cases, the intervention of choice is a continued search for safe, effective and affordable therapies.

Despite the existence of cost-effective interventions to prevent or treat the major health problems of the world, millions still suffer excessively from them. Health systems research can help increase the efficiency and equity of health systems and programmes to ensure universal access to these interventions.

The Ad Hoc Committee's classification of research instruments and its "five step" process for priority setting have been widely discussed since they were introduced in 1996 and have also been further developed to take account of a wider set of factors [9]. However, today we still lack a clear vision of the global research agenda in health policy and systems. The crux of the problem would appear to be the difficulty faced by the numerous stakeholders in the international arena as they seek to arrive at a consensus on research priorities. A more proactive and co-ordinated priority setting role should be played by international organizations such as WHO, COHRED, the Global Forum for Health Research and the Alliance for Health Policy and Systems

FIGURE 1

APPLICATIONS OF THE THREE RESEARCH INSTRUMENTS PROPOSED BY THE AD HOC COMMITTEE



Source: [14]

Research, with the full support of major donors. Country and regional researchers and policy makers must be involved, together with international agency and donor representatives. Priorities should be clearly based on country needs, notwithstanding the exigencies of topics of global significance that may not be sufficiently highlighted by individual countries.

The increasing understanding of global issues such as the health impact of export-led growth and transportation has highlighted the importance of moving beyond disease-specific health research. Globalization is giving greater prominence to “inherently global health issues” that affect the incidence of specific diseases [15]. Massive financial and technical support for programmes such as the 3 by 5 Initiative and Presidential Initiative on HIV/AIDS (PEPFAR) have become global issues in themselves, whose impact on health systems is eminently worthy of analysis.

Priority setting at national level

Approaches to priority setting for health systems research at national level can take into consideration governmental perspectives on health service delivery, welfare and economic development as well as the concerns of bilateral and multilateral development organizations working within countries. Governments and bilateral agencies weigh up their investment in research in terms of its contribution to the basic health system objectives of health gain, equity, financial protection of the poorest segments of the population and responsive-

ness to consumer expectations. In the social development arena, health systems research has to make its case in terms of poverty reduction, equity and governance.

Investors within health and development agencies should have clear reasons to allocate resources to a particular area of research, be it health systems research, a biomedical or clinical science. Indeed, any of several areas could yield the most rational solution to health system or development problems. However, it should also be recognized that maintaining strength across the full spectrum of research mechanisms is in itself of value for policy-makers given the unpredictability of discovery in science and the multiple feedback loops that tend to unite ostensibly diverse instruments of research. Research investment policies have to balance political concerns with a deeper understanding of how science evolves and regulates itself.

Priority setting within health research has been mostly concerned with the selection of disease-based research topics and much less attention has been given to choosing among cross-cutting, overlapping or multi-disciplinary areas of research or between disease-based and system-wide science [16]. Priority setting has adopted ad hoc criteria without reference to any kind of universal yardstick by which competing demands can be judged [11]. Priority setting is thus fragmented, whether in disease-specific or cross-cutting research. This situation leaves unresolved the assignment of resources between them on the basis of their relative potential contribution to health and welfare.

There are various plausible reasons why priority setting has been biased towards disease-specific approaches. Despite increased attention to primary health care and equity, the health system is still dominated by a collection of medical specialties focusing on diseases or organs. Diseases such as HIV-AIDS and cancer have become political rallying points as well as the engine of growth in the pharmaceutical sector. Giving attention to the health system as a whole, or to cross-cutting issues such as insurance coverage and financing, is politically much more risky, as attested by health reform movements internationally. Many health research institutions and funding agencies are also disease oriented, responding to political pressures and opportunities, such as cancer research.

Cassels and Janovsky discussed the various problems obstructing the formulation of a unified methodology for the assessment of priorities across all areas of health research, including health policy and systems [16]. The main difficulty is the need for agreement on a set of indicators that could provide a basis for comparison. First are the issues in measuring health impact itself. Then there is the fact that health system interventions do not have a clear-cut impact on health status. These authors conclude that it may not be feasible to develop a single rational method for priority setting across the entire spectrum of health research. Furthermore, such a method would be in itself of limited value given that priorities are, in the end, defined in a variety of ways, including subjective judgements. Therefore, they argue, the best that can be done is to advocate systematic priority-setting within each of the three broad areas of disease control, household behaviour and health policy and systems. A similar approach is illustrated in Box 2, taking Tanzania as an example.

Qualitative assessments of the benefits of investing in different areas within health research could still be of value as a means of advocating scaling up health systems research, despite the context of political and economic interests supporting disease-based approaches. While no method is yet available for such an approach, it would be worth exploring a modification of the disease-based priority setting first proposed by the Ad Hoc Committee [14] and later modified by the Global Forum [9] (see Box 3). This method could be used to select priorities across health research as well as within health systems research. The costs and relative severity of health system constraints (as opposed to the disease burden and its direct ramifications) could be estimated on the basis of specific equity and efficiency indicators. These could also include the disease burden that is not

BOX 2

CRITERIA FOR SETTING RESEARCH PRIORITIES BY THE TANZANIA NATIONAL HEALTH RESEARCH FORUM

- Magnitude of the problem
- Avoidance of duplication
- Feasibility
- Focused
- Applicability of results
- Add to new knowledge
- Political acceptability
- Ethical acceptability
- Urgency

BOX 3

MODIFIED FIVE-STEP PROCESS FOR PRIORITY SETTING IN HEALTH SYSTEMS RESEARCH

Step 1:

Calculate the attributable costs or the relative severity of specific health system problems or constraints.

Step 2:

Identify the reasons for the persistence of health system problems and the kind of health systems research required to solve them:

- | | | |
|---------------------------------------|---|--------------------------------|
| Lack of knowledge | → | analytical/strategic research |
| Lack of tools for resource allocation | → | applied/developmental research |
| Inefficient use of existing tools | → | operational research. |

Step 3:

Assess the current knowledge base for each problem.

Step 4:

Assess the potential benefits of possible research and development efforts.

Step 5:

Assess the current resource flows for these efforts.

Source: [10]

being redressed due to health system constraints. The results of such exercises could then point to the relative merits of investments in system-wide vis-à-vis disease-specific research.

Priority setting within health systems research

The question is then how to undertake systematic priority setting within health systems research in order to ensure a wide degree of consensus, mobilize additional resources and ensure their most efficient allocation. The character of a systematic approach in “holistic” fields

such as health systems research will be different to that of single discipline-oriented clinical and epidemiological sciences [16]. Priorities will be more difficult to judge, given that research results obtained with the most rigorous methodology in one country may not be applicable to countries where different cultural, political and economic contexts may alter the validity of conclusions. Given these limitations, priority setting has to be based on a coherent understanding of health systems and policies, so that research topics can be usefully compared.

Various frameworks have been proposed for the comparison and analysis of health systems [18; 19] as a basis for the identification of research priorities for health system development. A number of parallel but slightly overlapping taxonomical criteria have been proposed for the classification of health system functions and levels, beneficiaries, cross-cutting issues and health problems. The Ad Hoc Committee [14; 16] proposed to distinguish research on the behaviour of individuals, households and populations from research on the formal health system. This latter would consist of two broad components: research on the institutions that mediate between the population and the providers, such as health insurers and regulators, and on institutions that provide health services and resources such as nurses and pharmaceutical products.

The formal health system can be usefully classified according to the various functions that it performs in reaching its objectives of health gain, responsiveness, equity and financial protection. On this basis, research topics can be identified for priority setting that fall primarily within specific functions. These topics can be further classified and analysed by identifying the health system level to be addressed, such as primary care or hospitals, the populations benefiting, such as children or the elderly, and, when appropriate, the health problems addressed. Health system functions can also be further classified by analyzing more generic issues, such as the public-private mix or equity. Finally, topics should be analyzed at the appropriate geographical level, depending on whether the research attempts to generalize at local, national, international or global level [20].

Applications of priority setting

This section illustrates a variety of applications of priority setting methods, showing the extent to which different stakeholders exert control over choices and resources. These examples also show different approaches to the identification of health systems research, either

BOX 4

SUGGESTION FOR HEALTH RESEARCH PRIORITIES IN RELATION TO DANISH DEVELOPMENT ASSISTANCE

Priority setting should be undertaken in close co-operation with the developing country concerned and predicated on enhanced equity for the poor. As a small country with limited resources, Denmark will concentrate on innovative research oriented toward equity and poverty alleviation; such research reflects development needs and Denmark's comparative advantages.

Pending the establishment of mechanisms for broader international collaboration on health research priority setting, it is proposed that Danish support to health research for development focus on prevention and control of communicable diseases affecting the poor, effective health care systems with enhanced equity, reproductive and sexual health, and child and adolescent health and nutrition.

Attention to changing determinants of health must embrace a broad range of relevant themes. Health research should be concerned with the consequences of environmental degradation, globalization, urbanization, migration and violent conflicts [13].

as a part of broader health research or within the field of health systems development.

Priority setting can be undertaken at one extreme by donor agencies charged with distributing government funds or by private foundations. At the other extreme there are priority setting exercises undertaken by agencies holding no resources at all and acting merely in a normative capacity. Such is the case of mechanisms in low income countries such as Tanzania that have increased the government's and local researchers' voice in shaping donor and external partner agendas while exerting little control over external resources. Between the two extremes would be agencies charged with coordinating donors and producers of research operating under a variety of incentives. This is the case of agencies in middle-income countries able to influence the allocation of government funds (see Box 1).

Bilateral funding institutions such as the Danish International Development Agency (DANIDA) and the UK Department for International Development (DFID) have used priority setting to develop their research support programmes. DFID has given attention to the development of a set of priorities that would lead to the production of knowledge as a global public good. DANIDA, on the other hand, enjoys privileged priority setting through close cooperation with countries and targeting of local needs (see Box 4) [13].

DFID undertook a priority identification exercise in 2003, as part of the process to initiate a new research strategy covering all areas of development. The initial stages included the identification of "key researchable

problems” in each area by means of: collating DFID internal opinion on research topics; reviewing the priority setting of other donors; and inviting UK expert opinion to contribute views on key researchable problems. The focus was to obtain “...’big ideas’ which will make a real difference to poor people’s lives” [21]. Experts were asked to meet the following criteria:

- ▶ The issue is crucial to the achievement of the Millennium Development Goals;
- ▶ It requires relatively long-term research (i.e. three years or more);
- ▶ It requires an international scale of research effort (i.e. it cannot be addressed by an individual country);
- ▶ It is an issue where the involvement of DFID will make a difference (either because no-one else is

addressing the problem, or because DFID has something unique that it can bring to the international research effort).

The draft research strategy, produced for consultation, will focus two-thirds of the 2005/2006 funding of the new DFID Central Research Department on four broad research themes: agricultural productivity in Africa; states that work in the interests of the poor; climate change; and killer diseases [22]. Within this last theme DFID will prioritize research on the delivery of services to poor people, particularly women and children, and the most vulnerable groups. Attention will be given to structuring and financing services, including issues of pricing, sustainable financing, and the role of the private sector. Another priority will be research on HIV prevention and treatment and on the social impact of HIV/AIDS. The remainder of DFID Central Research funding will be spread over a range of 12 areas, to include three within health: strategies for improving maternal and neonatal health; strategies for improving reproductive health and HIV prevention and implications for gender empowerment, and mental health as an under-researched area of importance for the poor.

BOX 5

MAIN HEALTH AND SOCIAL PROBLEMS IDENTIFIED FOR RESEARCH IN TANZANIA

Diseases

1. Malaria
2. Upper respiratory tract infections
3. Diarrhoeal diseases
4. Pneumonia
5. Intestinal worms
6. Eye infections
7. Skin infections
8. Sexually transmitted diseases
9. Anaemia
10. Trauma and accidents

Health service problems

1. Lack of trained staff
2. Lack of equipment and drugs
3. Lack of transport
4. Underfunding
5. Ignorance and low health education
6. Impassable roads
7. Lack of rehabilitation facilities and buildings
8. Lack of water supply
9. Poor environmental sanitation
10. Inadequate health facilities

Social and cultural problems

1. Food taboos in pregnancy
2. Poor latrine use
3. Poor economic status due to alcoholism and low personal motivation
4. Polygamy
5. Ignorance and high illiteracy
6. Sex inequality
7. Witchcraft
8. Inheritance of widows
9. Low acceptance of family planning and high fertility
10. Use of local herbs

In Tanzania a National Health Research Forum was established as an independent, non-statutory body representative of the 12 research institutions in the country [23]. It was given the mission of acting as a non-political and non-religious forum for scientific exchange and as a consultative and advisory body on health research serving the policy-makers and decision-makers in the Ministry of Health and wider government. By ensuring that all partner institutions in health research were involved, the Forum sought to overcome institutional rivalry and provide a strong independent and impartial collaborative link between health researchers and health authorities, as well as relevant national and international agencies.

Boxes 2 and 5 provide the criteria for priority setting and the priorities identified by the Forum. Priorities were grouped into three broad topics: disease-specific research, health systems research and research involving households and population. It is noteworthy that the health systems research agenda is not very fully developed in the list; for example, there is no mention of topics such as decentralization or insurance, both of which have been of concern to the Ministry of Health.

In Ghana, the Ghanaian-Dutch Health Research for Development Co-operation allocates health research funds to topics prioritized by research users such as local

health departments and NGOs [24]. Priorities were identified through a series of consultations with various actors at national and local levels and with the support of Dutch experts. A Joint Ghanaian-Dutch Programme Committee (JPC) is the programme's policy and decision-making body and has a Dutch-based Support and Liaison Office to facilitate Dutch researcher involvement. The topics prioritized were communication and community participation, quality of care, decentralization and health care financing. Researcher-led work is supported – in addition to commissioned research – in an effort to shift the emphasis towards an agenda driven by the developing countries. The JPC structure and approach successfully demonstrate how six critical issues in priority setting can be resolved:

- ▶ Priority setting is a concrete exercise for resource allocation rather than a “wish-list” of research topics;
- ▶ Control over financial resources for research is shared between the industrialized North and the developing South thanks to a priority setting process enabling shared decisions;
- ▶ Priority setting involves the Ministry of Health as well as technical personnel, integrating research into policy making;
- ▶ Capacity development is integrated into priority setting through North-South technical collaboration;
- ▶ Health systems research is identified as a special area for research;
- ▶ International, national and local levels are combined, so as to develop priorities that take into consideration the three levels.

Science and Technology funding institutions in middle-income countries have been striving to integrate explicit priority setting processes into diverse areas, including health systems research. In Mexico the National Council on Science and Technology (CONACYT) established a Health Sector Research Fund in 2000 to attract public and private investment towards high priority topics. The Fund aims to combine funding for researcher initiated research with funding normally allocated by the Ministry of Health to specific priorities [25]. Colombia is considering similar solutions in view of past experience in funding research in support of health sector reforms [7] (see Box 1). However, there are some problems associated with processes for combining peer-review, investigator-led priority setting

and strategic research mechanisms based on research committees. In the past, the scientific community has been reluctant to move from researcher-led to strategic research, fearing a loss of autonomy and influence over resources and research agendas within unpredictable political environments [26]. This issue of how best to manage research is taken up in the next chapter.

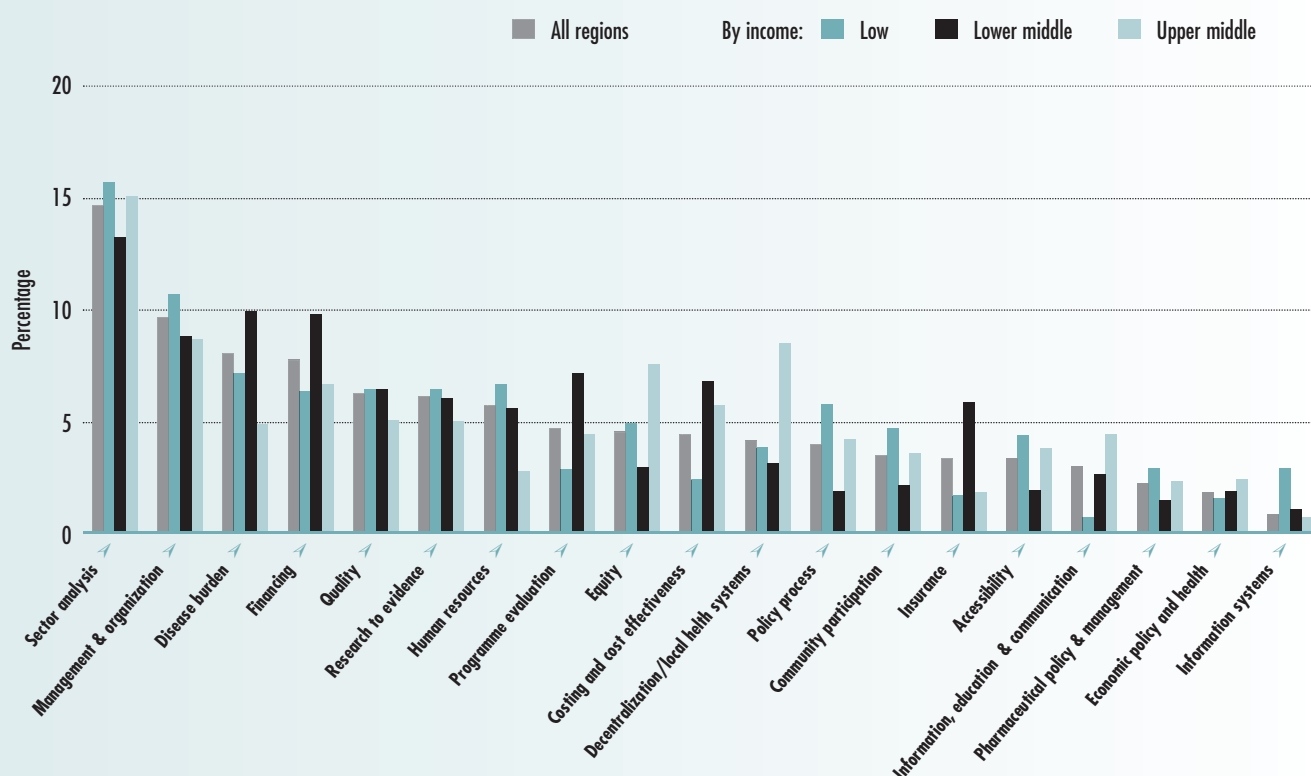
Priorities at the aggregate level and challenges to implementation

This section provides an overview of actual health systems research priorities. Researchers engaged in this field in 200 institutions in developing countries provided information on the top five health systems research priorities they had identified through consultations with stakeholders in the preceding two years. The challenges to implementation are assessed by comparing this to priorities reflected in projects actually initiated by different stakeholders, and to the project portfolio as a whole. Box 4 of chapter 6 presents the methodology of the study in more detail. It has to be emphasized that aggregation and listing of these priorities does not in itself constitute a priority setting exercise on the lines of those discussed above. At most, the listing sets out the priorities considered by institutions at country level. The various topics are presented at the different levels of aggregation as described by respondents, and there is inevitably a degree of overlap among categories. However, an effort was made to classify topics according to specific health system functions. The value of this exercise lies in its identification of topics and their frequency: a fundamental preliminary component of a priority setting process.

The five priorities mentioned by research institutions were content-analyzed and sorted by frequency into a ranked set of 19 health system topics of varying scope (Figure 2). **Sector Analysis** is clearly the top priority in all regions. This category includes the understanding of health sector reforms and their implications across the whole health system, the success of health system development efforts, the growth and integration of the private health sector, intersectoral collaboration and coordination and system-wide analysis of performance. The next ranked priority is **Management and Organization**, including the assessment of performance of health service providers, delivery of services, administration, improved service management, contracting and provider payment mechanisms, the effect of privatization on specific services, performance agreements and the effect of hospital autonomy on service delivery.

FIGURE 2

RANKING OF HEALTH SYSTEMS RESEARCH PRIORITIES BY INCOME REGION



The third priority, **Disease Burden**, has a very different character as it refers to the epidemiological analysis of disease conditions at various levels. This priority is, strictly speaking, outside the definition of health systems research as it does not refer to an organized response to health problems. However, the priority is mentioned probably because it constitutes essential information for decision-making and management and also because epidemiologists are involved in health systems research.

The fourth priority, **Financing**, includes a range of themes: resource mobilization, allocation, financing policies, national and district health accounts, financial equity, community health financing and financing of specific programmes. The fifth, **Quality of Care**, is closely related to management and organization, although it has specific attributes: clinical practice guidelines, evidence-based medicine, quality assurance and patient satisfaction.

The sixth ranking priority, **Research System**, includes the understanding of the impact of research as well as efforts to strengthen research. Although this does not constitute research in and of itself, some of the

items in this last category were nonetheless included as priorities probably because of the perceived importance of investing in strengthening research capacity alongside the research itself.

The next priority is **Human Resources (HR)**, including personnel management, deployment and motivation, knowledge, attitudes and practices of health personnel, satisfaction and quality of life, HR policy and demography, HR performance, and a host of items pertaining to HR training and education.

HR is followed by a number of priorities with very similar ranking. **Programme Evaluation** includes the application of methods to assess the impact of health programmes on specific health indicators. **Health Equity** includes research encompassing a broad set of indicators with the aim of understanding equity as a problem in its own right, as opposed to the study of equity as one variable among others describing phenomena such as accessibility. **Costing and Cost-effectiveness** was singled out for attention as a priority including a range of studies in economic evaluation. **Decentralization** includes a range of items, from decentralization policies to the analysis of their

impact and of the working of health systems at the local level.

Research into the **Policy Process** was placed at a similar level and includes stakeholder analysis, the role and relationships of those involved in the formulation and implementation of policy and the understanding of factors influencing the policy process. This topic is followed by **Community Participation**: community-based strategies, participation in governance, empowerment, school health, family health strategies and social support networks. **Insurance** follows closely. This is a topic that could have been grouped under financing. However, insurance was clearly perceived as a distinct aspect or function of the health system, including the impact of insurance on health and service outcomes, risks and benefits covered by insurance schemes, community based health insurance, options for health insurance and insurance reform. The next priority, **Accessibility**, includes aspects of organization but is also specific in so far as it relates services to social organization.

The bottom-ranking priorities include specific functions or aspects of health policy and systems. **Information, Education and Communication** covers a wide range of health promotion activities such as health education strategies and impacts and the assessment of knowledge, attitudes and practices. **Pharmaceutical Policy** is similar in focus to HR in that it is a cross-cutting priority focusing on a specific resource. It includes the rational use of drugs, procurement, logistics, herbal medicine, dispensing practices, pharmaceutical regulation, national drug policy and the formulation of essential lists. The penultimate priority, **Economic Policy and Health**, focuses on the macro and global levels to include the relationships between health and free trade agreements, TRIPS, economic crises and health, the impact of poverty reduction and adjustment policies, debt reduction, social policy, inter-sectoral coordination and the impact of employment. The last priority was **Information Systems**, including information needs, informatics, surveillance mechanisms and systems, strengthening of information systems, health monitoring systems, establishment of public domain databases and the development of indicators for service management and policy.

How do priorities compare across countries with different development situations? Priorities stated by low income country researchers are not much different to those at the aggregate level. The only noticeable difference is the lower emphasis on costing and cost-effectiveness studies.

Lower middle-income countries, among whom China predominates, place greater emphasis on financing, programme evaluation and health insurance. In upper middle-income countries the topic of human resources is not as prevalent, while equity and decentralization/local health systems are more important than for other income regions.

Figure 3 shows project topics categorised on the basis of whether projects were stated to have been initiated by researchers, donors or governments. Projects initiated by researchers reveal a clear preference for epidemiological studies to assess the disease burden at country level. The data suggest also that they pay relatively greater attention to equity studies, while underplaying costing and cost-effectiveness research. Governments are more likely to initiate these latter projects as well as projects on programme evaluation. Donors are somewhat more likely than other actors to initiate research on insurance, accessibility and information systems, although these three are low priorities overall.

What is the relationship between stated priorities and the portfolio of research projects actually undertaken? The topics of sector analysis, financing, quality and equity are represented in projects with only about half to two-thirds of the frequency shown in the stated priorities (Figure 4). This suggests that a wider gap exists between research and priorities for these topics than for others. On the other hand, management and organization and programme evaluation are more dominant in projects than in stated priorities.

Priorities can also be usefully compared to actual publications in each field. Priorities are not matched by publications in any case except for programme evaluation, equity and information systems. Publications are particularly scant with respect to priorities for the case of research to policy, financing and decentralization. Publications are more prominent than stated priorities in the cases of costing and cost-effectiveness, policy process, community participation, pharmaceutical policy and management, and especially information, education and communication.

Conclusions

This inevitably preliminary analysis points to the value of systematically canvassing the priorities of various stakeholders, especially those at country level, and ensuring that funding is available to address the

FIGURE 3

RANKING OF HEALTH SYSTEMS RESEARCH PROJECTS BY INITIATOR

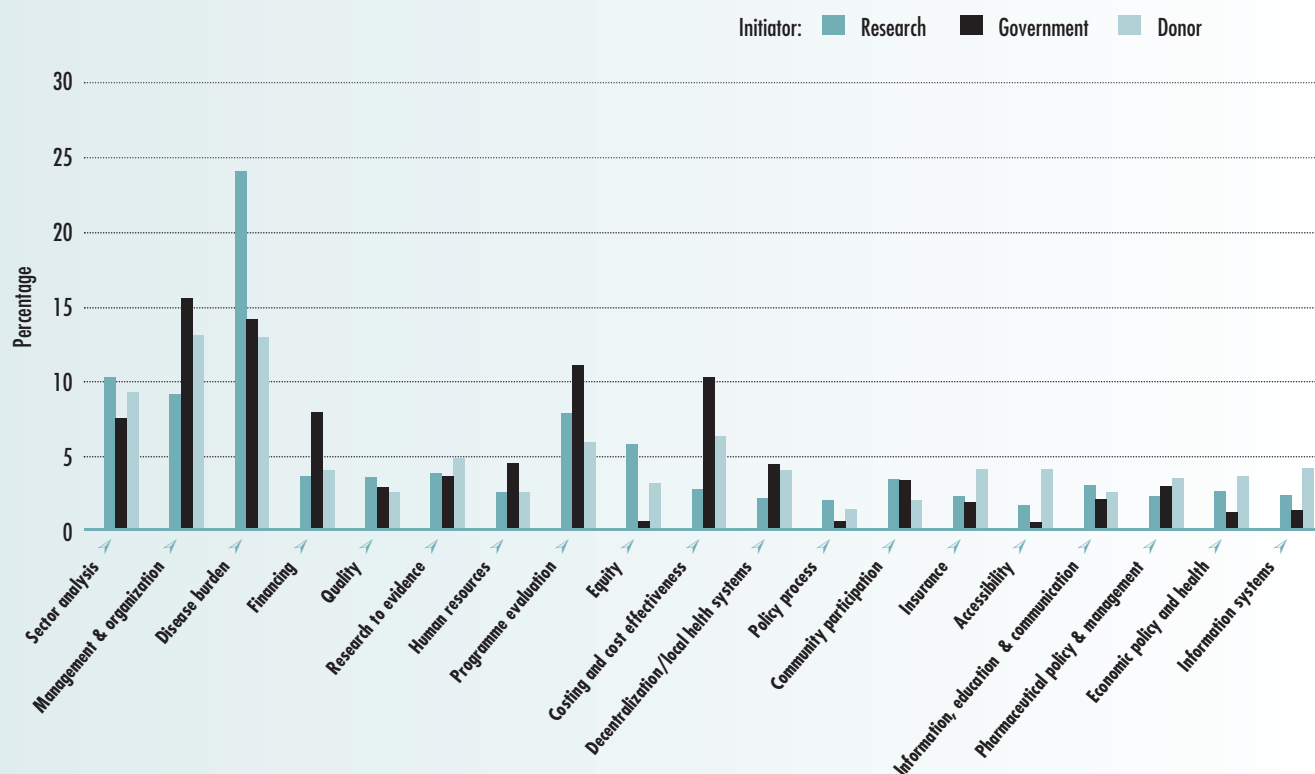
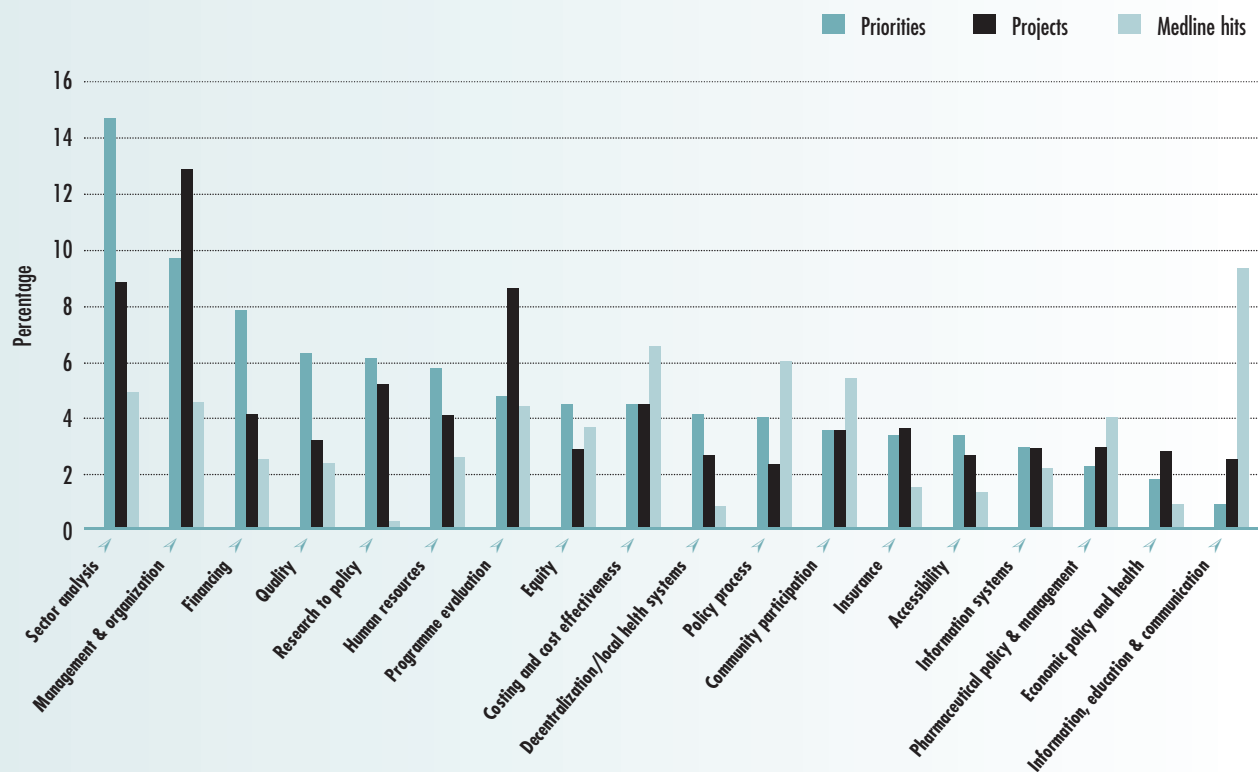


FIGURE 4

COMPARISON OF HEALTH SYSTEMS RESEARCH TOPICS IN STATED PRIORITIES, PROJECTS AND MEDLINE HITS*



*1991 to 2003 for Medline hits; 1999 to 2003 for priorities and projects. Category of "Disease burden" has been omitted. See also Annex 1.

identified research agenda. Further work on both the methods of priority setting and actual priorities is urgently needed to guide resource allocations at both national and international levels.

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GETTING RESEARCH INTO POLICY AND PRACTICE

Although health systems have benefited from health systems research, much remains to be done to increase the use of information generated by research in order to improve the performance of health systems [1]. One of the fundamental tenets of health systems research is that its production must balance its utilization. This chapter summarizes the key issues that have emerged from the recent body of literature and experience on how to improve the utilization of health systems research. Building on previous work, a conceptual framework is presented to describe the process of translating health research into health policy and practice (referred to as GRIPP), analyse the constraints acting on that process and identify strategies to address them. This analysis provides the foundation for an understanding of the scope and nature of activities required to strengthen capacity to improve the utilization of research information. Several issues requiring further exploration are also identified.

The gap between health systems research and its application

Policy-makers and managers complain that they frequently encounter research that is not relevant to real life problems, full of results expressed in esoteric or obscure language, often published in inaccessible journals. Conversely, researchers often complain that policy-makers and health managers ignore research results which are the fruit of careful work supported by substantial investment. Meanwhile, funding agencies wonder how to demonstrate that investment in health systems research has indeed made a difference. These problems are by no means confined to the developing world. A recent study showed that in the UK researchers, policy-makers and service providers shared similar views [2].

In sum, there is a growing perception that:

- ▶ Policy makers and managers need to increase the use of research in decision making, while
- ▶ Researchers, research managers and funding agencies need to pay more attention to developing an understanding of policy issues and facilitating the use of research outputs.

Is there any evidence of success in using research for decision-making?

The past decade has produced a growing body of literature on the complex factors that facilitate or impede the use of research for decision-making in health policy and management. This body of literature provides the foundations for this chapter. Country studies covering a variety of political and socio-economic settings include several outstanding examples of research having influenced key decisions, and shaped health policy and management practices. Sadly, these studies also include examples of considerable research effort exerting little or no influence on policy or practice. Several such examples have been recorded by the Council for Health Research and Development [3] and the Alliance for Health Policy and Systems Research [4]. Many of these examples will be used to illustrate specific issues in this chapter.

A conceptual model has been proposed focusing on the interface between policy and research processes and suggested how linkages across the interface can be strengthened [5]. This model highlights the roles of mediating mechanisms within the GRIPP process, aimed at increasing the receptivity exhibited by policy-makers and facilitating the absorption of evidence. Others have built on these ideas, integrating concepts from the literature on policy analysis and anthropology, policy-making processes, and delineating approaches to tracking research utilization in decision-making processes [6]. These concepts and experiences have been further explored at international workshops bringing together experienced researchers and policy-makers from developing and industrialized countries [7; 8].

Decision-making processes for policy and practice

An overview of decision-making processes provides insights into the role of information, and in particular information from health systems research in decision-making in the health system. Policy-making is a complex and essentially political process that is influenced by several factors. The full complexity of health policy-making is revealed in frameworks that combine the various factors [9], and it is then clear that information generated by research is but one among the several competing factors. Recognition and understanding of decision-making processes and factors that influence the process can increase the potential for inserting research information into the process.

Several different models of policy making have been described, but there is no single ‘most authoritative’ list of models. The models as summarized below can be regarded as a spectrum rather than as discrete entities [6].

Rational models assume that policy-makers identify problems, then gather and review all the data about possible solutions and their consequences, and select the solution that best matches their goals.

Incrementalist models [10] describe policy-making as a more piecemeal process in which problems are tackled ‘a bit at a time’. There is consequently the potential for research evidence to be fed into the process at various junctures. The process can be influenced by a wide range of stakeholders, and involves not merely scientific knowledge but a range of other factors such as the interests, values and personal ambitions of stakeholders, and power relationships between stakeholders.

Networks. The role of different interests and the relationships of groups of stakeholders and policy-makers can influence an incremental policy process [11]. Thus stakeholders can increase their influence by forming networks in which members develop long-standing relationships of trust and demonstrate their credibility [12].

Alternative models. The policy-making process is often seen as being extremely messy rather than occurring in a neat series of stages. Some models, such as the ‘garbage can’ model [13] even go as far as suggesting that some solutions, perhaps partly based on research findings, might remain in the policy-making arena for some time without being adopted, only to be recycled, eventually, in the form of an adjunct to fresh problems.

The use of research information in decision-making

There are various ways in which health systems research can contribute to the decision-making process. They include: (a) raising awareness of a hitherto unrecognized issue and placing it on the policy agenda; (b) helping to formulate or modify policies and practices; (c) informing the implementation of policies and practices, and (d) evaluating the whole process from policy to impact on health [14; 15]. It has been recognized that research can be used not for decision-making as such, but to retrospectively justify or clarify policy decisions that have been taken already. Furthermore, it must be accepted as inevitable that research will on occasion be used in adversarial policy debates, to support or oppose particular views and positions [9].

An example of research helping to place an issue on the policy agenda comes from Lithuania [16]. Prior to 1990, inequities in health were not considered a major problem, although there did exist substantial research evidence on health and social inequities. In 1997, stimulated and supported by pressure and from the WHO Regional Office for Europe, researchers synthesized evidence on the extent of health inequities in the country. This evidence was used in a process of dialogue and negotiations that resulted in a parliamentary resolution that included a commitment to reduction of health differences between social groups. The inequity issue had been placed on the policy agenda. An example of research contributing to formulation of policy and practice comes from Mumbai, India [17]. The Mumbai case study (summarized in Chapter 2) describes how a series of research and advocacy efforts contributed to the creation of legislation and regulations to improve quality of care in private sector health care facilities. Several examples of smaller-scale research projects demonstrate how research can be used as a management tool to improve health service delivery at the local level [18]. In Malaysia [19], use of research findings led to reduced waiting time in hospitals, and improved immunization of children. In Indonesia [20], studies led to more effective and less costly vector control schedules in malaria control programmes.

It should be recognized that there are several steps involved in placing an issue on the “action agenda”, then formulating policies and instruments for appropriate action, and then implementing action effectively so as to improve health status. Research can provide input at each step along the way. For example, in the Lithuania case study, the authors illustrate how research subsequently was used to demonstrate that although policies to address health inequity had been formulated by Parliament, progress on implementation was less than optimal.

Examples also abound of research that has produced apparently useful and relevant information but has not had any impact on decision-making. In Burkina Faso, improved access to care for rural children had been identified as a priority area for research. A study addressed the research question “Would the concept of ‘Shared Care’ between mothers and health centre workers improve health care for children?” and yielded findings that were familiar to and largely trusted as valid by decision-makers [21]. However, the study findings were not used. A subsequent analysis suggested several reasons. Although the study had been discussed with the Ministry of Health and did not lack support, Ministry

officials perceived their role as “passive, receiving results and suggestions for future work”. They considered that implementation issues had received insufficient attention, with the research perspective predominating. The concept of “shared care” was in competition to the “village health worker” concept that was being promoted and tested to improve access for rural children. Too little emphasis had been placed on the views of the health centre staff who would be the implementers, or the implications for their workload. Some stakeholders wondered if the research results might have been too thin to support the recommendations. They perceived a disjuncture between the research finding that “mothers are the primary caregivers of their children” and the proposed intervention to “train mothers how to give medication to their children”.

Some policies and policy-making processes are particularly open to influence by research. Conversely, different types of research can be appropriate to different levels or strata of policy-making [22]. For the purpose of reviewing the use of evidence, three strata of policy-making can be discerned: 1) governance policies which relate to organizational and financial structures; 2) service policies which cover resource allocation issues and patterns of services; and 3) practice policies which relate to the use of resources by practitioners in delivering patient care. It has been suggested that data and empirical findings are most appropriate for the third stratum of policy-making, while concepts and models are more appropriate for overarching policies such as health sector reform [6]. Furthermore, some types of research are more likely than others to play a part in policy-making [23].

Perspectives and factors influencing decision-makers in the health system

The perceptions of health system decision-makers regarding constraints on the use of research have been widely documented. These include: lack of understanding of health systems and policy processes on the part of researchers; research that fails to address the most pressing concerns of decision-makers; research reports that are difficult to read; research results that are not timely; and research recommendations that are unrealistic, including long “shopping lists” with little regard to cost.

Policy-makers in the health system include a variety of decision-makers (often referred to as actors). Three broad categories have been described: 1) politicians (including elected officials); 2) bureaucrats or civil servants with a managerial background; and 3) tech-

nocrats with a professional background in health and medical disciplines. These decision-makers work within ministries of health and equivalent offices in regional or urban administrative units, ministries of finance, and ministries of planning and development. These actors often have differing perspectives, reflecting different institutional linkages, and power relationships over and above any basic differences of interest, and all of these factors will inexorably exert an influence on the decision-making process.

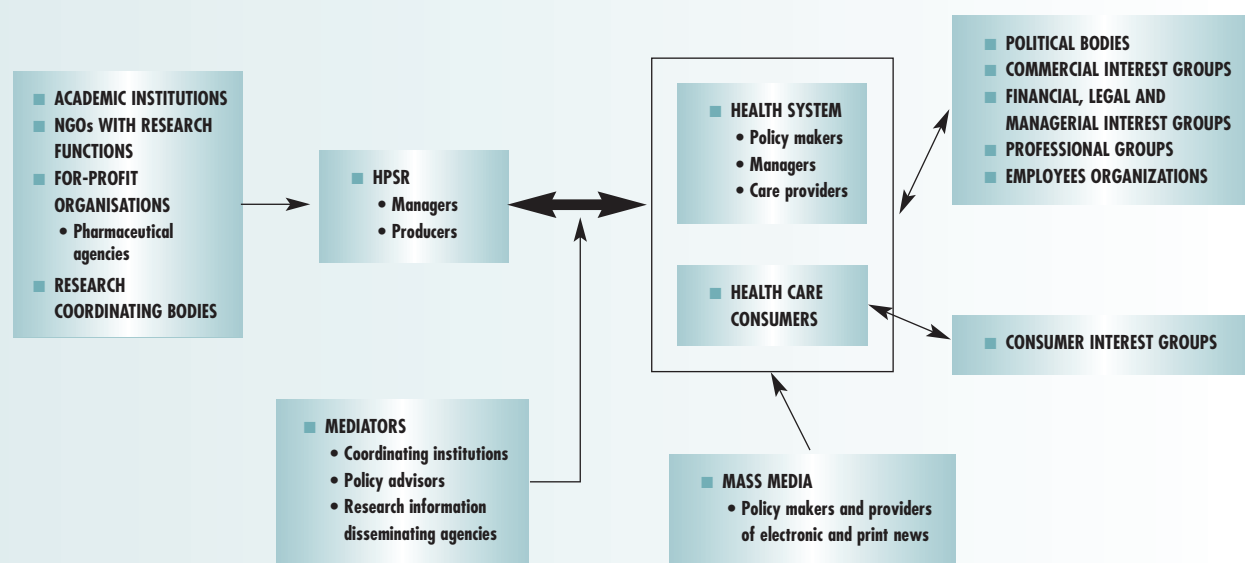
Analysis shows both that health policy-makers face various difficulties in acting as customers for, or receptors of, research and that ‘local history’ is of great importance here [24]. The national administrative culture exerts an influence. For example, if the decision-makers have past exposure to research, they are more likely to appreciate research inputs and are also more likely to have personal linkages with the research community. Therefore, past patterns of bureaucratic recruitment and the career development of decision-makers influence their desire and capacity to use evidence. Furthermore, in systems where there is a rapid turnover of decision-makers, it has been noted that by the time research has been completed on a particular issue, the decision-makers who were interested in that issue have moved on, and the new decision-makers are interested in other issues [25]. This has a detrimental effect on the use of evidence.

The larger political environment also has powerful influence. A historical review of Chagas disease control and eradication of Foot and Mouth disease in Uruguay documented the detrimental effect of a military dictatorship on the generation of scientific evidence and its use in health programmes [26]. Conversely, that review, and others [27], show how important a range of research was in informing programmes to control Chagas disease across Southern Cone countries in South America when the political climate was more favourable. Similarly, in South Africa the changed political environment following the dismantling of apartheid in 1994 had a facilitating effect. For example, prior to 1994, there had been concern about the impact of Vitamin A deficiency on child health, but there was no national policy. In 1994, the first national survey documented the seriousness of the problem and led to the formulation of Vitamin A supplementation policies [28].

Experience in other development sectors mirrors experience in the health sector. For example, the Global Development Network (GDN) and the Overseas

FIGURE 1

STAKEHOLDERS IN GETTING RESEARCH INTO POLICY AND PRACTICE



Development Institute (ODI) compiled 50 case studies, reviewed a wide range of literature and developed a framework to analyse ‘research to policy’ links, particularly in the context of poverty reduction. The framework has several features roughly in common with those developed in the health sector. For example the authors [29] conclude that there will be a “greater impact on policies for poverty reduction if:

- ▶ Research findings (a) fit within the political and institutional limits of policy-makers, and resonate with their ideological assumptions, or (b) sufficient pressure is exerted to challenge those limits.
- ▶ Researchers and policy-makers use appropriate networks, experts and chains of legitimacy for particular policy areas.
- ▶ Research outputs are based on local involvement and credible evidence and are communicated via the most appropriate channels, style, format and timing.”

Stakeholders can influence GRIPP

There can be little doubt that stakeholders who are interested in increasing the application of research information to improved policies and practices can become more effective if they recognized the factors that influence decision-making in the health system. Figure 1 provides

a summary of stakeholders who are relevant to decision-making in the health system.

Health system managers, policy-makers and health service delivery staff responsible for the performance of health systems are the primary group of potential users of health research. The background of health system managers and policy-makers can be technical or managerial or political. Another group of potential users are consumers and potential consumers of health care and their representatives. Stakeholders interested in contributing to improved performance of health systems include researchers and managers in research organizations that deal with health and health-related issues. Such organizations include, for example, research institutions both within and outside of academia, research coordinating bodies, NGOs that include research as a function, and commercial organizations such as those in the pharmaceutical industry. Another set of stakeholders can be termed “mediators” who provide the linkages or facilitate communication and interaction between the potential users and producers of health systems research. Such mediators can be individuals or institutions in the research community or in academia or even within the bureaucratic system, or they can be international agencies that take on the specific function for limited periods. Yet another set of stakeholders is responsible for financial and human resources for health systems research. This includes decision-makers and

managers responsible for allocating, distributing and monitoring the use of financial resources. National and international funding agencies that fund and support research in developing countries belong in this group. Another group of important stakeholders deserving of recognition includes agencies responsible for mobilizing and managing human resources for health research, including the selection of researchers, their remuneration and tenure. This chapter provides several examples of each type of stakeholder and their roles in facilitating or hindering the GRIPP process.

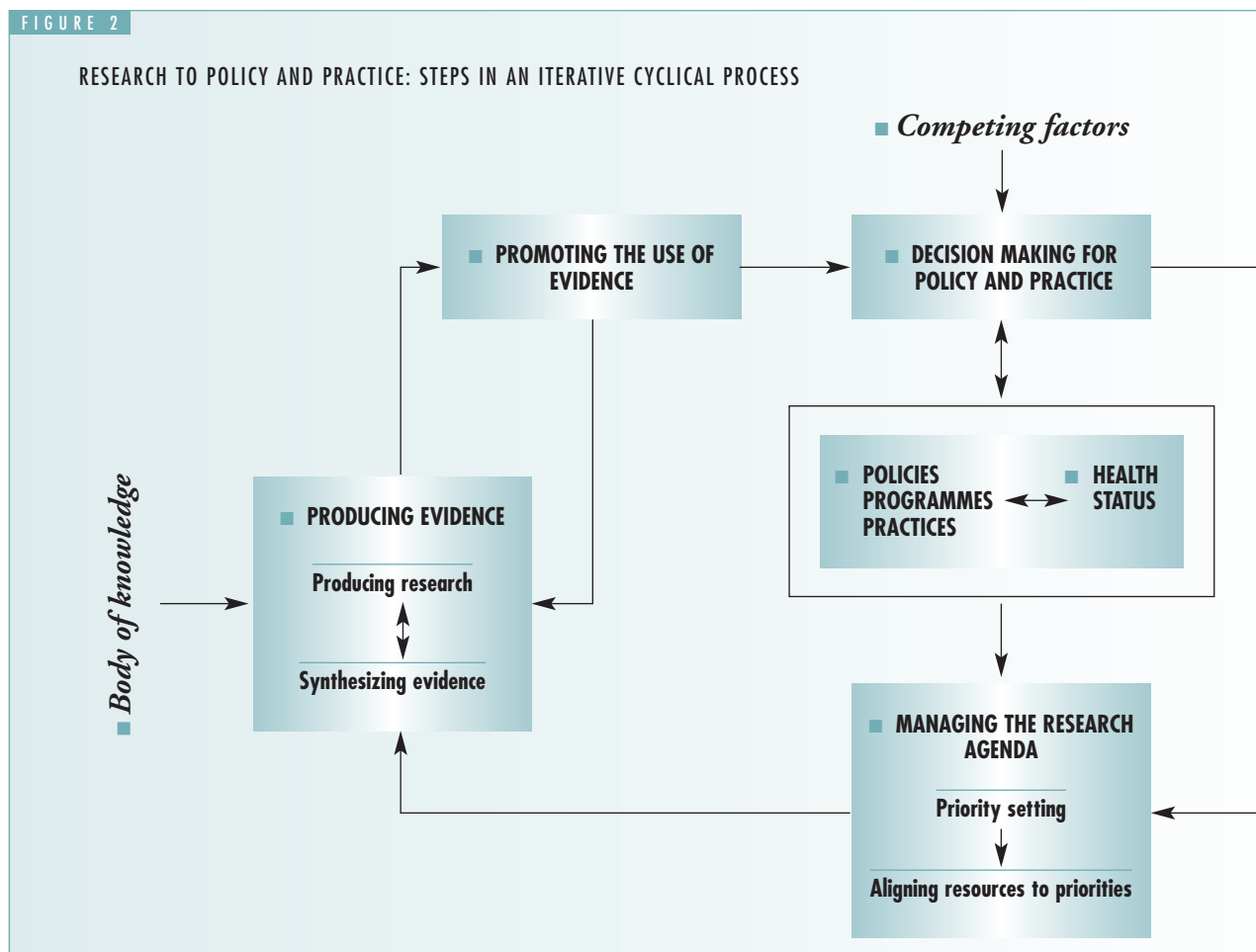
A conceptual framework: the process of getting research to policy and practice

The process

The process of getting research to health policy and (management) practice can be viewed as iterative and cyclical. The process shown in Figure 1 of Chapter 1 is presented here in greater depth. When the process is effective in translating research into policy, several distinctive steps are evident, each of which influences, and

is influenced by, several other steps in the process. In brief, the key steps in the process can be characterized as: (a) ‘managing the research agenda’ which consists of setting research priorities and aligning resources towards those priorities; (b) ‘producing evidence’ on priority issues, by producing research and by absorbing and/or synthesizing knowledge not only from local research results but also from relevant elements drawn from the global body of knowledge; (c) ‘promoting’ the use of evidence, and (d) utilizing evidence in ‘decision-making’ in policy and practice. Figure 2 is intended to depict an effective process of transition from research to policy and practice. The figure does not indicate all of the factors, external and internal to the cycle, that affect and influence the process, but a more complete discussion of such factors is presented in the text of this chapter. Any one or more barriers that are discussed in this chapter can prevent completion of the cycle.

The GRIPP process is a continuum and the ‘steps’ are not discrete, mutually exclusive entities. Rather, they should be regarded as conceptual stepping-stones that are useful for identifying barriers in the process and for developing strategies to overcome those barriers.



Entry points into the process

There are several potential entry points into the cyclical process. For example, the policy-making process can be the entry point whereby analysis and evaluation of policies and programmes can identify the need for research to evaluate potential alternative interventions. For example, in Tanzania, evidence that the effectiveness of the malaria control programme was being undermined by drug resistance led to a series of research projects to evaluate the feasibility, cost and implementation issues related to potential alternative drug regimes [30]. Or research production can be an entry point. For example, in South Africa, in the early 1990s, research showed that the private sector absorbed a high proportion of health expenditure. However, during that time, the policy debate had been focused largely on how to improve public sector health care for disadvantaged groups. Researchers now presented the evidence on the pattern of health expenditure and entered into a dialogue with decision-makers. The outcome was to expand the policy discussions to include issues related to both public and private sectors [31]. Or “managing the research agenda” can be the entry point. For example, priority-setting exercises in several countries have led to research projects on priority topics [32; 33].

Loops and iteration

The process is not neat or linear. Rather, each step can lead to a loop back to the previous step. For example, the results of some research can highlight the need for further investigation in order to produce sufficient evidence for decision-making or to put on the priority agenda a previously unrecognized issue. Thus the ‘research production’ step can feed into the ‘research agenda’ step. Also, some steps lead into more than one other step. For example, research products need to be promoted to decision-makers on the one hand, and to the research community on the other hand. Thus the ‘promotion’ step can feed into both the decision-making for policy and practice and into research synthesis and further research production. The key steps in the cyclical process are elaborated and analysed later in this chapter.

International agencies

International development agencies exert considerable influence on the GRIPP process in countries where significant funding for health research and for health programmes is provided by such agencies. They clearly have their own policies and priorities which guide the influ-

ence they exert on developing countries. But how do development agencies themselves utilize (or fail to utilize) evidence in developing their own health-related policies? And how in turn do such policies influence the direction of health research, policies, and programmes undertaken in partnership with developing countries? These are issues of concern to developing countries. Better understanding of these processes can help developing countries to establish more balanced partnerships with international agencies. This issue is addressed towards the end of this chapter.

Utilization of research in policy across health sector boundaries

Research in the health sector can have implications for policies in other sectors such as the environment. Conversely, research in other sectors such as transport can have implications for health policy. What is known about factors that facilitate or impede the process of translating research into policy across health sector boundaries? What are the issues related to facilitating such processes? Section E provides a brief introduction to these issues and indicates some avenues for further exploration.

The ‘Research into Policy and Practice Process’ – identification of barriers and strategies

Each step in the process is held back by barriers that reduce the potential to translate research into policy and practice. Analysis of these barriers provides the basis for understanding appropriate strategies. The next few subsections of this chapter explore each step of the GRIPP process and, where appropriate, summarise what is known about useful strategies to promote GRIPP.

Improving the ‘absorption capacity’ in health systems for research information

There is an evident need for systematic approaches to strengthen the capacity of decision-makers to use research information to strengthen health policies and practices. They would need to appreciate the potential benefits, recognize how best to obtain reliable and trustworthy information suited to their current needs, and how to use such information. Decision-makers can benefit not only from information on specific health policy and practice issues, but also from understanding the GRIPP process and recognition of how they themselves

can contribute to and influence the various steps in the process.

This type of capacity strengthening has been a relatively neglected area in the developing world. However, there are some examples of approaches that are informative. The User Liaison Program of the United States Agency for Healthcare Research and Quality provides an example of a capacity-strengthening initiative for decision-makers. It conducts regular “senior seminars and workshops where researchers and state level policy-makers discuss a wide range of issues and where outputs are research priorities, increased capacity to utilize research on the part of policy-makers and understand the policy process on the part of researchers” [7]. The World Bank Institute (WBI) adopts a topic-centred approach to capacity strengthening. The WBI has developed high quality flagship courses on specific current policy issues [34]. The core courses attract key policy-makers and researchers in developing countries and provide a vehicle for the application of concepts and the most recent evidence from research. They also serve to establish linkages between key national decision-makers, researchers and international exponents who are able to facilitate the international exchange of learning. The courses are adapted and replicated in regional centres aimed at rapidly expanding the capacity strengthening efforts. Capacity to use research can be enhanced by cross-fertilization between research-focused capacity building efforts (such as those sponsored by the Alliance for Health Policy and Systems Research and its international counterparts), and topic-focused capacity building (such as the World Bank initiative).

Two additional approaches have been used to strengthen capacity [6]. Some countries use policy analysts/advisors who serve as “mediators” in identifying and interpreting relevant research evidence for policy-makers. Sometimes they can serve a brokerage role by acting as long-standing links between the research community and decision-makers. Another approach is to introduce specific mechanisms for the appraisal of evidence into the decision making-process, or introduce administrative incentives. For example, in the field of health technology assessment, some European countries require that research evidence be available and fully appraised to support policy decisions on provision, coverage and reimbursement. These mechanisms are important ways in which research findings can be brought into the policy-making arena without the need for a direct exchange of knowledge between researchers and policy-makers.

Managing the research agenda

In order to provide useful input to strengthen health systems, and ensure that scant resources for health systems research are put to optimum use, research needs to address issues of priority concern in the health system. Hence the need arises for prioritizing the research agenda. Managing the research agenda includes two sub-steps, namely: 1) setting priorities for research, and 2) aligning resources towards research priorities. The two sub-steps are closely inter-linked and feed into each other. Chapter 3 examines the priority setting issues in greater detail. The emphasis in this chapter is on aspects of managing the research agenda that influence the subsequent impact of research on the health system.

Setting research priorities

There has been more than a decade of progress since the Commission on Health Research and Development established the rationale for declaring that “each developing country will need ... to set national priorities for research, for using both domestic and external resources” [35]. The strategies discussed in this chapter aim to address two concerns affecting the prioritization process: namely, would the process encourage: 1) potential users to use the research, and 2) the producers to produce research on priority topics [6]. The strategies discussed in this chapter aim to address both concerns.

Strategies

It is widely acknowledged that ensuring the participation of stakeholders in the priority setting process can be the key to facilitating ownership and subsequent implementation and use of research. Several categories of potential stakeholders have been identified. Exercises at national and sub-national levels have included: researchers from various disciplines; decision-makers from different levels of the health system, including public and private sector managers and political officials; service providers from the public and private sectors; technical experts; professional associations; communities and mass media; and international and bilateral development agencies [36].

Mechanisms for stakeholder participation in priority setting include group discussions, sectoral and multi-sectoral workshops, and conferences at sub-national, national and international levels. In countries where there are external sources of funding for research, it can

be important to include the major donors and development agencies in the priority setting process.

The priority setting process includes “situational analysis” which requires assembling and summarizing requisite information, followed by selecting and using criteria for prioritization [36]. The advantages and limitations of various approaches to situational analysis and methods of selecting criteria are the subject of continuing study and discussion, as evidenced by the appearance of priority setting as a regular topic in the annual international Global Forum meetings [37].

It is necessary to ensure that ‘priority areas’ and ‘researchable issues’ are converted appropriately into research questions. For example, in the Burkina Faso case study quoted earlier, although the ‘researchable issue’ of improved access to care for rural children had been identified correctly, the ‘research question’ regarding shared care had not been framed adequately to include implementation issues, nor negotiated adequately with appropriate stakeholders in the country.

Several strategies have been employed to ensure that ‘researchable issues’ are translated appropriately into research questions. For example, in the UK, an operational arm of the R&D programme of the National Health Service employs a multi-stage structured process to design appropriate research briefs [33] (SDO, NHS; see Box 1). In China (Box 2) and in Thailand [38] specific government-sponsored research institutions engage in dialogue with relevant government departments, develop research questions, and invite proposals or commission relevant research. In Uganda a series of workshops were conducted, with technical support from international agencies, to develop researchable questions from selected topics on the priority list. The workshops resulted in research proposals that attracted funding support [39].

Another challenge in using priority setting to influence policy and practice is to disseminate and update the research priority agenda. In most countries, there is a fairly rapid turnover of policy-makers and health managers as well as in the research community. Mechanisms are needed to facilitate successive cohorts of research producers and help potential users of research to take on board previous priority setting processes. Furthermore, successive cohorts would need to develop ownership and therefore need the opportunity to update the priority research agenda. Therefore, priority-setting processes need to be documented adequately, and systems need to be in place for periodic

updating. There are examples of modalities that have been used for documentation and for periodic updating. In Zimbabwe, the priority setting exercise was documented in a short booklet; in Lao PDR it became the draft of the Second Five Year Health Research Plan [39]; and in the UK, the process and the outputs are clearly documented on the website of the National Coordinating Centre (www.sdo.lshtm.ac.uk).

Aligning resources to research priorities

Setting priorities is no guarantee that subsequent research will address those priorities. Several critical barriers hamper researchers in conducting priority research. First, researchers have difficulty designing research appropriately because they do not usually have ready access to policy-making and the relevant discussions on health programmes. Hence it is difficult for them to recognize or understand the concerns and issues that guide or constrain policy-makers and managers. Second, research for health policy and health systems often requires multi-disciplinary skills. Individual researchers can find it difficult to put together teams that have the requisite skills. Third, health systems research is often under-funded. National research funds can be allocated in accordance with the influence, interests and skills of existing research institutions. Therefore new lines of research, such as health systems research, can be at a disadvantage when competing for funds, even if recognized as a priority. Finally, there are currently only rather modest incentives to engage in health systems research and promote the utilization of findings. The career advancement of researchers is dependent on publication in scientific journals. Research completed for health policy and programme purposes can be viewed as the property of ministries of health (or finance) and not for publication. Therefore researchers can find it difficult to make a name for themselves in their chosen field.

Strategies

Better understanding among researchers of the policy environment and concerns can be promoted through long-standing linkages between researchers and decision-makers. Such linkages can be achieved through, for example, researcher participation in long-standing committees or forums, and task forces within government agencies that develop or review policies and programmes. Another mechanism is the use of research centres that focus on particular topics. Such centres have been created in, for example, Thailand [38], Mexico [40], Canada [41] and the United Kingdom.

BOX 1

THE UK NATIONAL HEALTH SERVICE: NATIONAL COORDINATING CENTRE FOR NATIONAL HEALTH SERVICE DELIVERY AND ORGANIZATION RESEARCH AND DEVELOPMENT

The SDO R&D Programme is one of the three national research programmes within the National Health Service in the UK. The operating base for this programme has been contracted to the London School of Hygiene and Tropical Medicine where a National Coordinating Centre has been established, with a mix of academic and programme staff. The key issues dealt with by the programme include (a) most appropriate and efficient ways of delivering services, (b) how to implement changes, (c) impact of relationships between users and professionals, and (d) team approaches to the provision of integrated care. Functions performed by the Programme illustrate approaches to facilitating the research to policy process.

Priority setting for the research agenda has been carried out through *national listening exercises* designed to understand issues affecting those designing, delivering and using health services and build ownership among stakeholders. An expert Forum outlined a research agenda and identified participants for further consultation. The consultation was done through 16 regional focus groups and five specialist focus groups. Users and user representatives, clinical staff, mid-level and senior managers, educators as well as researchers participated, with only 15% being researchers. Results were fed back to the expert Forum and feedback obtained from policy-makers. The outcome was ten priority themes (later realigned into six topic areas).

A *commissioning programme* was developed on the ten priority themes. The first step was a scoping exercise to produce research briefs. The exercise included a literature review and analysis of the NHS and social context. Research briefs, developed in collaboration with other NHS R&D Programmes, called for proposals for short (up to 1 year), medium (1-3 years) and longer term (3 years or longer) studies. For some short-term studies, commissioning was done through a panel of pre-selected research institutions with capacity to undertake rapid assessments, thus shortening the bidding and review process.

Communicating research results entails a variety of strategies. Reports, briefings, journal articles and seminars are used. Close links are maintained with stakeholders throughout the research process. Expert communicators are employed and networks of "family and friends" are mobilized. Targeted dissemination, building of alliances, and championing of results are used as strategies in change management. Impact assessment is designed to give early feedback on uptake use and perceived impact of published research.

BOX 2

CHINA HEALTH DEVELOPMENT FORUM AND CHINA HEALTH ECONOMICS AND TRAINING NETWORK: PROVIDING THE BRIDGE BETWEEN RESEARCH AND HEALTH POLICY

The China Health Development Forum is an informal association of researchers, policy-makers, health service managers and international experts including economists, social scientists, health systems researchers and policy analysts. It aims to facilitate communication between the different groups and to develop and test practical strategies in the context of rapid social change in China. Activities include workshops, research and intervention studies, training and dissemination of new knowledge.

The China Network of Training and Research in Health Economics and Financing is a complementary network of research institutions, with membership from 20 universities and institutions. This network, under the direction of a steering committee that has strong leadership and participation from national policy-makers, sets research priorities, commissions research on priority topics, monitors research progress, organizes training on policy-oriented research, and facilitates interaction between researchers and policy-makers.

Every two years, the Steering Committee sets the research priorities on the basis of the health reform agenda. Priority topics are listed, proposals reviewed by a scientific committee and funding is on a competitive basis. A researcher is usually the principal investigator, but a central or provincial policy-maker serves as co-principal investigator or consultant. Project progress is reported at the Annual Network meeting, which pushes teams to produce quick and practical results. The Network has several examples of research that has contributed to policy changes within health care reform.

Training has included (a) practical experience for researchers in implementing rural cooperative medical systems in several impoverished provinces so as to make them more sensitive to the realities of applied research and (b) training of trainer courses to disseminate knowledge and skills on policy-oriented research. Senior policy workshops have brought together senior policy-makers, economists and opinion leaders to review current research and identify future priorities. Research and training are viewed as mutually supportive, as researchers become aware of policy concerns and policy-makers become aware of recent research. Both parties improve skills in communicating with each other and build personal relationships.

Such institutes can perform several functions, as illustrated in the case study shown in Box 1.

Commissioning of research is one of the functions of such centres, and is a widely used strategy to ensure that research is implemented on priority issues. However, the task of commissioning research is not simple. The example from Colombia given in Box 1 of Chapter 4 provides a vivid illustration of difficulties that can arise. In the early 1990s, Colombia had a US\$ 60 million health policy research package as part of a health sector reform loan from the Inter American Development Bank. However, only US\$ 20 million was spent, due to: “bureaucratic overload (which) led to several non-assigned biddings, loss of precious time, economic losses for many participants, and finally inadequate use of resources. Furthermore, most of the commissioned projects did not respond to the timeliness required. Today there is widespread consensus that the scale of research efforts should be much smaller. Further, development banks should have greater flexibility to adapt procedures to the capacity and requirements of research institutions,” [42]. The observations made by the authors illustrate the importance of developing capacity to manage contracts for commissioned research so that funding, reporting and research implementation is timely and coordinated. Otherwise delays render results less useful or even unusable.

The work of the Global Forum in tracking and evaluating resource flows for research [43] has triggered interest and experience in another strategy to facilitate the re-alignment of resources to priorities. Monitoring the proportion of research funds that are allocated to and used for priority research provides a basis for seeking better alignment of resources. Another approach which has been adopted is to monitor the proportion of projects that focus on issues that have been identified as a priority.

Production of evidence

The production of evidence to support decision-making can be conceived as encompassing two types of activity: 1) production of priority research, and, 2) synthesis of research to produce a body of evidence. This includes review and absorption of relevant national and international research, and synthesis of evidence from the global body of knowledge [6].

Production of priority research

There is widespread agreement that research needs to be relevant, timely and produce valid results if it is to influence policy and practice. Therefore the research must be of a high quality, employing a variety of research designs and methodologies drawn from various scientific disciplines. These criteria are now widely accepted in evaluating health systems research. Several training initiatives in developing countries provide researcher training aimed at improving the quality of health systems research. Scientific peer review processes have been established in many countries to assess quality and provide feedback to researchers. Priority setting exercises have raised awareness of the importance of relevance and timeliness, although more effort is required to convert such awareness into research products. Eventual utilization is clearly affected not only by the nature of the recommendations arising from a study but also the credibility of the researcher and the research institution (see below for examples).

In order to enable decision-makers to give serious consideration to the research, any recommendations arising need to recognize contextual factors in the health system. For example, recommendations to change frontline malaria management practices in Tanzania did not lead to policy change until further research dealt with concerns regarding the cost and financial sustainability of the recommendations [44].

Recommendations formulated with the participation of potential users of research findings are more likely to lead to change. In Indonesia [45] researchers investigated the effectiveness of the social safety net in the health sector; they were able to trigger changes in policy and programme management by sharing their findings with successively higher levels of government and integrating comments from each level into their recommendations. Similarly, evaluative research on the heart transplantation programme in the UK maintained close linkages with the Department of Health during the study, and the Department knew the likely results of the final report. On the day the report was received, a major decision was made to continue funding the heart transplantation programme [46].

The credibility of the researcher or research institution is another factor that enhances utilization, as evidenced for example from the experience and observations in Mumbai, India [17] and in Thailand [47].

In order to promote desirable characteristics of research, the criteria for evaluation of health systems research proposals would need to be expanded to include suitable scientific rigour, utility and contextual attributes [48]. Attributes of central importance for improving utilization include: (a) demonstration of interest and support from potential users; (b) provision for continued linkages between the researchers and potential users; and (c) strategies for subsequent promotion of research findings. For example, the small grants programme of the Alliance for Health Policy and Systems Research included in its call for proposals the rationale for the priority research areas proposed, and required that each proposal should be accompanied by a letter of support from a relevant policy-making agency and include a section on strategies for dissemination of results.

Strategies

Strategies to strengthen the production of priority research can be visualized as strategies to (a) harness and (b) increase the existing pool of research expertise.

In order to pull existing expertise into priority research, research institutions can be encouraged to review their own mission and goals, assess their own strengths, then review the national environment and opportunities for research, funding, and research utilization in order to identify their “niche”. This can be undertaken as part of an institutional research priority setting exercise [36].

Health systems research often requires expertise from different disciplines, and individual researchers can find it difficult to establish suitable linkages with researchers from relevant disciplines. Barriers to working together can be addressed by establishing linkages between institutions so as to foster the work of multi-disciplinary teams capable of addressing issues in health policy and health systems. Such networks have been established in several countries and geographic regions. Examples are the Health Economics and Policy Network of Sub-Sahara Africa (HEPNet) and the Network for Health Systems and Services Research in the Southern Cone of Latin America (REDSALUD). Such networks serve several functions, including capacity development through training, support for exchange of information and collaboration between researchers

For the past decade, universities and training institutions have been attempting to increase the pool of researchers through appropriate training programmes.

Chapter 6 provides an analysis of the achievements and constraints that have been experienced. There is increasing recognition of the “brain drain” caused by migration of researchers from developing countries to wealthier environments. It has been suggested that it can be useful to develop strategies to harness expertise from the diaspora of researchers from a country to address national priority issues. For example, the Australian Network of Expatriate Researchers supports links between its researchers abroad and at home in order to derive benefit from talented Australians living in foreign countries, and there are similar organizations for British, Irish, [49] Finnish and Indian researchers. Developing countries suffering disproportionately from “brain drain” can benefit from similar initiatives, but can require financial support and management expertise to support such initiatives. One of the issues that would need to be addressed would be the tension that is likely to exist between researchers who have remained in their home country and those who have sought greener pastures.

Synthesis of research to produce a body of evidence

The results of a single research project are seldom sufficient to generate changes in policy or practice. Findings from several research studies need to be validated and synthesized to produce a body of evidence that would provide a foundation for “evidence-based policies and practices”. Therefore methodologies and mechanisms are required to review and synthesize research and identify that which should be promoted and that which should not. This includes scientifically acceptable methods of synthesis and validation, the expertise to apply such methods, and mechanisms for disseminating such evidence and updating it regularly. Mays and colleagues [50] described approaches to the synthesis of evidence in the field of delivery and organization of health services. They acknowledge, however, that there has been little discussion, and still less agreement, on how to synthesize evidence from studies other than those which employ experimental designs. In the field of health policy and health management practice, synthesized evidence is required on health status and determinants of health status, the health system and its performance, including the availability and efficacy of health interventions. Political, cultural and social factors have strong implications for health policies and management practices. Therefore evidence on the application or adaptation of global or international experience to local situations is crucial, as is the synthesis of locally relevant evidence. There is as yet little experience of synthesizing various types of research evidence for policy and management purposes.

In other related fields, by contrast, the methodology and mechanisms for validation and synthesis are more advanced. For example, the International Cochrane Collaboration initiative focuses on systematic reviews for decision-making within specific areas of clinical practice, though there is also the important work of the Cochrane Effective Practice and Organisation of Care group. The more recent Campbell Collaboration focuses on systematic reviews of research on the effects of social and educational policies and practices. “Both Collaborations strive to produce better evidence on what works, based on high quality evidence offered to decision-makers (both political and professional) and the general public. The Collaborations feed virtual libraries, databases and registries that are accessible through the Internet. They promote systematic reviews and meta-analysis, randomized and non-randomized trials, new clinical trials and evaluate the use of original study of micro-records and unpublished reports” [8].

The case study of the United Kingdom’s National Coordinating Centre for National Health Service Delivery and Organization Research and Development (SDO R&D; Box 1) illustrates how one country is making progress in establishing a national mechanism that includes research synthesis within its functions. It is worth noting that the International Cochrane Collaboration was inspired by the Cochrane Centre, which was originally funded as part of the information system strategy of the UK National Health Service in the UK. These examples highlight the crucial role that can be played by those who organize national health services and national health research systems. Developing countries need to recognize the importance of this function, develop locally viable mechanisms, and gain expertise to be able to benefit from the synthesis of evidence in a systematic and sustained way, making use of linkages to the priority setting stages.

Promoting the use of evidence

After a piece of research is completed, does the research community retain responsibility for the GRIPP process? It can easily be argued that the concept of a GRIPP process automatically implies that health systems researchers have responsibilities in promoting the use of research evidence. This responsibility has become more tractable in recent decades, with techniques developed and used in the field of communications now being studied and applied in relation to health policy research. But the whole process remains complex, and involves

new challenges that require additional skills. Traditionally, researchers have viewed publication or presentation of research in scientific conferences as the end point of a research project. According to the Alliance survey detailed in Chapter 6, only 42% of research institutions in developing countries produce publications or databases specifically for researchers, while 49% provide technical support to other agencies on the basis of research results. This last category accounts for only 33% of research institutions in low-income countries, reaching 59% in developing countries with higher incomes.

Strategies

Some scientists have used three categories to describe how research evidence reaches potential users [51; 52]. First is “diffusion” whereby research information is ‘passively’ disseminated through journals, newsletters websites or the mass media. The objective is promotion of awareness. Second is “dissemination” which involves more active interventions that are aimed at both awareness raising and attitudinal change. Examples include workshops, conferences and direct mailing to intended audiences. And third is “implementation” aimed at adding behavioural change to awareness and attitudinal change, for example, through meetings with opinion leaders, interactive educational meetings, administrative and economic interventions, audit, feedback and reminder procedures. Each of these categories has relevance to the GRIPP process. For example, “diffusion” to a wide audience can be used to create an environment receptive to change, while “dissemination” can be directed at specific audiences of stakeholders who have the potential to exert either positive or negative influence on the behaviour of decision makers. “Implementation” strategies can be directed to the audiences who have the authority and responsibility for decision-making in policy or management practice.

For each such purpose, it is necessary to craft the appropriate message in the suitable format, understand the target audience, and determine the most suitable methods of knowledge transfer [53]. Several training initiatives provide guidance to researchers on how to craft appropriate messages. One example is the Canadian Health Services Research Foundation which has a website providing useful guidance [54]. The process is strengthened by the use of advocacy strategies such as stakeholder analysis and mobilization, and use of networks to harness the energies of stakeholders who can influence decision-makers. For example, Uganda’s Injury Control Centre was established initially in

response to prevalence studies on road traffic accidents. Subsequently it developed a strategy to address the burden of disease from road traffic accidents by forming coalitions with a range of stakeholders including the traffic division of the police force, the Road Safety Council and policy-makers at the Ministry of Health [36].

Advocacy skills and strategies are particularly useful when the aim is to use evidence to raise awareness of hitherto under-recognized problems such as differences in access to care between different groups in society. Also, most proposed changes in policy or practice are likely to have protagonists and opponents. Adopting advocacy approaches enables researchers to understand the viewpoints of different stakeholders, and if necessary undertake further research to address their various concerns.

The availability of electronic technology has expanded the horizons of those who wish to transfer information, access information, or who wish to establish coalitions and networks. The promotion process can be supported and strengthened through the use of electronic tools such as websites and electronic newsletters and journals and electronic networks [36].

The research community, namely researchers, research managers and research funding agencies need to develop the know-how for promoting use of evidence. Strategies include (a) training in communication and advocacy as applied to research, (b) recognizing the need to allocate specific resources (time, funds, and personnel) for this purpose, (c) the establishment of suitable mechanisms. Reflecting on her experiences in working for the evolution of health policy in South Africa, Gilson suggests that researchers and research managers need to develop “entrepreneur skills” in order to promote utilization of research [55]. Such skills include building credibility and trust with policy-makers, understanding the policy environment and patiently seeking opportunities to present evidence and explain its policy implications.

In decision making-processes that involve some interaction among different interest groups, the strength of the influence of the different groups can influence decision-making. Thus, if policy-makers and researchers develop links over a long period and build trust and credibility, utilization of research evidence is more likely. Sometimes, specific institutions have taken up the responsibility of building trust and credibility between researchers and managers. Illustrative examples

are the User Liaison Program (ULP) of the Agency for Health Research and Quality in the United States, and the SDO in the United Kingdom. Both of these are large organizations that have considerable support from government. The Colombian Health Association (ASSALUD) and the Tata Institute of Health in Mumbai, India are much smaller NGO institutions that have built relations of trust.

Capacity strengthening efforts directed at the research community have not as yet recognized sufficiently the need to enhance understanding of the policy-making processes. This shortcoming needs to be addressed. With appropriate strategies, the research community can directly or indirectly influence some of the factors that affect the GRIPP process. Other factors, especially those in the macro-environment, are beyond the influence of the research community. However, recognition of such factors enables the research community to be opportunistic and innovative in advancing the process.

In developing countries, the sustainability of capacity building efforts remains a continuing concern. Four agencies that have an abiding interest in this issue, namely the Alliance for Health Policy and Systems Research, the Council on Health Research for Development (COHRED), the International Clinical Epidemiology Network (INCLEN) and the Global Forum for Health Research have tried to address this issue through training, with leadership development focusing on nurturing future leaders [36].

Donor influences

At a workshop with policy-makers and senior researchers from several industrialized and developing countries, discussions led to a summary of issues that are very emotive in some countries. “The relationship in the triangle of donors, researchers and policy-makers can be complex, and ‘donor-driven’ research can be interpreted in two very different ways. In the ‘North’ commissioning is often interpreted as a sign of relevance of research to policy issues. In the ‘South’, particularly in Africa, this is understood, at best, as the participation by researchers in projects formulated by ‘Northern’ partners, and at worst as the imposition of a research agenda... Donor-driven research may lead to the existence of “parallel agendas” where national priorities get meagre funding and attention, while the foreign agenda attracts the majority of resources” [7].

Issues of critical concern appear to be those affecting the interface between developing countries (the 'South') and international development agencies. A quick review of a couple of multi-lateral and bilateral development agencies found little documentary evidence about the processes and factors influencing the translation of research into policy and practices of the agencies themselves, and of the countries supported by such agencies. In the absence of understanding of how development agencies formulate their own policies and apply such policies in their work with recipient countries, it is likely that the perception will persist in developing countries that the "foreign" research agenda operates in competition with the national research agenda, while international development agencies believe they are supporting research that is in the best interest of the recipient country.

It was beyond the scope and resources of this chapter to embark on a large-scale exploration of this issue. However, a limited but illustrative study of the World Bank was undertaken and it elucidates some key issues [56]. Research supported by the World Bank can be placed in four categories.

The first category includes research that aims to affect the way development policy analysts and decision-makers think about development issues. Examples are 'cutting edge' global policy research such as the study "Confronting AIDS" [57] and research inputs to those World Development Reports that have addressed health issues such as the 1984 Report which addressed population or the 1993 Report which addressed health. Such research is carried out with a high level of rigour and independent review. The second category is global health sector research aimed at providing policy and programme analysis to improve the operation of regional and country work programmes. Examples are the research inputs to the Bank's 1997 statement of Health, Nutrition and Population (HNP) strategy [58], its hospital studies [59] and the retrospective study of 25 years of World Bank-financed HNP operations, [60]. Resource limitations did not permit exploration of whether and how these two categories of research have influenced World Bank activities. Even less is known about whether such research is disseminated in client countries and informs decision-making in those countries. Is it possible that differing awareness and understanding of these two types of World Bank-sponsored research contributes to divergence in perceptions of priorities between World Bank managers and staff on the one hand and decision-makers in client countries? These issues warrant further exploration.

The third category of World Bank-sponsored research includes regional and country studies aimed at informing the work of the Bank and its clients at country level and particularly to assist in the identification of health policies and projects to be prepared for subsequent World Bank financing. Examples include the Bank's 1994 regional study of Africa [61], and its 2002 India study [62]. There is evidence that both these examples, as well as several other similar studies, have influenced policies, and to some extent practice, in the client country.

The fourth category includes studies at country level sponsored by the Bank but financed externally and carried out by local or foreign researchers as part of preparation of a World Bank-financed health project or directly supported as part of a health project financed by the World Bank. These studies are subject to a much lower level of internal supervision and quality control. Neither Bank staff nor project management staff in Ministries of Health have the time or resources to provide technical supervision and support for such research. Most of such research is never published and remains on staff files. Little is known about dissemination or the utilization of results of such research. Anecdotal evidence suggests that many of the studies proposed to support Bank loans are actually never undertaken and that earmarked resources are transferred to other uses. Chapter 4 addresses the implications for funding health systems research at national level.

Strategies

A review was undertaken of seven selected studies in the third of the above categories, and two selected studies in the fourth category. The review suggested several critical "lessons" about research that is most likely to have impact on country level decisions. First, such research has been requested by local stakeholders who have a genuine interest in the subject, and has or creates a constituency of country level stakeholders including the ministries of health and finance and planning as well as universities and civil society. Second, it is carried out by local researchers, while the World Bank provides the value added of quality control, methodological guidance and inter-country comparisons, and brings new data and comparative experience to bear on country issues. Furthermore, the research outlines policy options rather than proposes explicit policy positions. Third, it is more likely to have an impact if there have been planned dissemination strategies with adequate managerial and financial support from the Bank. Furthermore, the research is more likely to be used if

there is operational follow-up linked to subsequent World Bank lending.

In terms of dissemination and utilization within the Bank the dissemination and impact process for some studies, such as the Hospital study [59], and the Better Health in Africa [61] and Middle East and North Africa [63] (third category) can be characterized as “outside-in”. The results are perceived to have had their strongest initial impact outside the Bank, namely on international researchers and partner development agency staff and some country level officials. Their interest and enquiries subsequently stimulated interest and attention within the Bank.

This brief review highlights the need for a more in-depth study of the impact of research on staff in the World Bank and in client countries. Furthermore, it suggests that extension of the review to other international development agencies would produce a body of evidence to expand understanding of ‘donor’ stakeholder perspectives. This body of evidence can generate lessons to enable developing countries and their partner development agencies to achieve a closer meeting of minds, and improve the impact of research in policy and practice.

Inter-sectoral linkages

Linkages between the health sector and other related sectors have been documented extensively and are recognized widely. Therefore, it is logical to explore two issues: first, the utilization of relevant research from other sectors in health policy and practice, and second, the utilization of health research in relevant policies in other sectors. What processes are involved, and what barriers impede such processes? A preliminary exploration indicated that there is little literature reporting structured analysis of the utilization of relevant research from other sectors in health policy-making. However, emerging examples suggest that this can be a fruitful avenue for further study. For example, research in labour economics can have implications for health sector policies related to workforce capacity, which is an issue of growing concern.

There is literature analysing the non-medical determinants of health in countries such as Canada [64]. In the case of tobacco control, the health sector is attempting to encourage other sectors to respond to findings from health research. In the case of road traffic injury prevention, the emphasis is on a two-way flow of research between sectors.

In order to analyse and understand the processes that are involved in translating research to policy across sectors, an appropriate conceptual framework is required. First of all, it is necessary to establish pragmatic definitions of ‘health sector research’ and ‘non-health sector research’, within a spectrum ranging from mainstream research that clearly emanates from the health sector to research in non-health sectors that was never conceived as being health research but which could have relevance for health policy.

Second, it is necessary to recognize that health as well as non-health sector research can have impact at different levels of policy. These levels can be viewed as a spectrum, ranging from a very macro level, where the influence of research can be discernible only as contributing to a shift in ideological climate, to a micro level where the influence of research can be evident in specific policy decisions. For example, at the macro level, the report by the Commission on Macroeconomics and Health [65] was prepared by researchers within and beyond the health sector and advocated a shift in emphasis away from viewing improved health as a goal that would result from economic development to also seeing improved health as “a means to achieving the other development goals related to poverty reduction. The linkages of health to poverty reduction and to long-term economic growth are powerful, much stronger than is generally understood,” [65]. Given the nature and timing of the analysis, the Report is believed to have the potential to strengthen the position of those who argue for a shift in priority from the economic agenda to issues in health care financing. Naturally, it is difficult to pinpoint linkages between research and general shifts in ideology, although such shifts can have a powerful impact on health policies. At a more specific policy level, however, it can be easier to identify linkages and demonstrate success or failure to make impact. Illustrative examples include Uganda, where, as noted previously, an Injury Control Centre [66] was established in response to research on road traffic injuries, and in Pakistan, where review of the local literature on the severity of injuries from road traffic accidents has led to a call for inter-sectoral collaboration between health, law, police and transport to develop an appropriate response [67].

Third, it would be useful to explore the types of organizational arrangements that have facilitated the translation of research to policy across the sector boundaries. Do departmental boundaries and the demarcation of responsibilities at national level make the process difficult, if not impossible? Is the process best addressed

through international agencies such as the World Health Organization, where inter-sector territorial boundaries might be less rigid?

It might be useful to apply approaches that have served to elucidate the GRIPP process within the health sector. Case studies can provide the foundation for further analysis and the development of theoretical concepts, which, in combination, can suggest practical strategies to improve research utilization across the sector boundary.

Governance and capacity development

The preceding analysis of the GRIPP process suggests that an action-oriented approach to strengthening governance and developing capacity can be adopted by considering how to strengthen the capacity, (a) of individuals, and (b) of institutional mechanisms.

Recent experiences in training initiatives to test the Collaborative Training Programme developed by the Alliance for Health Policy and Systems Research, COHRED, INCLEN and the Global Forum for Health Research reinforce the need to be more sensitive to identifying the specific roles of different 'actors' in the process and in responding to their specific needs. Thus junior and senior researchers need to understand the GRIPP process, the better to facilitate it. In addition, mid-level and senior researchers, decision-makers in the health research system and health care system, and in research funding agencies, need to understand how to establish, strengthen and sustain institutional mechanisms that support the GRIPP process. Any researcher expecting to produce evidence to influence policy and practice needs a basic understanding of policy-making process. Meanwhile, decision-makers in the health care system need to understand how to access, evaluate and utilize research in support of decision-making for policy and management practice.

The key element in enhancing individual capacity of researchers appears to be the recognition and acceptance of the need to expand the scope of research activities, and the development of skills to perform the new activities. The expanded scope includes: (a) pre-project activities to understand the relative priority and social context of proposed research; (b) intra-project activities that establish and maintain close but appropriate linkages with potential users without compromising the scientific rigour of research; (c) post-project activities including planned promotion of the use of research

findings, and (d) peri-project activities that can be regarded as the 'entrepreneur' role of the researcher in building trust, credibility and supportive relationships with decision-makers and with stakeholders who influence the decision-making process.

Training of researchers in health systems research needs to expand the usual curriculum on research to include specific attention to (a) understanding the decision-making environment, and recognizing opportunities and constraints for the use of evidence, (b) formulating appropriate research questions, (c) interacting with potential users of research at various stages in the research process, (d) formulating appropriate and justifiable recommendations, and (e) producing executive summaries, policy briefs and media briefs to promote the use of research results. The small grants programme of the Alliance for Health Policy and Systems Research provides an illustration of such a training approach.

Training of decision-makers needs to include illustrations of the value of evidence in decision-making as well as hands-on practice in accessing and reviewing evidence and recognizing how to use such evidence in decision-making. There are few role models for such training in developing countries, and collaborative efforts with the few agencies that do have relevant expertise can be valuable.

Strengthening of institutional mechanisms needs to be adapted to the administrative and political culture and structures and the developmental capacity in each country. However, key elements in the mechanisms can be identified. The key elements can be summarized as mechanisms to support (a) long-term interaction between the research community, decision-makers in the health care system, users of health care and their representatives, and those who fund health care and health research; (b) collaborative and transparent processes to develop, update and disseminate information on priorities for research; (c) monitoring the funding allocated and used, and the quantity and quality of research on priority topics; (d) planned and sustainable measures to increase the pool of researchers and decision-makers knowledgeable and skilled in supporting the translation of evidence to policy and practice; and (e) use of more effective communication strategies and approaches adapted from other fields of endeavour, including the application of emerging technologies such as electronic communication.

The implementation of these key elements needs to be adapted to the local context. Boxes 1 and 2 (provided

earlier), and Box 3 (shown here) provide illustrative examples of three different organizational mechanisms that are currently perceived to be relatively effective in implementing these elements in their own national settings. The UK example illustrates the use of an academic institution commissioned by the Department of Health, the China example illustrates a network of national and provincial academic research institutions coordinated by a unit under the central Ministry of Health, and the Mexican example [68] illustrates a private sector organization that has strong links with the public sector as well as private not for profit groups.

An important lacuna in the development of health systems research is the relative paucity of methods, or experience of synthesis of more qualitative evidence, on topics related to the organization, financing and delivery of health services. Such topics are of urgent concern to policy-makers, but, for most topics, the availability of syntheses of varied types of evidence is very limited. Policy-makers who wish to push through health reforms without too much delay thus often find little information to help them. Agencies such as the World Health Organization have taken on this assessment function with regard to several technical issues, for example in child health, maternal health, and disease control, thereby providing updated advice for policy and practice in such areas. However, policy-makers in developing countries cannot turn to any particular agency for similar assistance on issues related to, for example, health reform. This gap needs addressing.

Conclusions

Policy-making is essentially a political process, and therefore the GRIPP process is a complex one. Analysis of successes and failures provides a framework for systematically enhancing the use of evidence in the process. Key elements include:

- ▶ improving the capacity of decision-makers to recognize the benefits, and identifying and using research information to strengthen health policies and practices;
- ▶ identifying and updating research priorities with participation from all key stakeholders, using adequate information input and criteria founded on accepted principles, and aligning financial and human resources to address the priority agenda;

BOX 3

THE MEXICAN HEALTH FOUNDATION (FUNSALUD): PRIVATE-PUBLIC PARTNERSHIP FOR POLICY SUPPORT

FUNSALUD is a private not for profit foundation in Mexico, dedicated to the analysis of current and future issues (in health) and the development of critical public opinion. It is a think-tank providing a neutral forum where critical, strategic problems are considered. It has developed the capacity to influence decision-making, and its success is believed to stem from its efforts to involve and balance powerful but diverse industrial, government, civil society and academic interests.

Included among its functions are: (a) research on high priority health problems and health policy research, (b) production of policy proposals, research papers and scientific publications, (c) general dissemination of books, information resources and databases, (d) development of health researchers, (e) seminars and other activities to analyse further health reforms, (f) regional networking for policy development including support for research efforts and high-level discussions with health ministries and social security institutions, and (g) consulting services.

FUNSALUD relies for its sustainability on its endowment, most of which was provided by Mexico's private sector, although significant support has come from the Government. In addition, further income is derived from grants and contracts. FUNSALUD's investment policies have attracted funds, and it manages not only its own funds but also provides fund management services to third parties including research and government institutions.

- ▶ producing good quality timely and credible research outputs for the identified priority agenda, including realistic recommendations that reflect understanding of the policy context and constraints, and synthesizing research into evidence that can support decision-making;
- ▶ communicating evidence appropriate to audience needs, using advocacy strategies including mobilizing the influence of networks and key stakeholders to convey critical evidence to decision-makers;
- ▶ recognizing the pressures and elements that influence policy-making, and being opportunistic and enterprising in inserting evidence into decision-making processes.

It is necessary to strengthen the capacity of the research community and potential users to build and use linkages and mechanisms to support each of these key elements. Some of these key messages for the health sector have been expressed in earlier decades [24], and perhaps the climate may now be more receptive to such messages.

Several issues that impact on the process of getting research into policy and practice need further exploration. External development agencies are important

‘actors’ in the health sector in several countries. The interface between such agencies and national processes needs to be better understood. And the processes and factors affecting translation of research across the health sector boundary need to be elucidated.

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HEALTH SYSTEMS RESEARCH CAPACITY IN DEVELOPING COUNTRIES

This book has argued that health systems research has great potential to benefit health systems and society generally. Research has contributed knowledge in crucially important areas and there is a strong case to be made for an increased role for health systems research in development investment. However, to reach its potential, research capacity must be greatly strengthened in developing countries, encompassing the capacity not only to produce research but also to demand and use it.

Development cooperation in the 1970s widely supported capacity strengthening and health services research began to be supported in a modest way. However, these efforts were mostly directed to manage programme operation and not to create scientific knowledge. Two international cooperation programmes have aimed to support science for development: Canada's International Development and Research Centre (IDRC) from 1970 and Sweden's Agency for Research Cooperation with Developing Countries (SAREC) from 1975. Specifically within health, two major international programmes have aimed to strengthen scientific capacity, both with a disease or specific programme focus: the UNDP, UNICEF World Bank, WHO Special Programme for Research and Training in Tropical Diseases (known as TDR), and the Human Reproduction Programme (HRP) [1]. Bilateral agencies such as the Danish International Development Agency (DANIDA) and the Netherlands Ministry for Development Cooperation (DGIS), and foundations such as Rockefeller, Carnegie and Pew have embarked upon more modest capacity strengthening programmes as part of scientific cooperation in health.

Since the early 1990s there has been a growing call for increased investment in research capacity strengthening as a tool for development. In 1990 the Commission on Health Research for Development identified research capacity strengthening as the key to meeting national knowledge requirements and to ensure a contribution by developing countries to the global fund of knowledge [2]. Following the Commission's report, the Council on Health Research for Development (COHRED) was established in 1993. COHRED has strongly advocated capacity strengthening as a development strategy. More recently, the Commission on Macroeconomics and Health has argued for larger investments in research capacity strengthening as one of the most powerful, cost-effective

and sustainable means of advancing health and development [3].

In the 1990s, health systems began to attain the strategic importance of other sectors. The 1993 World Development Report placed human health firmly on the development agenda. Subsequently, the Ad Hoc Committee on Health Research Pertaining to Future Intervention Options identified the "best buys" in health research and made specific recommendations to support funding and capacity building [4]. This led to the creation of the Global Forum for Health Research, to advocate the narrowing of the "10/90 gap", which refers to the direction of only 10% of research resources to 90% of the world's burden of disease, which mostly affects the poor in developing countries. The Ad Hoc Committee also called for the establishment of what came to be the Alliance for Health Policy and Systems Research, created in 2000 to advocate for and support knowledge generation and research capacity to address the needs of health system development.

This chapter aims to:

- ▶ Highlight recent insights from analyses of experiences in health research capacity strengthening;
- ▶ Within this broader context, review capacity strengthening activities that are more specifically focused on the field of health systems research;
- ▶ Propose some key challenges to guide further health systems research capacity strengthening.

Key messages from reviews on research capacity strengthening experiences

The issue of how health research capacity can be developed and strengthened has been a subject of several reviews over a number of years. In this section, five key messages from these various reviews are highlighted.

Increasing the supply of resources is not enough

The model that has been used to design research capacity strengthening in low-income countries has been mostly supply-driven, based on the assumption that if enough researchers are trained and enough institutional

capacity is built, research outputs will be put to good use. This assumption draws on conventional economic wisdom that the main market failure in R&D is under-investment in basic research, that is, research directed to produce knowledge regardless of its applicability. According to this argument, the neglect occurs because basic research has no obvious commercial application and therefore requires public financing [5]. Yet the experience of developing countries is that under-investment in basic research is not the only market failure. Larger failures occur when an enhanced supply of research fails to stimulate the demand for it which was expected [6; 7; 8]. Public officials, the media, industry, community groups and other potential users rarely seize opportunities to capitalize on new knowledge. This weak demand is reflected in low national investment in R&D, low salaries for researchers, and a limited use of research findings.

Supply-side capacity building strategies that do nothing to stimulate the demand for research are unlikely to achieve expectations, and may actually further distort allocations by creating incentives for scientists to capture much of the benefit from research as private gains [7; 9].

The mismatch between supply and demand constitutes a failure of coordination [10]. This amounts to uncoordinated “pushing and pulling” of research results. Researchers “push” R&D in the direction of their own interests and scientific incentives, whereas market oriented users “pull” research in the direction of the applications they expect will yield the highest returns. In these circumstances, strengthening research leadership can be instrumental in efficiently integrating push and pull [11].

Science and technology managers have traditionally focused on detailed financial, physical and human resource planning, asking such questions as: What level of investment in R&D is sufficient? What physical/institutional capacity is required? How many researchers do we need? It can be argued that the main purpose of research leadership should be rather to stimulate interaction among researchers and between researchers and users [12; 13]. In time, demand-induced research should translate into greater public benefit to society and more private benefits to researchers through improved salaries and prestige. The cost to society of research will increase as researchers’ remuneration increases. But these costs will be outweighed by the added public benefit – a win-win situation.

“Other than technical” capacities are also needed

In-depth analyses of research capacity strengthening undertaken by COHRED have identified “other than technical” competencies required by research managers [14].

- ▶ *knowledge management*: understanding the nature of the knowledge economy, the appropriate use of new information and communication technologies (ICT), and facilitating access to global knowledge to solve local problems;
- ▶ *demand creation*: working with user groups to accelerate the use of evidence in policy development, practice, and community action;
- ▶ *coalition-building*: using special skills to foster team-building and network development and management; and
- ▶ *leadership development per se*: being familiar with the scholarly work on leadership and applying this in practice, such as through systematic succession planning and the mentoring of junior colleagues [15].

Capacity strengthening is enhanced through active learning

Greater researcher-user interaction is a necessary but insufficient condition for stimulating demand, as this exchange is only productive if it is accompanied by active learning. Learning – the application of knowledge – is now regarded as the major factor in global productivity. Some have viewed the changing basis for economic growth as an unprecedented opportunity for poorer countries: “Regardless of current capabilities, individuals, firms and countries will be able to create wealth in proportion to their ability to learn” [16]. Not only can the use of knowledge promote economic growth, but it can also lead to better social outcomes. For instance, the World Development Report of 1998/99 cites Costa Rica as a country that has achieved better than expected health as a result of a systematic policy to disseminate and use health-promoting knowledge [17]. In the words of innovation guru Peter Drucker, “the comparative advantage of less developed countries no longer lies in lower labour costs, but in the application of knowledge” [18].

However, the ability to assimilate foreign technologies is itself a function of socio-economic development

[19]. For most low-income countries, it would be naïve to predict leapfrogging or fast-track development towards the 21st century norms of the industrialized world. The basis for long-term development must be slow but sure economic growth, accompanied by steady improvements in education and health [20]. Two insights are highly relevant for poor countries. The first is that research is most efficient when it is constantly interacting with, and learning from, real-life experience. This is strategic research that combines the production of knowledge with its application at all stages [21]. The sharing and exchange of ideas and results as they emerge can be a powerful impetus for efficient research outcomes.

The second insight is that considerable efficiency gains can be achieved simply by applying knowledge already available within countries. This insight reinforces the dominant message that using existing tools more efficiently is the key to better health— and learning from good practice is itself an effective instrument.

More attention to national capacity is essential

Much of the previous effort in research capacity strengthening has been focused on individuals, and to some extent institutions. With the introduction of the “essential national health research” (ENHR) strategy in the 1990s, steadily increasing attention has been given to national health research systems.

Research capacity is unevenly developed across countries, and each presents a unique set of conditions and opportunities. Flexible approaches to building and strengthening capacity should therefore be designed with different forms of collaboration. In countries with little or no capacity, but with an interest in building it, a more comprehensive, mid-term strategy would be beneficial, including both demand and supply-side activities. In countries that already boast strengths across a number of areas, strategies could be employed to bridge gaps and make the best use of existing capacities. In either scenario, strategies should clearly identify whether individual, institutional or country capacity is to be addressed and the best strategies for each.

Objectives and funding for capacity strengthening should be identified as a part of research activities at all levels. Figure 1 shows a range of strategies and costs typically encountered by capacity building and strengthening activities. A research project can include capacity strengthening objectives as an integral part of the project at little or no additional cost, such as training junior researchers, expanding to new fields or learning new methods. By pursuing a learning approach, programmes and project teams can use project funding to obtain technical support and mentoring through links with national and international experts. However, sustained capacity building requires the broader range of strategies shown in Figure 1.

FIGURE 1

VARIABLES AND INDICATORS IN THE ASSESSMENT OF CAPACITY FOR HPSR

VARIABLES	INDICATORS
<i>Institutional/country context</i>	<ul style="list-style-type: none"> Country per capita income Health systems researchers per million population Health systems project funding as proportion of total health expenditure
<i>Institutional characteristics and capacity</i>	<ul style="list-style-type: none"> Legal status: Public, private, mixed Years of experience Experience of director/leader Career development incentives Access to information technology Total full time equivalent (FTE) researchers Actual full time participation Proportion of researchers with PhD Project funding per researcher Size of research portfolio
<i>Attainment of critical mass</i>	<ul style="list-style-type: none"> Number of researchers per institution Number of PhDs in workforce Presence of key disciplines Disciplines' highest qualification
<i>Knowledge production process</i>	<ul style="list-style-type: none"> Duration of projects No. of projects initiated per year Researchers per project Average total project funding Average annual project funding Capacity development activities

COMBATING THE BRAIN DRAIN IN HEALTH RESEARCH

Until comparatively recently, researchers in poorer nations often worked with very few resources, despite extreme dedication. Before more equitable use of the internet was introduced, the information was sometimes available but at a price they could not afford, with the result that they felt frustrated and ended up taking jobs elsewhere. Beyond basic research, the absence of robust scientific information has also had a detrimental effect on doctors' training. Schools still offer low salaries, poor facilities and libraries that are sometimes empty. The doctors are therefore not trained as well as they could be and the best frequently end up going abroad.

Countries such as Brazil have attempted to mitigate brain drain through investment in education and R&D and have thereby promoted opportunity within the country. However, the benefits are as yet not entirely clear. Brazil has achieved the capacity to generate over 6000 doctoral graduates each year, satisfying over 90% of demand. This compares to 40% of doctoral degrees obtained abroad in 1985. Despite this effort, migration of Brazilian researchers has increased to 5.3% of holders of doctoral degrees awarded during the same period, with nearly one thousand leaving the country between 1993 and 1999. On the other hand, much of this loss is compensated by the influx of foreign researchers, principally from other Latin American countries.

The recent bold initiative taken by China to become a leader in biological research and development and biotechnology illustrates the empowerment that accompanies the convergence of clear resolve, political and social will, and investment in R&D. However, the brain drain remains a threat to China's ambitious R&D initiatives. The US National Science Foundation estimated that 33,000 Chinese were enrolled in graduate programmes in the USA in 1999. Ninety percent of those graduating that year intended to stay in the United States. Distinguished Chinese researchers in China and abroad have recently taken innovative approaches to attaining world-class graduate education in China by using distance learning strategies.

- ▶ new forms of partnership, particularly between countries and institutions of the North and South (these must be truly collaborative relationships, based on mutual respect and shared goals) [22].

Strengthening the “research environment” is both a local and global challenge

Low national investment in R&D, inadequate equipment and supplies, and low salaries for researchers offer little incentive for newly trained researchers to remain in universities and other public research centres. Those who do remain find difficulty in sustaining enthusiasm for life-long learning and innovation and many settle into a bureaucratic mode of working with little potential for new discovery, further suppressing the aggregate demand for research [9]. This situation leads to the migration of many of the most able trained health staff, especially researchers, either overseas, or from the public sector to the private sector (see Box 1 on country experiences in combating brain drain).

Creating an enabling health research environment requires both local (national) and global coordinated effort. Research funding organizations in high income countries can provide support for the “re-entry” phase of returning scientists. Global efforts to ensure equitable access to scientific and technical information can be enhanced [23].

Capacity strengthening for health systems research – recent developments

In the field of health systems research, there have been some recent initiatives to strengthen capacity. Several of these programs are described here, including the recent and on-going efforts of the Alliance for Health Policy and Systems Research.

The International Health Policy Programme

An early contributor to health systems research capacity strengthening was the International Health Policy Programme (IHPP) (Box 2).

The IHPP experience suggests that considerable benefits are obtained by establishing national research groups of four to six credible individuals of middle to senior ranking linked to reputable organizations and

In COHRED's review of national health research capacity strengthening, a framework with new elements is proposed:

- ▶ new research and learning coalitions at both national and sub-national levels to address high-priority health and development problems;
- ▶ new tools to set health research priorities, assess health equity, monitor resource flows, and evaluate efforts to develop capacity;
- ▶ new leadership, both individual and collective, with a focus on special competencies such as creating demand, building coalitions, and managing knowledge (including the ability to harness the potential benefits of the new information and communication technologies); and

with a proven track record in policy or research. They need to have training and experience in fields such as public health, health management, economics, social and behavioural sciences, and information technology, and need to be willing to work together as a cohesive team on a shared policy development aim. In order to ensure that the group is sufficiently broad-based, the participation within the research group of NGOs, the private sector and government agencies outside the health sector is desirable. Training needs should be met and technical support provided on site through short-term learning activities and/or mentoring visits.

The Joint WHO/DGIS Health Systems Research project in Africa

The Joint WHO/DGIS Health Systems Research project in Africa (Box 3) focused on strengthening the capacity of health service managers and policy analysts to undertake research as a management tool [25]. Some very popular training handbooks were developed with particular attention to Africa, though they have also been used globally and were recently updated [26].

BOX 2

THE INTERNATIONAL HEALTH POLICY PROGRAMME (IHPP)

IHPP was established in the 1980s as an effort of the Pew Charitable Trusts, the Carnegie Corporation and the World Bank to strengthen research capacity in selected countries of Africa and Asia. This initiative lasted for 10 years and made a significant contribution not only to capacity at country level, but to the understanding of new approaches to capacity development [24].

IHPP invested US\$ 15 million over a period of more than ten years. The programme emphasized long-term commitments and promoted the establishment of teams of researchers and policy-makers. The IHPP experience demonstrated several lessons. Good research can be produced regardless of the sophistication of the environment so long as the scholars doing the work have a workable research design, get technical assistance at the right times, and can be assured that their funding, however limited it might be, is going to last for longer than one year. It is possible for high quality training to take place inside lead institutions in developing countries, particularly those that have benefited from capacity strengthening by international programmes. In spite the success of this programme, it was difficult to extend it to a wider range of countries and once the donors retired the model was not followed by other agencies.

BOX 3

STRENGTHENING HEALTH SYSTEMS RESEARCH CAPACITY IN AFRICA

In Africa, health systems research has generally been the concern of Ministries of Health and has largely been carried out in publicly funded institutions though supported by external funds [27]. Most health systems research projects have been small, stand-alone, descriptive projects looking at issues of local operational efficiency or causal factors behind patterns of community behaviour and health status. While research has been relevant and has helped in training and empowering health workers, results have had limited impact or implications for policy change. A substantial amount of technically significant and influential research has been carried out by research consultancies funded by international development agencies as part of structural adjustment programmes or global health reform initiatives. With increased democratization, there are now opportunities for a wider range of stakeholders to form groups (coalitions) to promote the use of research as a means of influencing effective policy development. There is also a growing need to strengthen the capacity of policy-makers and WHO country officers to participate in evidence-based health system development.

Various regional and globally funded initiatives have had success in building local capacities in Africa. A case in point is the Joint WHO, the Netherlands Ministry for Development Cooperation (DGIS) and the Netherlands Royal Tropical Institute (KIT) project on health systems research in the Southern Africa Region. This was a unique regional programme started in 1987, initially involving five countries. More than a decade later it has become a regional programme of the WHO Regional Office for Africa, covering 46 member states. Its main areas of concern were to strengthen local structures to promote health systems research, to build local capacities for carrying out such research and promoting the utilization of research results and to facilitate exchange of experience and technical cooperation between countries [25].

Apart from promoting the development of research culture and training of a cadre of health workers in research, the project has facilitated the establishment of health systems research mechanisms and structures within the health sector. It has also institutionalised a methodology for training and the training of trainers, using learning materials developed as part of the project [26].

Evaluation of the project has shown that most studies have focused on operational issues, with relatively little impact on health policies; there has been limited networking amongst researchers and limited applications of skills among those trained [25]. Lessons learnt include the need to strengthen networking and participatory planning of research priorities and agendas. Partnership amongst policy-makers, programme managers and researchers in planning and implementing research was not the norm. These lessons have helped in modifying the strategies for the second decade of the project that now focus on strengthening internal and inter-country networking and partnership amongst all the stakeholders in prioritizing health system research issues in key programme areas of regional importance and on promoting the use of evidence for policy and programme decisions.

Short workshop-based courses led to the development and implementation of research proposals which were followed up by workshops for the interpretation of results and to promote their utilization at various levels. A cadre of trainers was developed to ensure technical support. The programme is now being renewed and expanded.

Capacity strengthening contributions of the Alliance for Health Policy and Systems Research

Three specific capacity-related activities of the Alliance are highlighted here: a survey of capacity for knowledge production, a fund to support health systems research training, and a program of direct research support.

Capacity for knowledge production

What is the capacity to produce health systems research in developing countries? This can be assessed using a framework of country context, institutional characteristics, critical mass and the knowledge production process (see Figure 2). The Alliance used this framework for its survey of research capacity of developing country producer institutions between 1999 and 2003 (see Table 1 and Box 4).

Country context. There does not appear to be a linear relationship between a country's level of development and the number of researchers dedicated to health systems research in that country. While there are estimated to be 1.6 researchers per million population in develop-

FIGURE 2

CAPACITY STRENGTHENING COMPONENTS, STRATEGIES AND COST RANGES

CAPACITY STRENGTHENING COMPONENT	STRATEGIES	RANGE OF COSTS (PER YEAR, IN US\$)
Strengthening demand	■ Training of a cadre of leaders across agencies.	20,000 to 50,000 per country
	■ Adding brokerage functions within established institutions	50,000 to 100,000 per country
Learning by doing	■ Mid-term comprehensive research programmes to build country capacity.	50,000 to 75,000 per country
	■ Research and policy teams for applied research	20,000 to 35,000 per team
Training	■ Formal postgraduate education (per student)	5,000 to 25,000 per student
	■ Strengthening of teaching institutions	25,000-100,000 per programme
Networking	■ Supporting secretariat, communications and governance functions	50,000 to 100,000 per network

TABLE 1

HEALTH SYSTEMS RESEARCH INSTITUTIONS IN DEVELOPING COUNTRIES Data for the period 1999 to 2003

Level of income	SURVEYED				CONTACTED				ESTIMATED *			
	Institutions No.	%	Countries No.	%	Institutions No.	%	Countries No.	%	Institutions No.	%	Countries No.	%
Low income (LI)	90	45	25	50	366	45	39	48	391	48	58	44
Lower middle income (LMI)	66	33	14	28	254	31	28	34	259	28	44	33
Upper middle income (UMI)	45	22	11	22	187	23	15	18	228	24	31	23
TOTAL	201	100	50	100	807	100	82	100	878	100	133	100

* The total number of institutions was estimated by adding the total of institutions in countries contacted to an estimate of institutions in countries not contacted. The latter was estimated from the ratio of institutions per capita for each of LI, LMI and UMI regions on the basis of the data available, and projecting these ratios to countries not contacted outside WHO's European Region.

ing countries as a whole, in LI and LMI countries there are 1.3 and 1.4 per million, compared to 3.7 in upper middle-income countries (Table 2). External project funding per capita is lower than expected for LMI countries given their income. This stands at only US\$ 120 per 10,000 inhabitants, compared to US\$ 250 and US\$ 863 for low- and upper middle-income countries, respectively (Figure 3). However, governments account for a larger share of funding in LMI, with 47%, against only 13% and 10% for LI and UMI, respectively.

It is interesting to note that low income countries have the highest external research project funding as a proportion of total health expenditure, with 0.033%, as against 0.007% and 0.018% for lower and upper middle-income countries respectively (Table 2). As a whole, developing countries spend 0.017% of health expenditures on health systems research.

Researchers work under a great diversity of conditions, and these will modify the meaning of indicators of capacity. Within a university in a high middle-income country, a small research unit consisting, for example, of one holder of a PhD and two other professionals, will perform differently from an exactly analogous team within an NGO in a low-income country. Research in a country with a high level of conflict and political strife is unlikely to be undertaken with the same care and openness as research in a country valuing critical thought and with appropriate mechanisms to channel it.

Institutional characteristics. Survey data suggest that institutions undertaking health systems research have a varied range of characteristics. It is noteworthy that whereas 30% of institutions overall are private, 40% of institutions in upper middle-income countries are private (Figure 4). Overall, public institutions still account for the majority (69%) with mixed public-private enti-

BOX 4

SURVEY OF RESEARCH CAPACITY AND FUNDING IN DEVELOPING COUNTRIES

The data used to estimate the figures for research capacity and funding given in this chapter and others were obtained through a two phase survey of research institutions in developing countries, covering institutional structure and environment, projects, and capacity development. In the first phase of the survey (2000-2002) a total of 176 Alliance institutional partners in developing countries were asked to complete a 30-question profile as a partnership requirement. A total of 108 institutions in 36 countries complied, mainly for the year 2000 (78%), although data for 1999 (8%) and for 2001 (14%) were also included. The second phase was initiated at the end of 2003, when a slightly modified survey questionnaire was sent to 807 institutions producing health systems research in 82 developing countries. A total of 108 valid responses were obtained, including only 15 that had responded to the survey in the first phase. Over the two phases, respondents were 201 institutions in 50 developing countries (Table 1). Data were aggregated on the grounds that the two phases tapped largely different populations of institutions, with second phase respondents having a more qualified workforce and larger project funding. The countries surveyed account for 38% of low and middle-income countries outside Europe, with low-income countries slightly better represented. Findings should be interpreted cautiously given the nature of the data.

A rough estimation was made of the total number of health systems research institutions, including numbers of researchers and projects and project funding, in low- and middle-income countries outside Europe. On the basis of the 807 institutions identified by the Alliance, it was estimated that institutions in the 51 developing countries not contacted by the Alliance would, on the basis of their population, amount to 8% of the total in developing countries. The total universe was then estimated to comprise 878 institutions in all of the 133 developing countries (Table 1). This procedure may have exaggerated the number of existing institutions as not all countries, particularly the smaller, low-income ones, necessarily have health systems research institutions. These extrapolations should be considered as highly tentative.

The questions on funding enquired about project funding external to the institution, that is, financing for research received from external donors or from government or private agencies. Core funding to institutions was not included. In the first survey phase a categorical question was used with six funding brackets between US\$ 0 and US\$ 99 999. Funding for projects below US\$ 100 000 was estimated by assigning to each project the mid-point in its bracket. The questionnaire asked for projects funded above this figure to be indicated, and the specific funding amount and project duration were obtained through a follow-up telephone or email request. Details could not be obtained for only five of the 26 projects in this category, and these were assessed at US\$ 100 000 and two years' duration. In the second survey phase an open question was used for the precise amount.

Annual project expenditure and total annual funding were estimated by annualizing total costs for projects and considering all costs for projects under a year. Total human resources, number of health systems research projects and project funding were estimated by scaling up survey results by the estimated share of surveyed institutions in the universe for each income group of countries. However, this weighting was minimal, given the very close match between the proportions of institutions surveyed and those in the universe of institutions for each income group.

In low income countries, those with the most sampled institutions are (in descending order of representation) India, Bangladesh, Pakistan, Indonesia, Kenya, Uganda and Ghana. For lower middle income countries they are China, Colombia, Philippines, Thailand, Bolivia, Cuba and Sri Lanka (note that China tends to dominate this group given its size and number of institutions); while for upper middle income countries they are Argentina, Brazil, South Africa, Mexico, Republic of Korea, Uruguay and Chile.

TABLE 2

HEALTH SYSTEMS RESEARCH CAPACITY AND FUNDING IN DEVELOPING COUNTRIES

Data for the period 1999 to 2003

	TOTAL	Low income	Lower middle income	Upper middle income
Country context				
Researchers per million population	1.6	1.3	1.4	3.7
External funding as % of health expenditure	0.017%	0.033%	0.007%	0.018%
Institutional characteristics				
No or rare computer access	8%	12%	6%	2%
No Internet access	4%	8%	13%	0%
Amount of funding per project per annum	\$77,594	\$101,869	\$36,403	\$80,975
Project funding per researcher per annum	\$16,487	\$19,409	\$8,728	\$23,559
Projects under execution per institution	3.2	2.6	3.4	4.0
Project funding per institution *	\$248,118	\$267,995	\$122,859	\$329,661
Annual project funding per institution	\$159,398	\$154,978	\$87,104	\$222,806
Critical mass				
Researchers per institution or unit	9	8	10	9
Researchers with full time dedication	72%	80%	68%	65%
Researchers with a PhD	24%	23%	26%	20%
Knowledge production process				
Project duration average (Months)	15	16	14	17
Projects less than one year	56%	58%	59%	49%
Researchers engaged per project	2.8	3.0	3.0	2.3

* Includes total external project funding for all health systems research projects within the unit/institution and for their entire duration.

FIGURE 3

HEALTH SYSTEMS RESEARCH PROJECT FUNDING PER 10,000 INHABITANTS: AVERAGE IN DEVELOPING COUNTRIES AND BY INCOME REGION

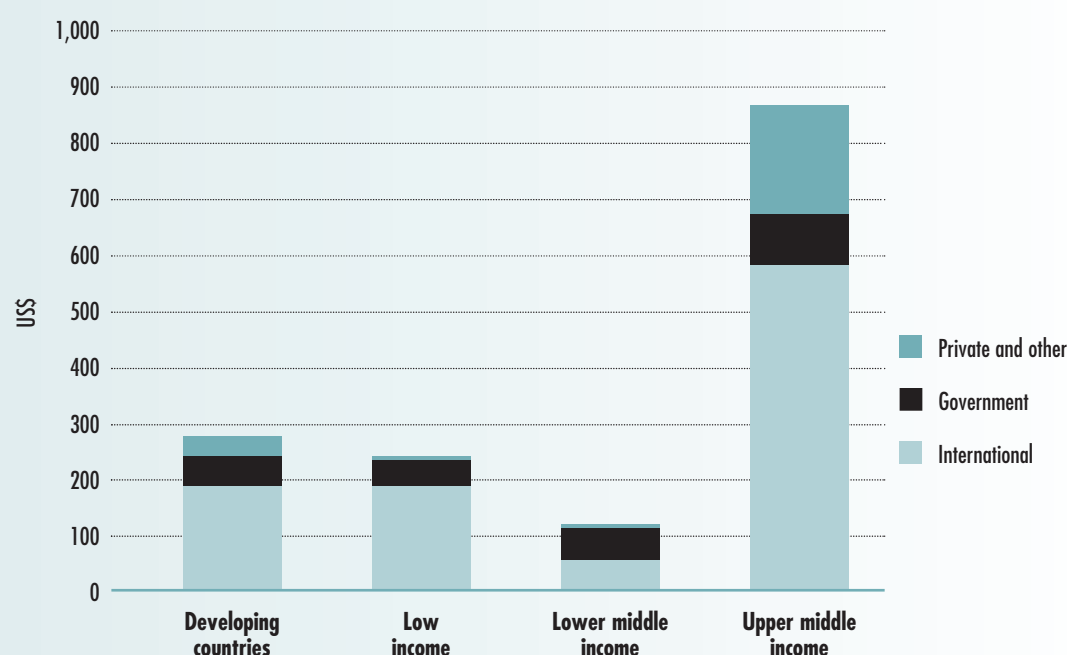
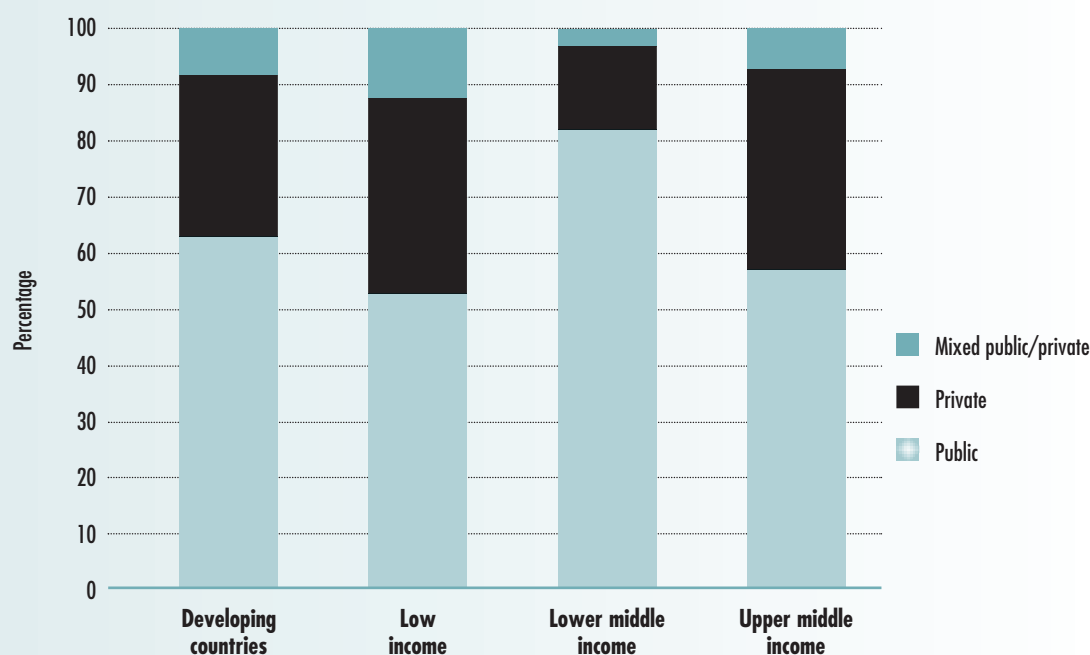


FIGURE 4

LEGAL STATUS OF HEALTH SYSTEMS RESEARCH UNITS OR INSTITUTIONS: AVERAGE IN DEVELOPING COUNTRIES AND BY INCOME REGION



ties accounting for another 8%. This diversity can be an asset at country level. Public institutions can be very close to the sources of decision-making but may be less responsive to opportunities, and communication with policy-makers may be limited by political factors. Private research agencies, on the other hand, may be better able to respond to external opportunities and more willing to disseminate their results widely. Furthermore, private institutions are often established by former policy-makers with good networking within government, thus combining the strength of both kinds of institutions. (See Box 3 in Chapter 5).

It is noteworthy that overall 36% of institutions surveyed are over 10 years old, with a rather greater proportion in lower middle income countries (Figure 5). As many as 92% to 96% of institutions have computers with Internet capability, showing that the infrastructure is in place to keep abreast of knowledge (Table 2). Initiatives to offer access to on-line journals and other resources to institutions in low income countries are thus able to tap into vital pre-existing channels to strengthen research capacity.

The capital invested per institution and researcher is also an important indicator of institutional quality and efficiency. This can be most easily appraised in terms of research project funding, although it would also be

important to measure it in terms of support staff and administrative expenses. On average, each institution surveyed spends annually US\$ 77 600 per research project and US\$ 16 500 per researcher, about the same as researchers would earn in salary (Table 2). However, the range of expenditure per project varies widely, with 53% of funding going to projects with budgets under US\$ 25 000 (Figure 6). Interestingly, the data suggest that project funding per researcher is not much different between low and upper-middle income countries, with an average of US\$ 33 500 and US\$ 35 000, respectively. Spending is less than half in LMI, most likely because costs in China (which is dominant in this group) are much lower than for countries in the other two regions.

On average each surveyed institution has 3.2 projects, ranging between 2.6 and 4.0 in low-income and upper middle-income countries, respectively. These projects entail a portfolio worth US\$ 248 000 (US\$ 155 000 annually) per institution, increasing to US\$ 330 000 in LMICs. The relatively small size of the research portfolio, both in terms of projects and investment, implies limited capacity for interactions and for the consolidation of a research programme in the medium-term for most institutions. If the portfolio is managed as the sole activity of small private entities, then administration costs will tend to be very high, further limiting the viability of the enterprise.

FIGURE 5

YEARS OF EXPERIENCE OF HEALTH SYSTEMS RESEARCH INSTITUTIONS: AVERAGE IN DEVELOPING COUNTRIES AND BY INCOME REGION

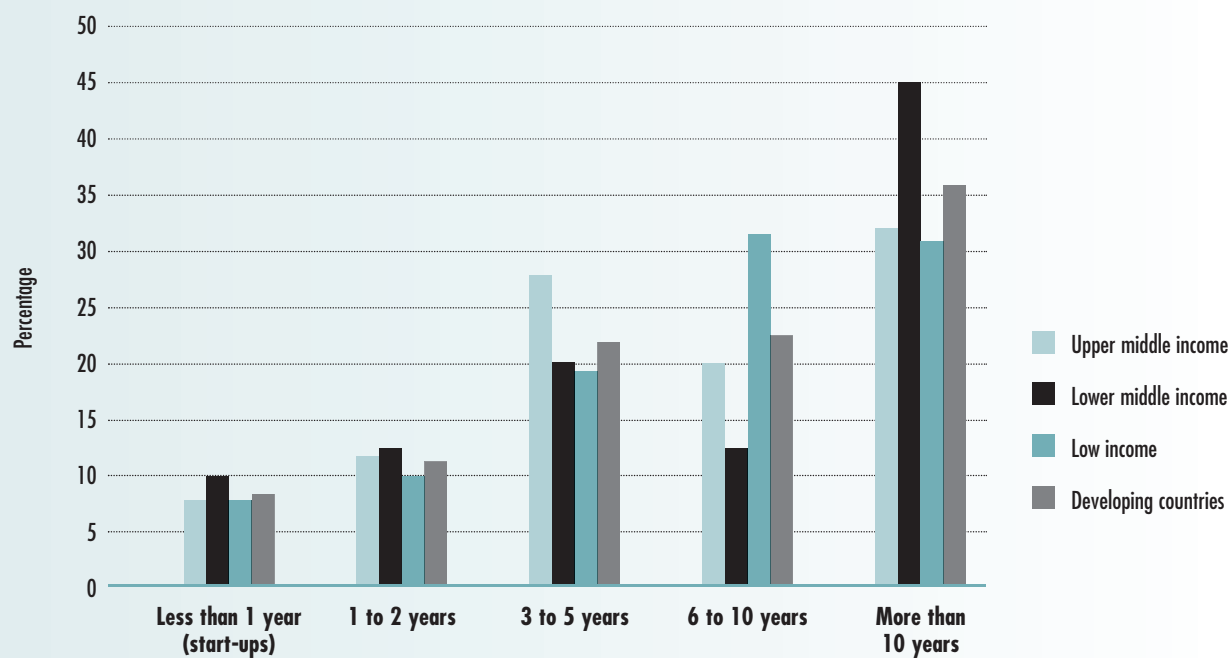
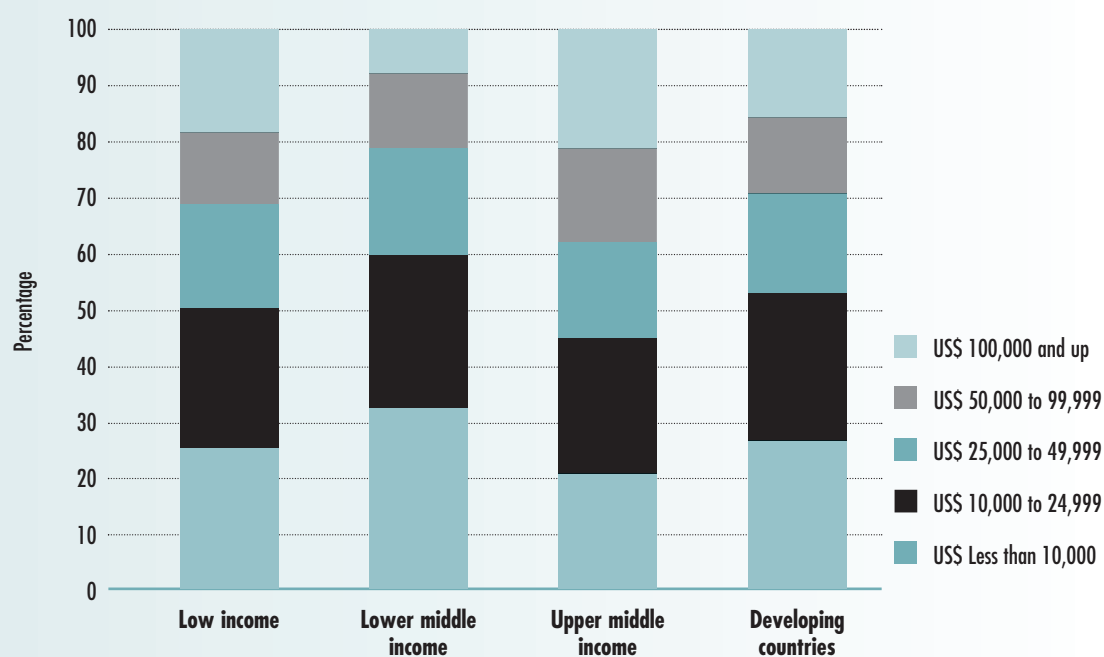


FIGURE 6

RANGE OF PROJECT FUNDING: AVERAGE IN DEVELOPING COUNTRIES AND BY INCOME REGION



Critical mass. The number of researchers per institution, their qualifications and disciplines, have traditionally been considered the best indicators of critical mass. Surveyed institutions have on average nine researchers (or full time equivalent), although the size of the research teams vary widely within each region (Figure 7). Fully 21% of units have one or two researchers only, while 27% have 10 or more researchers. Interestingly, while average workforce size is similar across regions, LI countries have a higher percentage -31%- of institutions with more than 10 researchers.

Researchers dedicated full time account for 72% of the total, a figure that is highest in LI countries, with 80%. As stated before, external networking also arguably affects critical mass within institutions. However, the presence in-house of at least one PhD holder is likely to be important for the coordination of research teams and their external interactions. It is therefore noteworthy that researchers with a PhD account for 24% of the total and that 34% of institutions have no PhDs, up to 42% have one or two, and 24% have three or more (Figure 8).

The inter-disciplinary nature of health systems research makes it highly desirable that critical mass be assessed in terms of diversity of disciplines. No single discipline is essential, but a combination of epidemiology, social sciences, economics and statistics or medicine would be considered appropriate. Figure 9 shows that a mix is being attained by an important proportion of surveyed institutions, as upwards of 60% have these disciplines available.

The knowledge production process. The quality and potential of research can also be judged by analyzing indicators describing the knowledge production process. Project duration is critical, although it can be interpreted in a number of ways. Most researchers would agree that they should be involved in at least one project that enables them to develop a field of knowledge far enough to gain recognition for it. How long this takes will vary, but in health policy and systems research this normally requires extensive empirical investigation and a detailed literature review, all of which will require at least two years to complete. Projects of less than this duration may not be able to guarantee the necessary output.

FIGURE 7

RESEARCHERS IN HEALTH SYSTEMS PER INSTITUTION OR UNIT: AVERAGE IN DEVELOPING COUNTRIES AND BY INCOME REGION

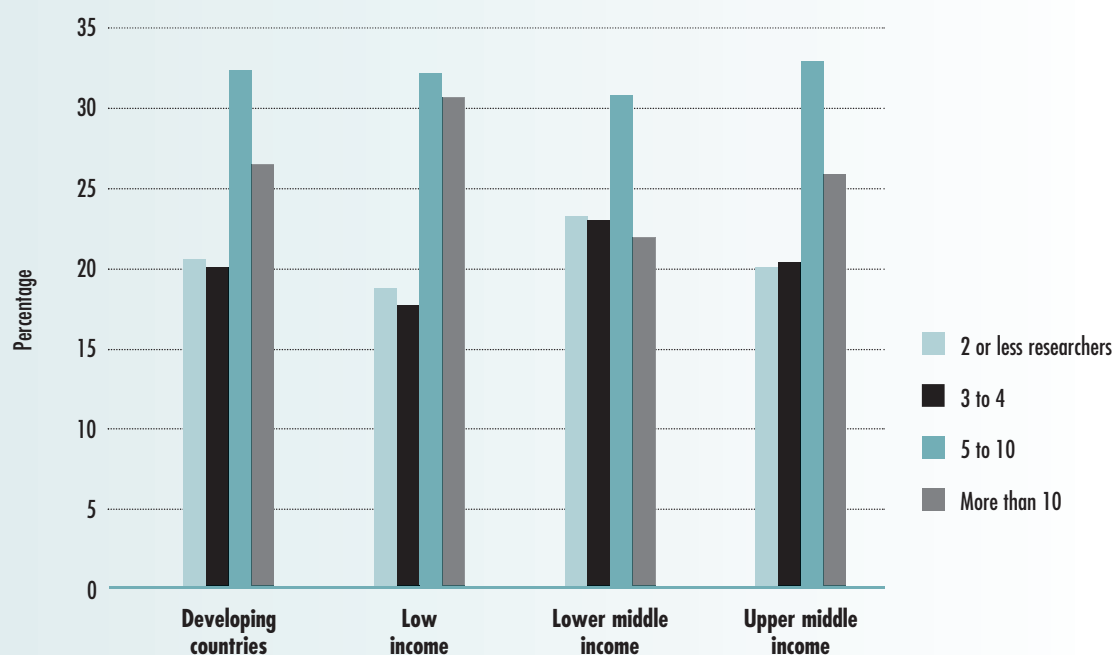


FIGURE 8

NUMBER OF PhDs ENGAGED IN HEALTH SYSTEMS RESEARCH PER UNIT OR INSTITUTION: AVERAGE IN DEVELOPING COUNTRIES AND BY INCOME REGION

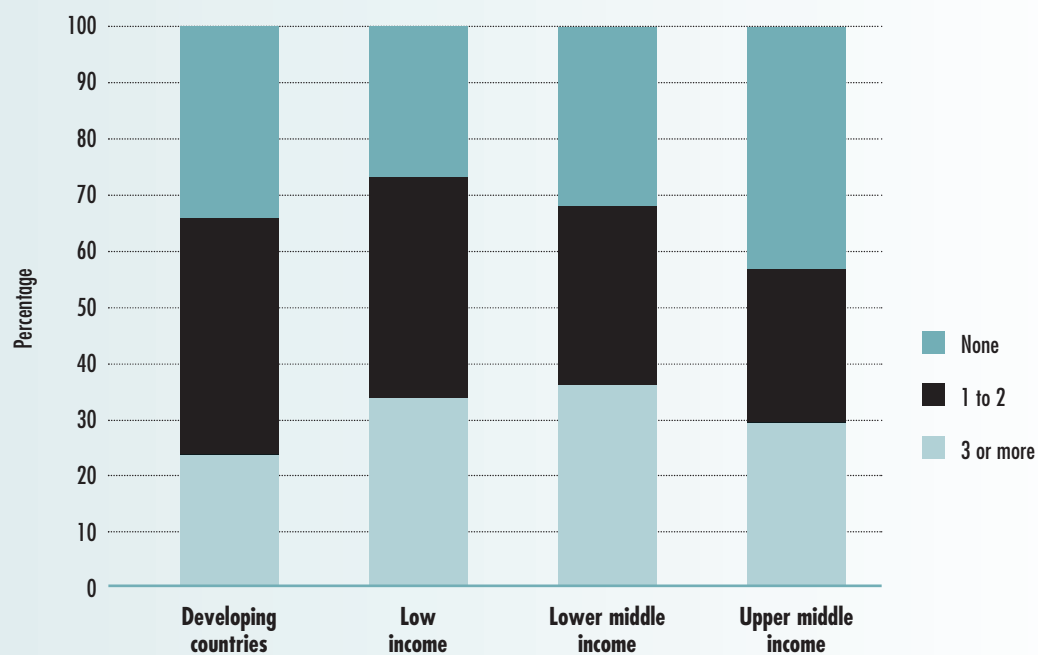
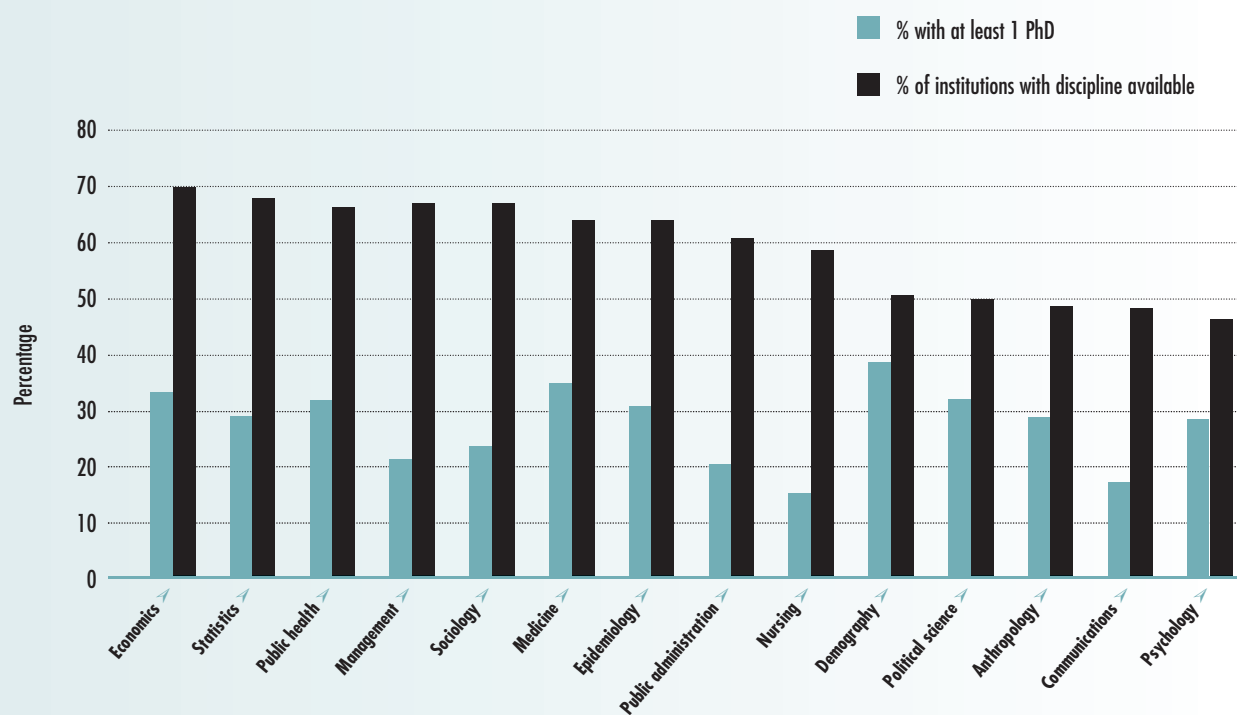


FIGURE 9

DISCIPLINES AVAILABLE AT INSTITUTIONAL LEVEL AND AVAILABILITY OF PhD-QUALIFIED STAFF IN RESEARCH INSTITUTIONS IN DEVELOPING COUNTRIES



It is therefore interesting that average project duration in surveyed institutions is 15 months, increasing to 17 in UMICs. Fully 56% of projects have a duration of less than one year. These projects will involve a high administrative burden, particularly in terms of seeking funding, and will also involve high costs for publications or for policy reports and dissemination.

Many health systems research projects require a team approach to ensure the appropriate disciplinary mix and good quality management. Too few researchers working on a high budget project would be as deleterious as too many researchers working on a low budget project. Projects have on average 2.8 researchers with little variation across regions. This sort of team size may be just enough to provide junior researchers with hands-on training opportunities, which is an important way of strengthening institutional capacity. It is an open question whether teams are large enough to ensure project renewal (which occurs almost on a yearly basis) and to allow for other training opportunities, such as short courses, participating in congresses and

meetings and networking with other researchers and with policy-makers.

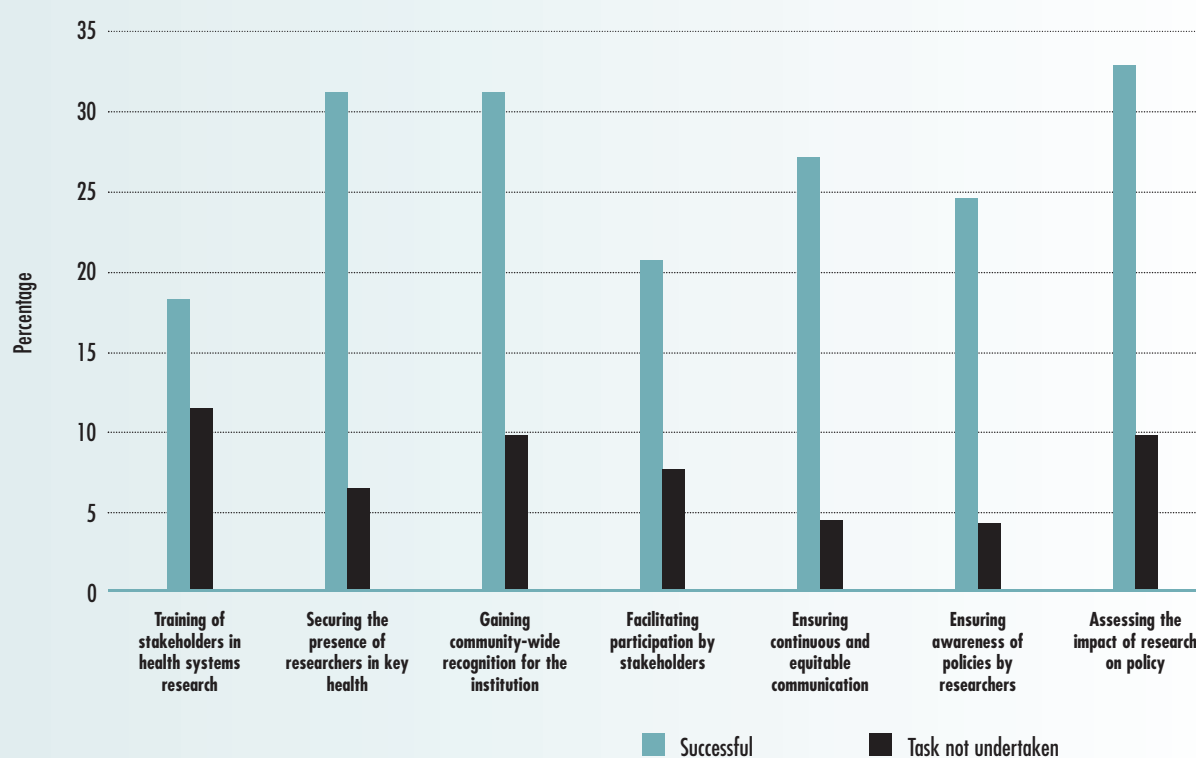
The Alliance survey has identified a large gap in strategies to strengthen capacity to take research to policy (Figure 10). Institutions should consider institutional development and strengthening activities by earmarking budgets, organizing activities and providing incentives for researchers to engage in these activities. As soon as institutions demonstrate commitment to these activities, other sources of funding can be more easily accessed at national and international levels.

Supporting training

Training on health systems research can be offered to researchers and to practitioners who both direct and undertake research. Training on its own is insufficient to increase health systems research capacity, but is an important pre-requisite. Training of researchers can be conceived of at various levels and through diverse combinations. Specialized PhD programmes, currently

FIGURE 10

GAPS IN CAPACITY STRENGTHENING OF THE RESEARCH TO POLICY PROCESS



BOX 5

STRENGTHENING THE CAPACITY OF TEACHING PROGRAMMES

The Alliance for Health Policy and Systems Research is introducing support to ten teaching programmes in developing and emerging market countries to support health systems research training. Grants aim to identify best practices through support for a wide range of approaches and by means of the networking engendered. Priority was given to institutions supporting low-income country students at a regional or sub-regional level. Interventions include a combination of the following elements: market research (e.g. demand analysis of students and employers); development of teaching skills and training methods; development and integration of teaching programmes; development of teaching materials (e.g. country-specific case studies); bibliographic and information support (e.g. journal subscriptions, knowledge management resources and database access); short-term teacher support as part of start-up costs, field work costs for the undertaking of thesis work, and evaluation. Grants started at US\$ 25 000 per year and it is hoped to increase the amounts and expand their number as experience with the programme increases.

BOX 6

RESEARCH FOR POLICY GRANTS
IN HEALTH POLICY AND SYSTEMS

The Alliance for Health Policy and Systems Research provided direct support to research for policy grants from 2000 to 2004 [29]. Three rounds were launched, of which two have been completed, with over 95% completion rates. For the last round, 860 letters of intent (LOIs) were received, of which 93 were funded at an average of US\$ 19 000. The application process required interaction between researchers and policy makers in developing the proposal.

These grant-making programmes have identified significant demand for grant funding for health systems research at country level. LOIs were submitted by a wide range of institutions, of which around 20% were ministries of health. LOIs have proven to be an effective way of bringing researchers and policy-makers together in a bid for funding focused on the applicability of results. Comparison of priorities for funding expressed through LOIs with evidence on the topics of research initiated by governments and by researchers on their own show a better correlation with the former ($\text{corr}=0.24$) than with the latter ($\text{corr}=0.07$), suggesting that policy makers did have some influence on the topics.

The options for a continuation of this type of programme need to be explored. Given the close connection that is sought between researchers and policy-makers, creating such programmes as close as possible to the country level is likely to be important, for example through regional programmes backed by technical support where needed. Scaling-up this type of programme both in terms of size of grants and number of grants would increase grant making efficiency and ensure the prestige required to attract the best researchers, providers of technical support and the attention of policy-makers. Regional networks may have a role to play in managing grants programmes, handling peer review, and providing technical support to strengthen the capacity of country teams.

offered in developed countries and increasingly in middle-income countries, are important to train fully dedicated researchers at the core of national efforts. Masters programmes in a range of health, management and social development disciplines and fields offer the opportunity to include health systems research. Strengthening of these courses requires improving the quality of teaching and practical experience as well as increased liaison with policy-making and practice (see Box 5). A diversified approach to supporting training can provide incentives for a career in health systems research, to introduce individuals to international networks and issues, and to sensitize future policy-makers to the benefits and potential of this kind of research [24].

Direct support of research projects

Demand for support for health systems research has been growing since the early 1990s, spurred by health sector reforms worldwide and by regional health system development initiatives such as the Bamako Initiative. WHO TDR sponsored this kind of grant in collaboration with the Mexican Health Foundation for a period of three years between 1995 and 1998, receiving over 300 letters of intent (LOIs, i.e. proposals) focusing on the impact of health sector reforms, and funding a total of 53 projects. Short-listed LOIs were developed into full proposals through technical support provided at a one-week workshop. Projects were selected after peer review by a steering committee on the basis of scientific merit, policy relevance and regional distribution. Technical support was provided for the entire duration of each project and writing workshops were held to support scientific publications [28]. Evaluation of the programme shows that research results are being published and disseminated to policy-makers.

The Alliance for Health Policy and Systems Research continued a similar grants programme for a period of 3 years (Box 6).

Similar though smaller research for policy grant programmes have also been implemented by regional networks such as the Network for Health Systems and Services Research in the Southern Cone and have been supported by agencies such as the Pan American Health Organization (PAHO) and IDRC.

The emergence of health systems research networks

The experience of regional networks of institutions and individuals in the field of health systems research sug-

gests that they are important strategies to strengthen capacity. Around ten networks have existed in the last 10 years, some of them with the financial support of international donors such as the World Bank and IDRC. Other networks have sprung from research centres or from the initiative of consultants as a means of sharing experiences in the field (Box 7).

Regional networks are mostly active in disseminating information regarding research priorities, needs and opportunities. They have also co-sponsored research activities and play an important role in mediating research and policy-making. Networks are undertaking capacity strengthening and research activities through small grants, training of trainers, workshops, communications and conferences. Their success points to their roles as a means of communication, increasing the visibility of health systems research, channelling of research demand and providing technical support to researchers. Among the limitations that have been identified are their meagre finances, particularly as donors move away from core support after a few years. Many network functions cannot be self-financed and secretariats soon become overloaded. Technical support to network partners is then threatened. In spite of their efforts, networks have difficulties in bridging the gap between research and utilization, though in China the government has been very keen to obtain support from the China Health Economics Network for the process of modernization of its health system (see Chapter 5).

Criteria for success of networks appear to be the availability and effective management of small grants programmes, the existence of receptive policy-makers, and the capacity of secretariats to act as core administrators. While personal leadership is important, greater efforts need to be made to ensure national commitment and more diversified support, including private sector support. Networks need to strive to improve their services and products in order to increase demand for them and enhance cost recovery. Key functions could be the standardization of country evidence, the undertaking of comparative analyses, workshops and training activities aimed at exchanging national experiences, and bridging research and policy-making. Networks need to remain flexible in their partnerships and activities to complement their institutional foundations and develop bridges to policy-makers [29; 30; 31].

Global networking is also important to provide core functions and to develop networking capacity. The following global networking functions have been identified [31]:

BOX 7

REGIONAL NETWORKS ACTIVE IN HEALTH SYSTEMS RESEARCH

- Eastern & Southern Africa Health Systems Research Network
- Health Economics and Policy Network in Sub-Saharan Africa
- Maghreb Economics and Health Systems Network
- West Africa Sub-regional Health Research for Development Network
- Asia Pacific Health Economics Network
- The China Health Economics Research and Training Network
- Andean and Caribbean Health Systems and Policy Research Network
- Jose Luis Bobadilla Interamerican Network for Health Policy Analysis
- Health System and Services Research in the Southern Cone of Latin America
- The Research Network in Policies and Health Systems in Central America and the Caribbean
- Inter-American Network for Health Economics and Financing

- ▶ Call for increased resources for research and capacity strengthening to be managed by regional networks.
- ▶ Mobilize and manage funding for more effective, needs-based allocation to networks.
- ▶ Complement funding and technical support functions in grants programmes.
- ▶ Identify global research priorities through network-based strategies of consultation.
- ▶ Learn from network performance in research capacity strengthening.
- ▶ Exchange networking strategies, tools and experiences across networks.
- ▶ Develop new networking instruments, such as Internet-based projects and events monitoring and management.

The Alliance for Health Policy and Systems Research has supported four regional networks for a period of three years through a competitive grants process. Two of these networks are further described in Boxes 8 and 9. A scaling-up of this support is now planned in the light of an evaluation of experience.

Functional units other than networks can contribute to health systems research. One approach is to establish research units collaborating within a broader university department or school of public health as well

THE HEALTH ECONOMICS AND POLICY NETWORK OF SUB-SAHARAN AFRICA

The impetus for this initiative was the recognition of an urgent need for health economics and policy analyses of the strategic options for designing and implementing health sector restructuring in African countries, in order to achieve greater efficiency and equity. Currently, there is limited capacity for undertaking such analyses, and there is a perceived need to develop and sustain a critical mass of people with relevant expertise in the African region, particularly to support Ministry of Health sectoral restructuring initiatives. The need to bridge the research-to-policy gap is included within a broader range of capacity-strengthening needs, including training, curriculum development and staff retention.

The Health Economics and Policy Network of sub-Saharan Africa (HEPNet) was established in 1999 to contribute to health sector development in sub-Saharan Africa. HEPNet develops and provides relevant in-depth understanding and technical expertise in health economics and health policy analysis. It focuses on health sector reforms and supports health policy development. It involves Ministries of Health, research institutes and academic institutions in collaboratively contributing to health sector development. The network is funded by a number of international agencies and collaborates with the Alliance for Health Policy and Systems Research in developing the research-to-policy agenda.

HEPNet's objectives are to undertake networking activities uniting member institutions and international organizations active in the region, and to strengthen, promote and increase the scope of capacity-building in health economics and policy and the scope of health economics and policy research. The current members are public institutions active in health economics and policy analysis in five African countries, though the Network intends to expand to include additional countries and institutions over time.

One of the main problems in the research to policy process identified by HEPNet is the way that research is most often driven by donors, whose priorities do not accord with those of the beneficiary countries. Most of the little research which is done is undertaken as a "condition" of aid, leading to a lack of a sense of ownership among policy-makers and beneficiaries. Because of the externally driven agenda, researchers do not address crucial political factors behind the success or failure of health policy.

Source: [9]

THE NETWORK FOR HEALTH SYSTEMS AND SERVICES RESEARCH IN THE SOUTHERN CONE OF LATIN AMERICA (REDSALUD)

During the past decade Latin America has undergone substantial economic and policy changes, that have dramatically exacerbated historical inequalities. As part of this process health sector reform has entered the political agenda. REDSALUD came into being in the mid-1990s, motivated by the need to increase the region's capacity for health systems and services research and for health policy analysis of strategic options in designing and implementing health system and service restructuring, so as to contribute to achieving greater equity, effectiveness and quality of care. The aim was also to exchange experience among researchers, policy-makers and health professionals in general, and to bring technical and scientific support to strengthening research capacity.

At the time the Network was being set up, a number of countries were intensifying their efforts to introduce new policy and decision-making strategies and instruments to assist in health sector reform implementation. This dynamic acted as a spur to health system and service research directed to problem solving. It was also felt that research outcomes should include greater impact on policy formulation and implementation. Increasingly conspicuous at the beginning of the 1990s was the WHO-coordinated initiative to include health systems research in discussions of health system development and particularly in strategies to attain the goal of 'Health for All in 2000'.

The Network focuses particularly on health system and service reforms and equity. It aims to promote the development of theoretical and methodological approaches to the analysis of health sector reform processes; increased capacity for assessing the outcomes of these processes; improved decision-making and policy implementation by providing evidence-based knowledge; and information provision on health sector reform processes and equity in Latin America, with special attention to relationships among research, service provision, and policy-making. It undertakes research and capacity-building activities.

Its structure involves four member-countries – Brazil, Argentina, Uruguay and Paraguay – from which its 69 member institutions (research institutions and health service institutions, including Ministries of Health, state and municipal health departments) are drawn. The Network has also been working with other countries and institutions from the Latin America region, and is intended to expand to include additional countries and institutions over time.

The Executive Secretariat is based at the National School of Public Health, Oswaldo Cruz Foundation (ENSP/FIOCRUZ), Rio de Janeiro, Brazil. The Network's existence has been made possible by major funding from IDRC and by small grants from a number of other international agencies (eg PAHO and COHRED), and also institutional counterpart (infrastructure) support from ENSP/FIOCRUZ for the Executive Secretariat, and from the institutions of REDSALUD's National Representatives in each member. For the last three years REDSALUD has collaborated on a range of activities with the Alliance for Health Policy and Systems Research.

This network has successfully managed to become a spokesperson for the region at health systems research fora, and has confirmed its ability to establish a democratic, participatory forum to formulate a common agenda for research on health systems and service development. Among its main problems are financial sustainability; the continuous need to undertake consultations and implement new strategies for more effective bridging between research and policy making; and strategic coordination between national and supra-national dynamics, as priorities vary from country to country and among international agencies, making it difficult to establish common subject areas on which to work.

as with other academic institutions. A case in point is the Health Economics Unit of the University of Cape Town in South Africa. Health system research capacity can also be strengthened through a policy analysis unit within a ministry of health networking with academic institutions, as illustrated by the Health Policy Analysis Unit of the Ministry of Health of Uganda. Yet another approach is to develop health systems research within R&D units of provider organizations such as the Health Research Coordination Unit of the Mexican Institute of Social Security. Small, independent research units might also be able to attain critical mass through extensive and consistent networking with any of the above. Given the close interdependence between research and health policy and systems processes, critical mass has to include the collaboration of suitably qualified individuals engaged in knowledge generation, policy and practice.

Collaborative Health Research Capacity Strengthening

Critical gaps have already been identified in the “research to policy” cycle at institutional and country levels, such as the need for research synthesis methods and improved interaction between producers and users (see chapter 5). A key to strengthened capacity in this area lies in methods to develop research priorities, commission research and undertake synthesis of results.

These needs were recognized about the same time by four different health research organizations, leading to a collaborative initiative to develop a toolkit of cost-effective interventions in support of priority setting, knowledge management, leadership and advocacy [31] (see Box 10).

Programmes to strengthen capacity to demand health systems research are important. Selected problems of the “research to policy” process can be the focus of specific activities; these problems include a lack of well-defined research priorities, absence of negotiation skills, poor networking, weak dissemination and weak knowledge of research issues and benefits. Discussion workshops on topics of importance to policy-makers are a good way of introducing the field, and can be organized by groups (coalitions) consisting of researchers, policy-makers and community advocates to demonstrate the benefits of research on particular topics and increase the culture of research and collaboration.

Another important step in strengthening capacity to demand research would involve setting up programmes and even specialized agencies to implement a

BOX 10

TOOLKIT AND RESOURCE CENTRE TO STRENGTHEN RESEARCH DEMAND IN HPSR

The Collaborative Training Programme on Research for Policy, Practice and Action has produced a toolkit on research to policy to support training and self learning in these areas. This toolkit was tested in a diversity of country settings and is now available for use [31]. Pilot testing uncovered significant demand on the part of a wide range of health and development actors to learn new skills to improve their role as “policy entrepreneurs”.

The Alliance for Health Policy and Systems Research has a research to policy website with resources to familiarize beginners as well as to support advanced strategies. The site is a one-stop resource centre for information about health research to policy issues, with a particular focus on developing countries. The research to policy and practice cycle is documented in diverse circumstances and development situations. Approaches to evidence-based policy are highlighted, as distinct from the more current evidence-based health care and practice. It is intended for policy-makers, researchers and donors, and others interested in the impact of research on policy [33].

range of institutional mechanisms to bridge the research/policy divide. These initiatives could span a range of activities, from consulting to implementation research and technology development. Some institutions such as the Thailand Health Systems Research Institute [34] and South Africa's Health Systems Trust [35] are already focusing on this range of activities. These agencies provide a form of knowledge brokerage across the interface between all of the principal players.

Key challenges for enhancing health systems research capacity

As described in earlier chapters in this book, there is currently a remarkable wave of awareness and interest in the need to strengthen national health systems. An example of this interest can be found in the report of the 2nd Consultation on Macroeconomics and Health—a meeting that took place in Geneva in October 2003 [36]. One of the three major themes was the question: “How to improve effectiveness of the health delivery system and monitor outcomes?” Three strategies were proposed: Set national health priorities; address institutional and organizational constraints and opportunities; and monitor outcomes. This theme of strengthening national health systems also pervades the most recent World Health Report. [37]. It will also feature strongly in the November 2004 Ministerial Summit on Health Research.

All of this demands an innovative and comprehensive re-thinking about how health systems research can

be accelerated and strengthened. In this spirit, five challenges are put forward for the health systems research community to consider.

1. Health systems research in all its aspects, including capacity strengthening, must become a more integral part of national health system development—for example, contributing strongly to on-going evidence-based health system planning. Much is already understood about the research-to-policy process. The challenge is to apply these insights in the context of real life health system planning and reform [8].
2. Health systems research must become more visible within the current movement for strengthening national health research systems. Recent analyses of the national health research priorities set by several countries reveal a major emphasis on disease-related research, but relatively little on health systems and policy research [38].
3. A broader and more comprehensive view of institutional research capacity strengthening is needed. That is, the definition of “institution” must include not only units in universities, or in ministries of health, but should also include issue-specific networks (including those involving South-North partnerships), non-governmental organizations, and community-based organizations [39].
4. More innovative applications of the knowledge management revolution should be considered. This includes the appropriate use of information and communication technology—examples of this application include such initiatives as HINARI [40], SHARED, and INASP-Health [41]. It also involves understanding the new concepts of the “knowledge economy” and how knowledge can be harnessed to impact upon human development. [42].
5. The health systems research community should challenge itself to explore problem-oriented alliances with other discipline groups who share the same concerns of strengthening health systems. These include public health research and training institutions and networks, and groups concerned with the application of evidence-based practice—for both individual patients and public health systems.

In his acceptance speech as the new Director-General of the World Health Organization, JW Lee said, “now is the time to make it happen where it matters, by turning scientific knowledge into effective

action for people’s health” [43]. A strong and imaginative renewal of efforts to strengthen health systems research capacity can be part of “making it happen”.

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CONCLUSIONS: THE PROMISE OF HEALTH SYSTEMS RESEARCH

Rapid progress towards health targets is greatly hampered by weak, poorly functioning or in some cases non-existent health systems. As expressed by the WHO, “without significant health systems strengthening, many countries will make little headway towards the Millennium Development Goals, the 3 by 5 target, and other health objectives”. The key questions concern how best to strengthen health systems and make it possible for them to provide much needed care and support in countless communities around the world and also to determine what specific types of action are appropriate in which settings. While much is known about the barriers or constraints to greatly increasing (‘scaling up’) health services, remarkably little is known about how best to relax these constraints.

The central concerns of this book have been to examine how knowledge of health systems can be increased and applied to improve the health of the worst-off of the world’s population, to demonstrate the value of health systems research to all stakeholders, and to identify outstanding gaps and challenges.

The range and volume of research on health systems in developing countries has grown rapidly over recent decades and this trend has been reinforced by the health sector reforms of the 1990s, which brought to light the need for better information and evidence to guide reforms. During this period, health systems research emerged as a distinct field and contributed significantly to our understanding of health systems and policies, and resulted in improvements to those systems and policies. Health systems research is now a recognized interdisciplinary field ranging from basic research to applied research-based applications.

One of its drawbacks, however, is that it is often a fragmented and highly specialised activity, with researchers in different disciplines often working in isolation. Another critique that is levelled against health systems research is that the overall emphasis of research priorities, viewed internationally, is heavily skewed by the bias of the funding available in the rich world towards the rich world’s problems. The Global Forum for Health Research estimates that only 10% of the world’s research funding addresses 90% of the world’s health problems. Only 5% of international scientific publications on health systems refer specifically to developing countries, highlighting a possibly wider gap in this field.

Achieving health goals

A defining characteristic of health systems research is that, in contrast to other fields of health research, it maintains a central focus on the use of results by health policy-makers and programme managers. When issues can be formulated in terms of clear and empirically verifiable hypotheses, as in the case of user fees, then research can play a major role in policy formulation. Other more complex issues such as decentralization have proven more difficult to research and require further methodological development. Nevertheless, health systems research has proved to be a valuable tool for policy development and programme management at global, national and local levels.

Multiple experiences in countries as diverse as India, Tanzania and Mexico attest to the varying ways in which research makes a difference. There are, however, no shortage of examples of policies that have fallen short of expectations because they were not developed on the basis of appropriate research. A new set of emerging research issues include human resource shortages, the impact of massive disease control efforts within the health system, the growth of the private sector, problems with governance and accountability and the impact of globalization.

State of the art in selected fields

Health systems research has contributed to an evolving scientific body of knowledge about health policies and health systems. Particular progress has been achieved in a number of areas, of which this book has briefly explored, for illustrative purposes, health system equity and the impact of reforms involving user fees, community health insurance and the role of civil society organizations in management reforms.

Health system equity

Health systems are more likely to be inequitable in the presence of structural inequalities and constraints on resources. Systems with a greater proportion of funding from social sources are more equitable, but the overall picture depends principally on whether equity considerations influence public finance.

People are strongly affected by the cost of health services. This is particularly important to the poor, who have to make difficult decisions about the use of scarce resources. Health-seeking behaviour is also influenced by convenience of access, perceived quality, availability of credit and trust in the provider. When designing interventions aimed at meeting the needs of the poor, policy-makers need to understand how people are likely to respond.

Middle-income countries have improved social equity through expanded versions of social security schemes, but others have found that such schemes actually widened inequalities between social groups. Governments need to be aware of this risk.

User fees

A body of research on user fees has produced clear conclusions on their quality implications. The emphasis of research has shifted from documenting the impact of formal charges for government services to posing fundamental questions about how incentive systems influence provider and user behaviour and how government intervention can take this into account.

Community health insurance

Some community health insurance schemes have resulted in better access to services and/or improved provider performance. Two important indicators of success are the trust of the community in the management of their funds and the capacity of providers to meet user needs. Expectations regarding these schemes are shifting. They are increasingly regarded as “entry points”, complementing public health financing systems, rather than as self-sufficient insurance pools. Many initiatives have been on a small scale and it will take time and continued support for them to evolve into nationwide schemes.

Management reforms and the role of civil society organizations

The involvement of civil society organizations can improve health system performance, particularly in those instances when they can complement government functions. However, we still do not have a clear idea of what works in different situations and a systematic knowledge of desirable new partnership patterns will only be known when more research is undertaken. Health systems are

complex arrangements in which commonly accepted behavioural norms and trust play important roles. Policy-makers often have to balance short-term measures to address immediate problems against the longer-term need to establish stable institutions.

Priority setting in health systems research

Given the close ties between health systems research and the health sector, priority problems need to be identified with a high degree of consensus if the promise of research is to be realized. The interests of donors, governments, health workers, the community and researchers must all be taken into consideration so that research funding is directed towards relevant research with the necessary interfaces in place for its utilization.

Priority setting can help mobilize funding for research as an integral part of health and development planning as well as bring into focus those areas which could benefit the most from research. Priorities have to be applied to manage common resource constraints, including funding and access to research instruments and data.

Funding for health systems research is meagre in comparison to country needs and the targets set by the international community. Priority setting has therefore to be used as a tool both to substantially increase funding and to ensure efficient allocation, thus attracting more funding. It can also be a tool to ensure that research is able to receive its just share from multilateral funds earmarked for disease control, health sector reforms and social development, as well as obtain greater funding from ministries of health and service providers.

Some developing countries feel, rightly, that an internationally agreed knowledge base does not necessarily address their national priorities. Country-level priority setting is a necessary first step in identifying solid and legitimate priorities at the global level, although there will be “inherently global problems” that merit priority setting in their own right. Needless to say, health systems research has to be informed by broader agendas in economic and social development at national and global levels, and demonstrate how it can contribute and compete for funding.

Priority setting has to be also seen as an exercise in participation and planning of health and development benefits stemming from research, rather than a purely academic exercise. Researchers and policy makers from

low- and medium-income countries must be fully represented in priority setting exercises, not least because of the vital input they can provide in framing research responses to specific health system problems, and including health systems research within broader frameworks.

Getting Research into Policy and Practice (GRIPP)

Much can be done to increase the use of evidence by decision makers at all levels. Analysis of successes and failures provides a framework for systematically enhancing the use of evidence in the process. Some of these key messages for the health sector have been expressed in earlier decades, and perhaps the climate is now more receptive. Key GRIPP elements include:

- ▶ improving the capacity of decision-makers to recognize the benefits, and identifying and using research information to strengthen health policies and practices;
- ▶ identifying and updating research priorities with participation from all key stakeholders, using adequate information input and criteria founded on accepted principles, and aligning financial and human resources to address the priority agenda;
- ▶ producing good quality, timely and credible research outputs for the identified priority agenda, including realistic recommendations that reflect understanding of the policy context and constraints, and synthesizing research into evidence that can support decision-making;
- ▶ communicating evidence appropriate to audience needs, using advocacy strategies including mobilizing the influence of networks and key stakeholders to convey critical evidence to decision-makers;
- ▶ recognizing the pressures and elements that influence policy-making, and being opportunistic and enterprising in inserting evidence into decision-making processes.

Key challenges for enhancing health systems research capacity

There is a growing awareness of and interest in strengthening national health systems, and improving the effectiveness of health delivery systems. A consensus

has now been reached on the importance of setting national health priorities, addressing institutional and organizational constraints and opportunities, and monitoring outcomes. Research capacity has to be strengthened as an integral part of the health system.

All of this demands an innovative and comprehensive re-thinking about how health systems research can be accelerated and strengthened. In this spirit, five challenges are put forward for the health systems research community to consider:

1. Health systems research in all its aspects, including capacity strengthening, must become a more integral part of **national** health system development—for example, contributing strongly to on-going evidence-based health system planning.
2. Health systems research must become more visible within the current movement for strengthening national health research systems.
3. A broader and more comprehensive view of **institutional** research capacity strengthening is needed.
4. More innovative applications of the **knowledge management** revolution should be considered.
5. The health systems research community should challenge itself to explore **problem-oriented alliances** with other disciplinary and topic-oriented groups that share the same concerns of strengthening health systems.

“Making it happen”

In his acceptance speech on his appointment as the new Director-General of the World Health Organization, JW Lee said, “now is the time to make it happen where it matters, by turning scientific knowledge into effective action for people’s health”. A strong and imaginative renewal of efforts to strengthen capacities to produce and use health systems research can – and should – “make it happen”. A scale-up of health systems research is on the horizon but a greater commitment from funding, research and policy-making communities is needed before the promises of such research will become apparent and translate into changes in health systems around the world. □



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TRENDS IN INTERNATIONAL PUBLICATIONS ON HEALTH SYSTEMS RESEARCH

Scientific publications on health systems research are an important source of validated knowledge in the field. Specialized, peer reviewed journals contain the stock of knowledge that can be drawn upon to inform research and health systems development. This annex presents a bibliometric study of the scientific journals published since 1991 to identify trends and gaps in the field in terms of the countries and the topics that are being studied. The study was given greater depth by taking advantage of a compilation of health systems literature since the beginning of the 20th Century previously undertaken by PAHO [1].

A comparison of volume of papers and research topics between high income and lower income countries is first undertaken covering all publications indexed in Medline from 1991 to 2003. The distribution of the literature across developing country regions is then considered. Finally, the trend of the various topics in developing countries is analyzed over the same time period.

While Medline is a very extensive database, it has well known limitations. Articles written in English account for 92% of the total, French and German for 2% each, Spanish for 1% and other languages for the remaining 3%. Furthermore, many journals published in developing countries are not included. Medline also leaves out research published as internal reports or in the “grey” literature. However, the analysis of Medline is of value in itself as it reflects the knowledge that is widely available for shared learning internationally, whatever its limitations. Future studies of this type should analyze publications at the country level to include the full range of literature that can influence research as well as policy and systems development.

Methods

Medline is a database of scientific publications in the health and medical fields published since 1991 through PubMed by the National Library of Medicine [2]. The database was accessed and analysed using two approaches. Citations were first pre-selected from Medline through an advanced search in PubMed for journal articles (excluding letters, editorials and other kinds of citations) indexed by the National Library of Medicine

experts under the major subject headings (MeSH) shown in Figure 1. Citations were retrieved yearly up to 2001¹ and for four income regions: High Income (HI), Upper Middle Income (UMI), Lower Middle Income (LMI) and Low Income (LI). HI countries are also referred to in this Annex as “North” while other regions are collectively referred to as “South”. Income regions were identified by using the per capita income classification of the World Bank². MeSH terms used were deemed to include the literature on health systems research as defined in Chapter 2.

FIGURE 1

MEDLINE MeSH TERMS USED FOR THE PRIMARY SELECTION

Health Care Facilities, Manpower, and Services [N02]

- Health Manpower [N02.350]
- Health Personnel [N02.360] +
- Health Promotion [N02.370] +
- Health Services [N02.421] +

Health Care Economics and Organizations [N03]

Health Services Administration [N04]

Health Care Quality, Access, and Evaluation [N05]

A second approach refined the preliminary search to eliminate non-relevant citations and classified the references according to specific health system research topics. This approach used a modified version of the Alliance Evidence Base powered by the Collexis search engine [3]. The search engine classified Medline-indexed publications through analyzing and ranking the concepts in the abstract to produce an individualized fingerprint. The detailed procedure is described in Box 1.

Table 1 shows the citations obtained by the two approaches to the analysis of Medline. Citations in Medline containing at least one MeSH term in the health systems research field total 1.84 million for all countries and 87,300 for developing countries. Of these latter, 16,235 or 19% could be deemed to be relevant and could be classified with a fair degree of certainty within the various health systems research topics.

¹ PubMed shows an anomaly in 2002, with what appears to be a sudden duplication of yearly entries. For this reason the analysis is undertaken only up to 2001. The topic analysis based on fingerprints used a different source for Medline that did not show the anomaly and results are therefore presented up until 2003.

² LI US\$ 755 or less, LMI between \$756 and \$2,995, UMI between \$2,996 and \$9,265.

The historical analysis going back to the beginning of the 20th Century relied on a database of 250 publications selected from among thousands by an expert panel convened by PAHO to publish a compilation of the most influential papers up to 1990 [1]. The database was available to one of the Annex contributors (Paganini) and was classified according to the nationality of the main author and the country or countries whose health systems were analyzed.

Trends in health systems research

Historical trends in publications

Publications in health systems research have observed an exponential growth since the beginning of the 20th Century as well as a relative increase vis-à-vis other scientific publications in the health field. In 1914 one of the first scientific papers of international significance on health services research was published [5]. Two more were identified for the decade 1931 to 1940; 22 in the 50s, 35 in the 60s, 73 in the 70's and 140 in the 80s. More than half of the selected articles were produced only in the most recent decade analyzed. Of all articles in the PAHO database, 95% were written by developed country nationals. Considering only the major subject heading "Health Services Research" in Medline, it accounted in 1991 for a total of 1,016 articles, a figure that increased by 222% to 3,270 for 2000. In 1991 this topic represented 0.27% of the total in Medline, and by 2000 it had increased to 0.71%. There is therefore both an absolute and a relative increase of health systems research in the international literature.

While publications in the field are growing exponentially, the North-South gap has been maintained. Publications indexed by Medline between 1991 and 2003 with at least one major subject heading in the field of health systems research totalled 1.8 million. Of them, only 4.7% or about 87,000 were published with specific reference to one or more developing countries (Table 1). This gap is greater than the 10/90 gap identified by the Global Forum for Health Research for research funding with respect to health needs [6].

Health systems papers published annually about the North increased from 91,900 in 1991 to 178,800 in 2001, a 96% increase (Figure 4). In the same period annual papers published about the South grew from 3,900 to 8,200, corresponding to a 111% increase. While the yearly rate of increase is 7.8% per year for the South against 7.0% for the North, the differential rate is so small that it would take over 42 years for publica-

tions referring to the South to reach the current yearly publication level of the North, while 420 years would be required to surpass it. From 1998 there is a higher rate of increase for both North and South, suggesting the impact on research of health sector reforms undertaken worldwide from the middle 90s.

Trends within developing countries

There are also important differences in publication levels and rates across developing countries. Those making reference to low income countries in Medline account for 36,800 or 42% of the total between 1991 and 2001, while lower middle income account for 24,600 or 28% and upper middle income countries account for 25,900 or 30% (figure 5). However, if the population of each region is considered, then UMI are represented 2.6 times as much as expected for their population (accounting for 12% of the total), while LI are about as expected at 1.2 times. In LMI, where China plays a large role, publications are much lower than expected, with only 0.5 times its expected share. The yearly increase in publications across regions has remained fairly constant, and therefore the differences between them are also fairly stable through time.

Topic analysis

Topic ranking

The topic Disease Burden shown in the glossary (Figure 3) makes reference to health conditions and epidemiological studies that have only an indirect relevance to health systems research though the topic accounts for between 25% and 27% of citations across regions. In order to focus more specifically on health systems research, Disease Burden was not considered further and is not included in the totals.

It is interesting first to note that the proportion of highly relevant citations that could be reliably assigned to specific topics varies markedly across regions. While in LI almost all citations are classifiable, only just over two thirds can be so classified in LMI and in UMI this proportion drops to one half. This suggests that the grid of topics developed on the basis of analysis of research projects is more sensitive to LI projects than to projects in the other two regions. However, the data also suggest that projects in LI are more focused on specific topics.

The literature on health systems research for developing countries has shown an emphasis on certain top-

ics across the period from 1991 to 2003 (Figure 6). Information, Education and Communication (IEC) is the topic with the greatest number of relevant hits, with close to 1,300. This is followed some distance away by Costing and Cost Effectiveness and Policy Process with around 900 hits each. Economic and Social Policy and Health, Decentralization, and Research Policy and Process rank at the bottom with only around 100 relevant hits for the whole period. The distribution of topic hits across income regions shows interesting differences (Figure 7). While LI accounts for over 2/3^{ds} of IEC, Organization, Finance and Accessibility, this same region accounts for a very small share of Programme Evaluation.

Comparison of topics North & South

The profiles of health system research topics North and South show important differences (Figure 8). Publications on the South give more emphasis than those on the North to Information, Education and Communication, Community Participation, Sector Analysis, Equity, Human Resources and to some extent Finance and Information Systems. Publications on the North give greater emphasis to Organization and Delivery, Programme Evaluation, Pharmaceutical Policy and Management and especially Quality of Care. North and South give about equal emphasis to Costing and Cost Effectiveness, Policy Process, Insurance, Accessibility, Economic and Social Policy and Health, and Decentralization.

The presence of the North in the various topics clusters into two groups (Figure 9). The first includes highly prolific topics with over 100,000 publications: Pharmaceutical Policy and Management, Quality of Care, Organization and Delivery, Programme Evaluation, Policy Process, and Information, Education and Communication. The other group includes all other topics, with publications at around 25,000 or below. This clustering may arise because topics were defined with particular relevance for the South and the fingerprints may not be sufficiently sensitive to the actual subject matter in the North. However, it may also suggest that topics most relevant to the South are not as prominent for countries in the North.

Another way of looking at the distribution of the literature is by asking about the extent to which North and South contribute to specific topics (Figure 10). Publications on Human Resources, Economic and Social Policy and Health, Decentralization, and Information Systems show a greater emphasis for the

South than other topics. The South also accounts for a significant portion of total publications for the topics of Sector Analysis, Community Participation, Accessibility, Equity and Finance, suggesting too that these topics are of higher relevance. The South, however, accounts for a very small fraction of the total for the remaining topics. The 5/95 gap previously identified may not be applicable to those topics with greater emphasis on the South. However, the analysis says nothing about the nationality of researchers, and it may be the case that the literature is still dominated by Northern researchers.

Time trends in publications by topic

Health systems research topics in developing countries have shown different trends in the 13 year period between 1991 and 2003. Topics that have increased their proportional contribution are Insurance, Information Systems, Quality of Care, Pharmaceutical Policy and Management, and Costing and Cost Effectiveness (figure 11). This latter topic is the one that has shown greatest increase, doubling its contribution in the period. Topics with a declining share in the same period are Finance, Equity, Organization and Delivery, and Information, Education and Communication (Figure 12). This last topic is the one with greatest reduction, halving its contribution in the period. Topics that show no clear trend are Programme Evaluation, Sector Analysis, and Policy Process, with marked ups and downs across the period (Figure 13). Finally, topics that show a steady course with few changes are Research Policy and Process, Economic and Social Policy and Health, Accessibility, Human resources, Community Participation and Decentralization (Figure 14).

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- 4 Gonzalez-Block MA. Health Policy and Systems. Agendas in Developing Countries. *Health Research Policy and Systems*, 2004, 2:6 2004.
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CLASSIFICATION OF TOPICS IN THE HEALTH SYSTEMS RESEARCH LITERATURE

The classification of journal articles by topic and the quantification of the total relevant citations proceeded in a series of steps, sketched in Figure 2.

1. A total of 19 health systems research topics were identified by analyzing 321 research projects undertaken by developing country researchers between 1999 and 2001 (Figure 3). These projects were being undertaken by 108 institutions in 39 countries and provided a good picture of developing country interests [4]. Topics were identified by focusing on the main health system functions that were the subject of inquiry (see Box 4 in Chapter 6 describing the survey methodology). Health system functions were identified at different scales of systems and by allowing cross-cutting themes. For example, a major topic "Finance" was identified, but also a minor topic "Insurance" that is conceptually a part of finance. The main criterion used to consider topics separately was that they should contain at least 2% of the total projects and that the sub-function in question was the main subject of research. Cross cutting themes such as "Community participation" included other functions or sub-functions, such as community finance and information systems, all subsumed under a different yet more prominent function within the research project.
2. A conceptual "fingerprint" was created for each of the 19 topics by submitting the glossary terms to the Collexis engine. A fingerprint consists of a digital identification of the multiple concepts and their relationships within each topic and is based on the Medline MeSH thesaurus.
3. The topic fingerprints were then used to classify the Medline citations. To this end, topic fingerprints were compared to fingerprints previously assigned by Collexis to the citations.
4. Topic fingerprints themselves were also refined through an iterative process by adding concepts found in fingerprints of highly relevant articles but absent in the topic fingerprint. This ensured that topic fingerprints captured in the end the highest number of articles with the highest relevance scores.
5. Citations for developing countries were classified by topic, income region and year. Citations for developed countries were only classified for the whole period 1991 to 2003. Citations were assigned to income region by noting the country or countries whose health systems had been the subject of inquiry, as evidenced in the citation fingerprint.
6. Citations were ranked according to relevance to the field in a scale of 1% to 100%. Relevant articles were deemed to be those above 10%, as suggested by inspection of a sample of abstracts³. Many of the pre-selected citations were in the end not considered relevant because the health systems issues considered were of secondary significance within papers mainly devoted to other fields.

³ Caution should be used in comparing the absolute figures for North and South in this analysis. The topic fingerprints were designed to respond to the literature in the South and may not be as sensitive to the literature in the North. Furthermore, the search engine operated with different sensitivities for North and South due to the volume of the literature. In the North only citations with relevance greater than 25% were included, while in the South citations were included with relevance above 10%. This means that the actual differences North and South may be greater than that shown. The data should therefore be interpreted in relative terms, showing how the profile of topics varies across regions, rather than how each topic compares across regions.

TABLE 1

CITATIONS AND HITS WITH DIFFERENT BIBLIOMETRIC PROCEDURES

	RELEVANCE	COUNTRY FOR WHICH RESEARCH WAS UNDERTAKEN, BY INCOME REGION					ALL
		Low	Lower medium	Upper medium	TOTAL Developing (South)	High (North)	
<i>Pre-selected citations (MeSH PubMed)</i>	0–100%	36,794	24,629	25,894	87,317	1,757,424	1,844,741
<i>Topic specific and relevant citations</i>	11–100%	8,039	2,467	5,729	16,235	1,150,168	1,166,403

FIGURE 2

MAPPING OF CITATIONS BY HEALTH SYSTEMS RESEARCH TOPICS

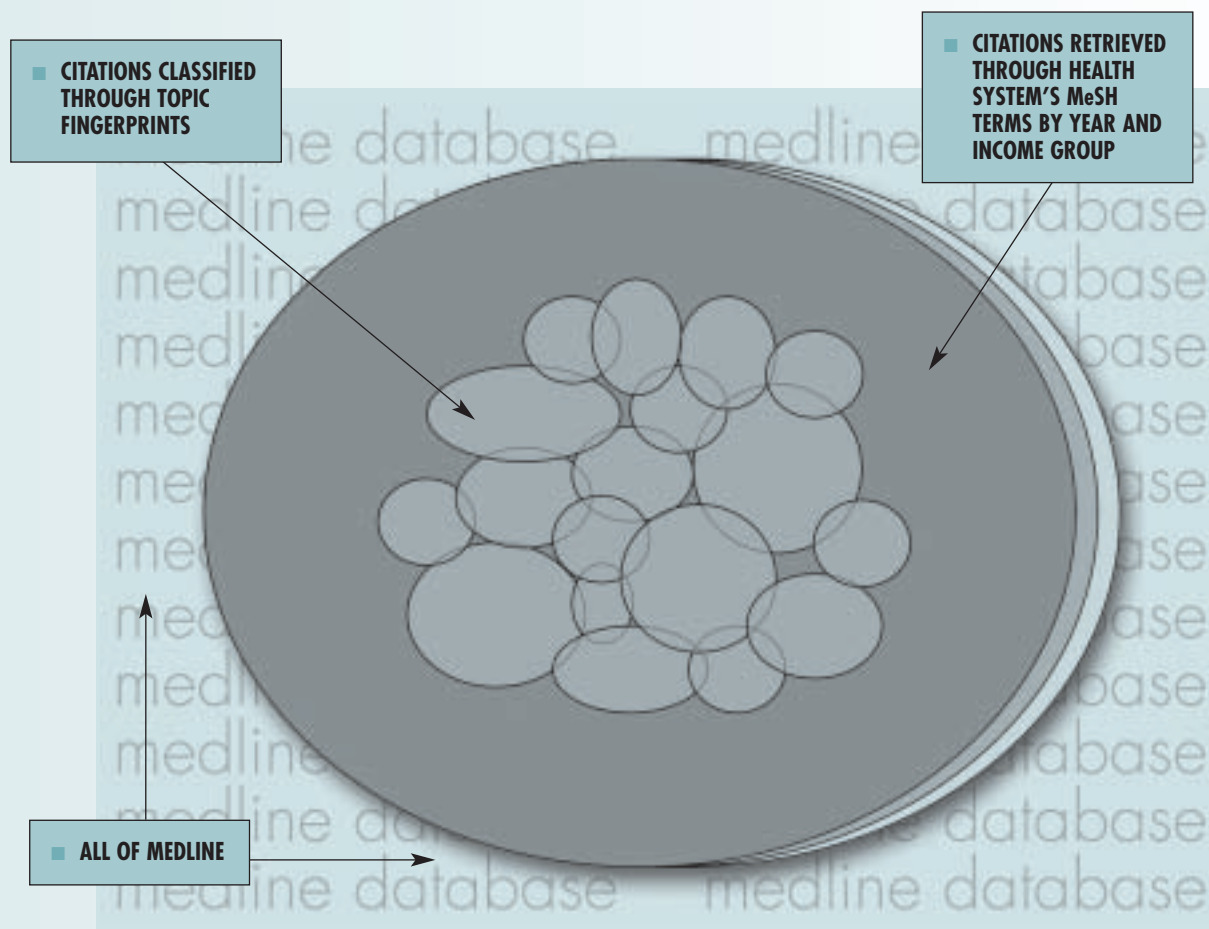


FIGURE 3

GLOSSARY TERMS USED FOR THE TOPIC CLASSIFICATION OF HEALTH SYSTEMS PUBLICATIONS IN THE MEDLINE DATABASE

TOPIC	GLOSSARY
Accessibility	Health seeking behaviour, determinants of utilization, coverage, outreach, referral, barriers to care, willingness and capacity to pay, cost-sharing, price regulation, prices, equity in access, demand for health services.
Community participation	Community-based strategies, community participation in governance, empowerment, school health, family health strategies, social support networks.
Costing & cost effectiveness	Determination & evaluation of costs, cost-benefit of services, economic evaluation, cost-effectiveness of resource allocation, alternative uses for resources.
Decentralisation/ local health systems	Decentralization policy and process, impact of decentralization on services and health outcomes, district health system development, healthy cities, municipal health services, local government, devolution, community participation in local health services.
Disease burden	Prevalence and incidence of diseases, health status, health needs, burden of disease studies, risk factors, determinants of health and disease other than economic or social policy, mortality and morbidity, disease profiles.
Economic policy and health	Free trade agreements and health, TRIPS and health, economic crises and health, impact of poverty reduction and adjustment policies on health, debt reduction and health, social policy and health, social assistance and health issues, intersectoral co-ordination, labour policies and health.
Equity	Equity of health system, impact of health reforms on equity, equity and poverty, poverty targeting, poverty and health, exclusion.
Financing	Resource mobilization, allocation, financing policies, national & district health accounts, financial equity, community health financing, financing of specific programmes.
Human resources	Personnel management, deployment, migration, motivation, knowledge, attitudes and practices of health personnel, satisfaction, quality of life, human resource policy, human resource performance, traditional healers, Training and education of human resources, medical education curriculum assessment, evaluation of medical and nursing teaching programmes.
Information, education and communication (IEC)	Information and communication for the general public, health education strategies and impacts, knowledge attitudes and practices (KAP).
Information systems	Information needs, informatics, surveillance mechanisms and systems, strengthening of information systems, health monitoring systems, establishment of public domain databases, development of indicators for service management and policy.
Insurance	Impact of insurance on health and service outcomes, risks and benefits covered by insurance schemes, community based health insurance, options for health insurance, insurance reform.
Management & organization	Health service provider performance, delivery of services, administration, service management strengthening, contracting and provider payment mechanisms, impact of privatization on services, performance agreements, impact of hospital autonomy on service delivery, stakeholders in unit management, community participation and management
Pharmaceutical policy & management	Rational drug use, procurement, logistics, herbal medicine, dispensing practices, pharmaceutical regulation, national drug policy, essential lists.
Policy process	Stakeholder analysis, role and relationships of actors in the formulation and implementation of policy, role of government agencies in policy formulation, role of community and NGOs in policy formulation, factors influencing policy process, perceptions of policy, decision-making processes, policy negotiation.
Programme evaluation	Evaluation and assessment of impact of policies or programmes on specific diseases or services.
Quality	Clinical practice guidelines, evidence-based medicine, quality assurance, patient satisfaction.
Research to evidence	Health systems research training, outcomes of research, research impact, policy utilization and impact of research, research methods, creation of national health systems research database, priority setting of health research, research ethics, essential national health research and dissemination of research.
Sector Analysis	Health sector reforms and implications, health systems development, private health service development, intersectoral collaboration and coordination, public/private mix health care, health care organization, regulation, policy formulation on specific diseases, on programmes or on aspects of the health system, sector-wide and system-wide performance.

FIGURE 4

TRENDS IN HEALTH SYSTEMS PUBLICATIONS FOR 1999-2001, BY INCOME REGION

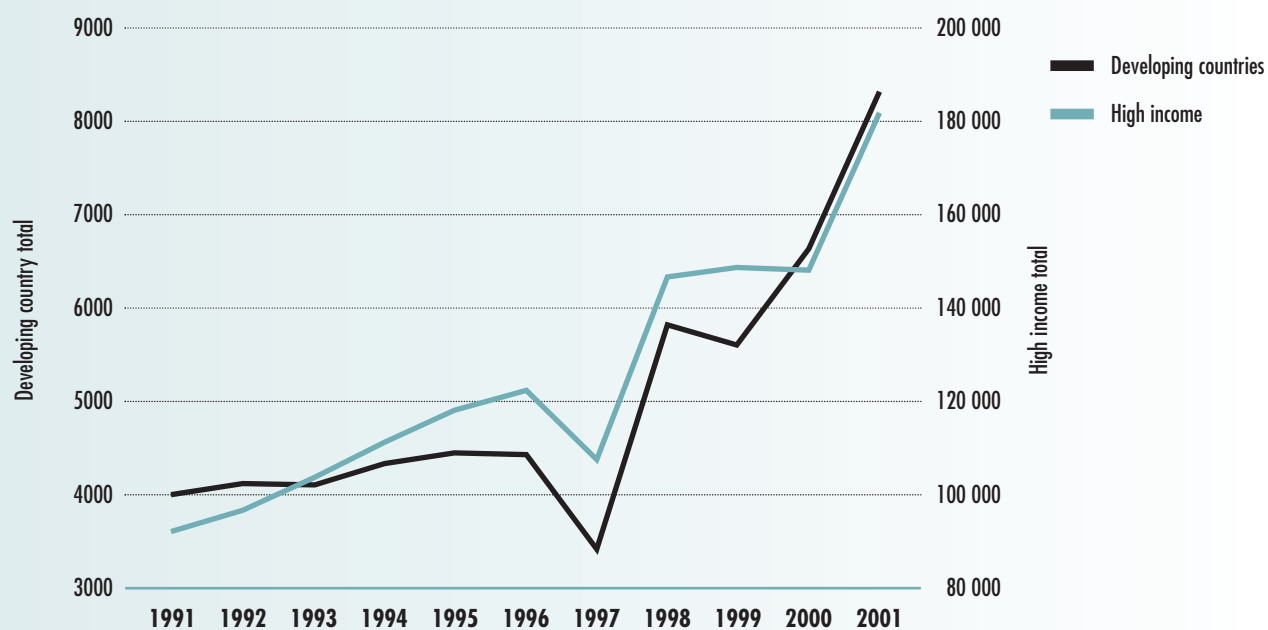


FIGURE 5

HEALTH SYSTEMS PUBLICATIONS INDEXED IN MEDLINE FOR DEVELOPING COUNTRIES, 1999-2001, BY INCOME REGION

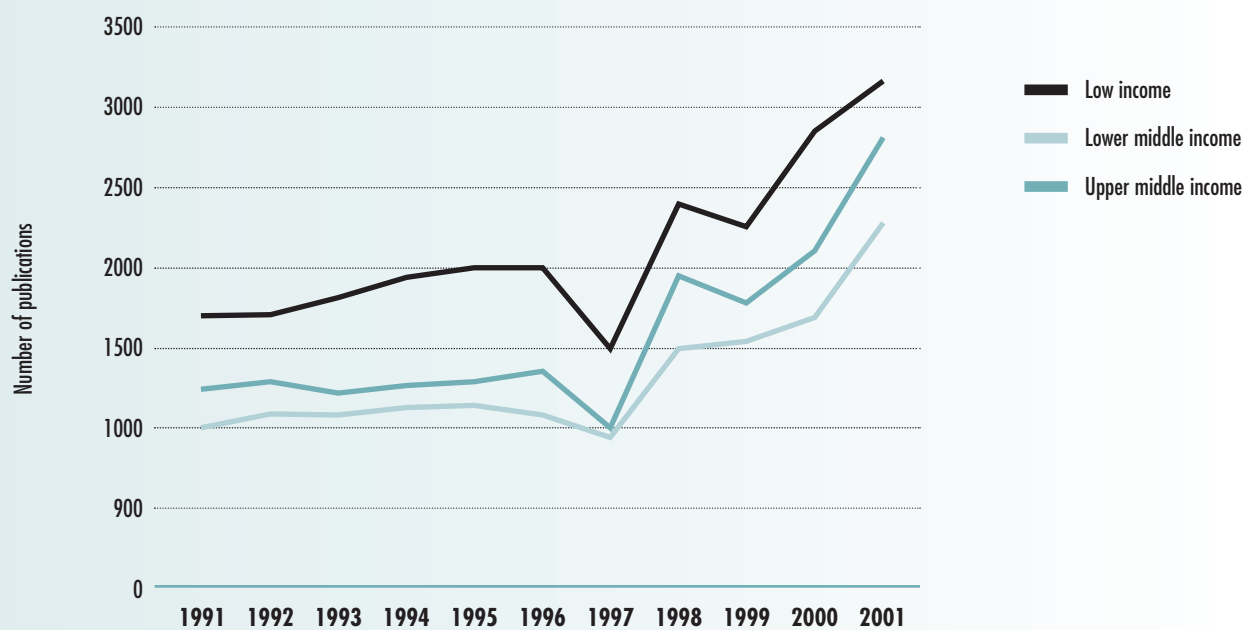


FIGURE 6

HEALTH SYSTEMS PUBLICATIONS INDEXED IN MEDLINE FOR DEVELOPING COUNTRIES, 1999-2003, BY TOPIC AND INCOME REGION

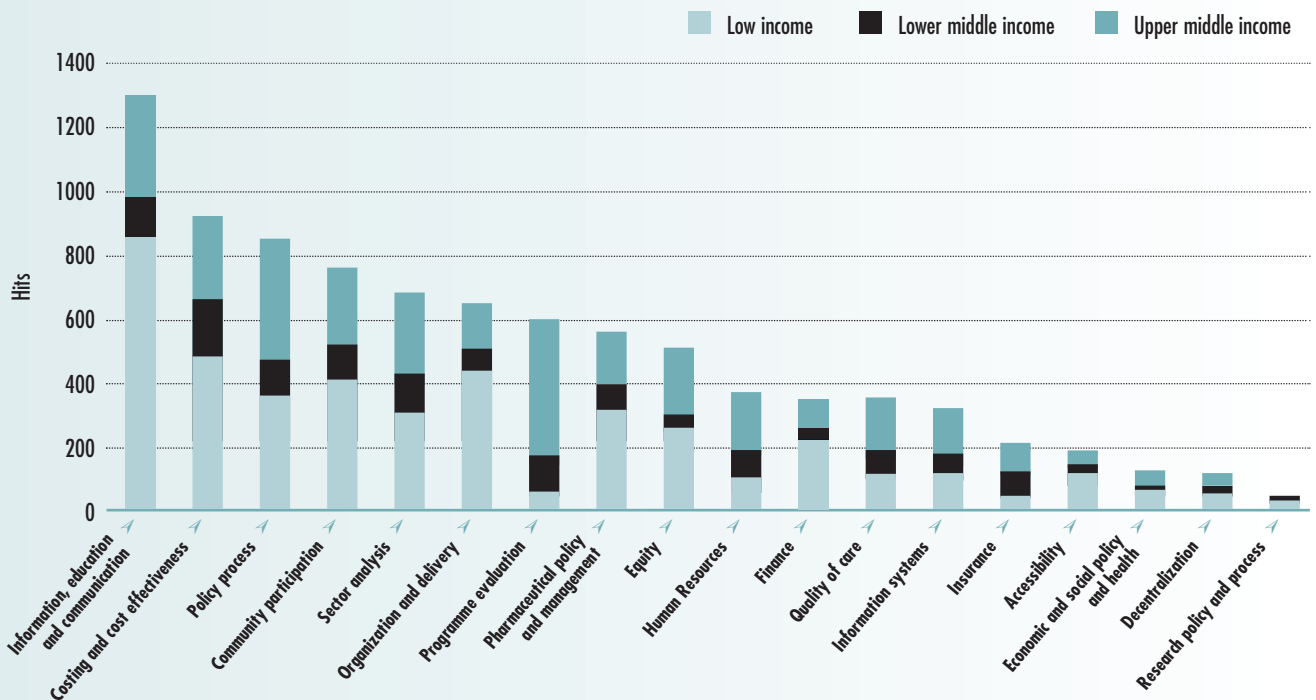


FIGURE 7

PROPORTIONAL CONTRIBUTION BY EACH DEVELOPING COUNTRY INCOME GROUP TO HEALTH SYSTEM TOPICS IN MEDLINE PUBLICATIONS, 1991-2003

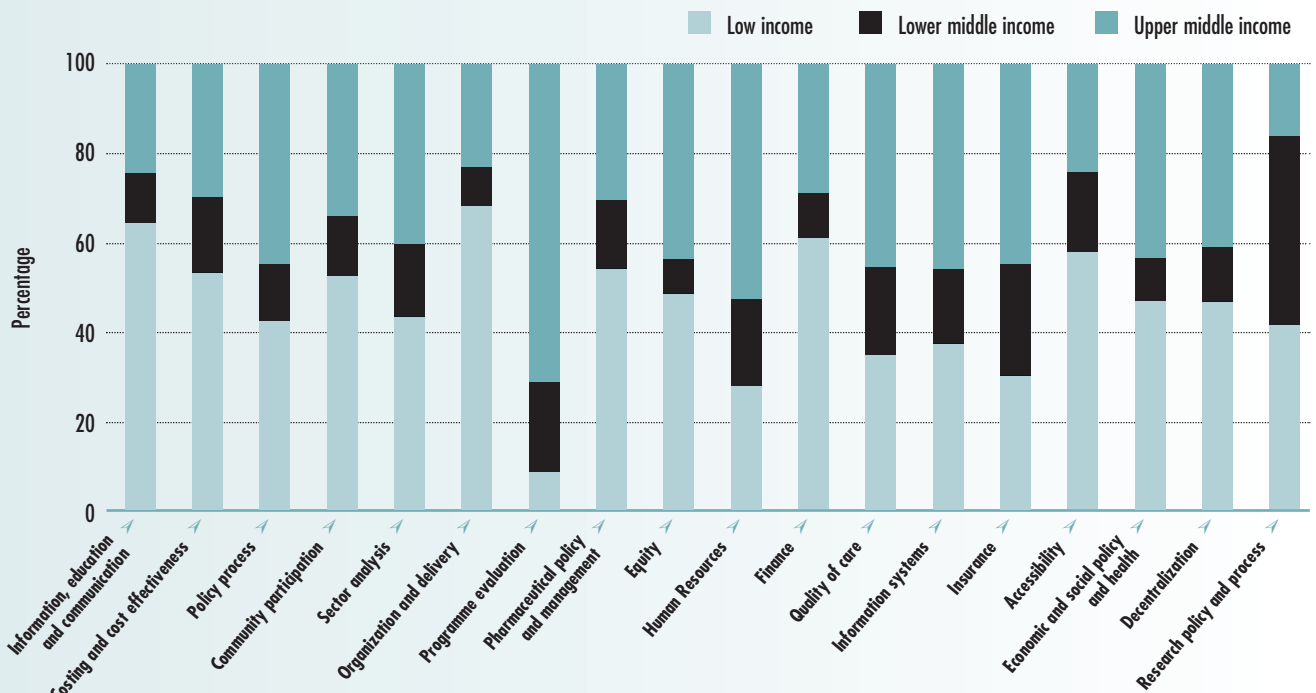
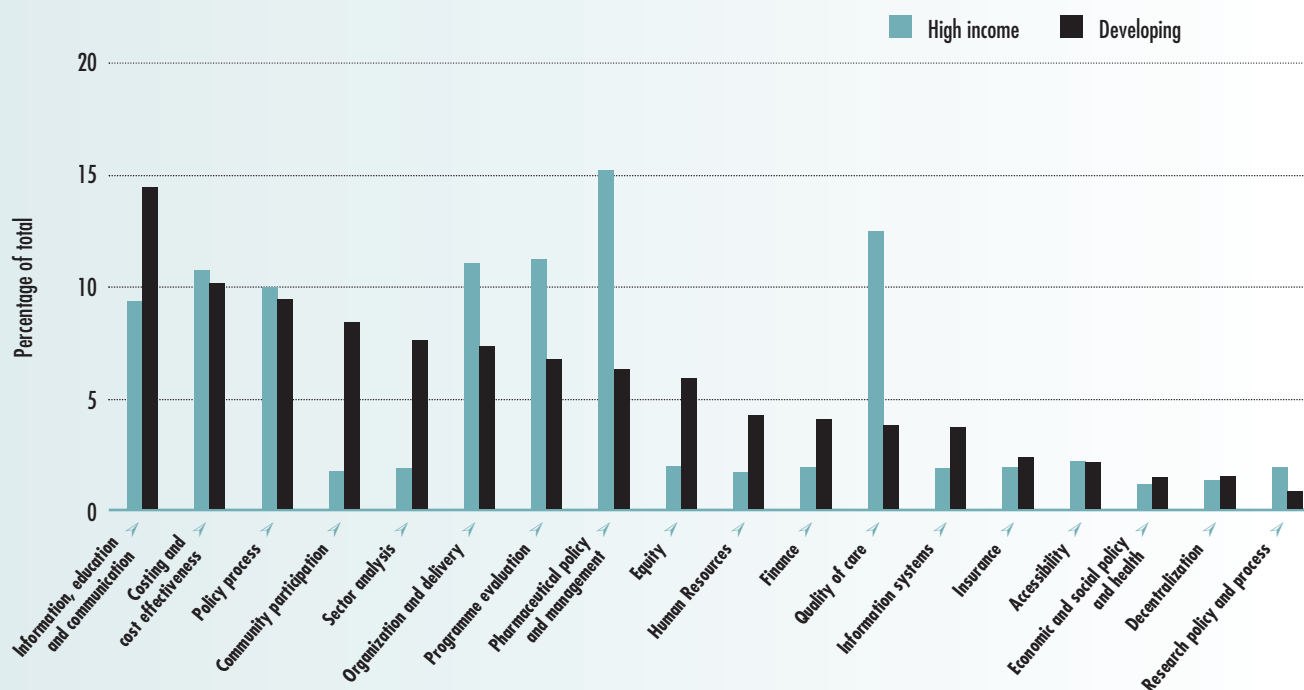


FIGURE 8

PROPORTION OF MEDLINE PUBLICATIONS IN HIGH INCOME AND DEVELOPING COUNTRIES, BY TOPIC*



*Note: The total for all high-income country topics is 100% of the high-income country total and the total for all developing country topics is 100% of the developing country total.

FIGURE 9

MEDLINE PUBLICATIONS IN HEALTH SYSTEMS RESEARCH BY TOPIC, 1991-2003 IN NORTH AND SOUTH

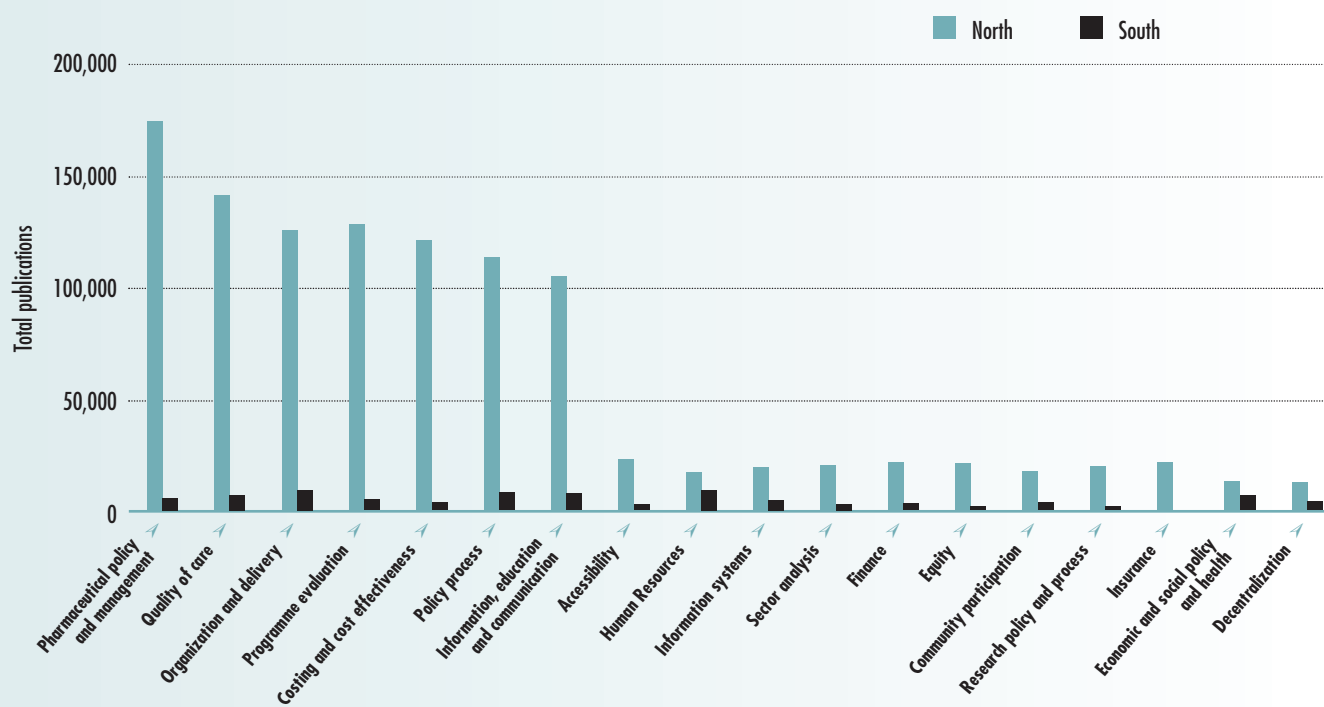


FIGURE 10

DISTRIBUTION OF HEALTH SYSTEMS RESEARCH TOPIC HITS IN MEDLINE BY NORTH AND SOUTH COUNTRIES, 1991-2003

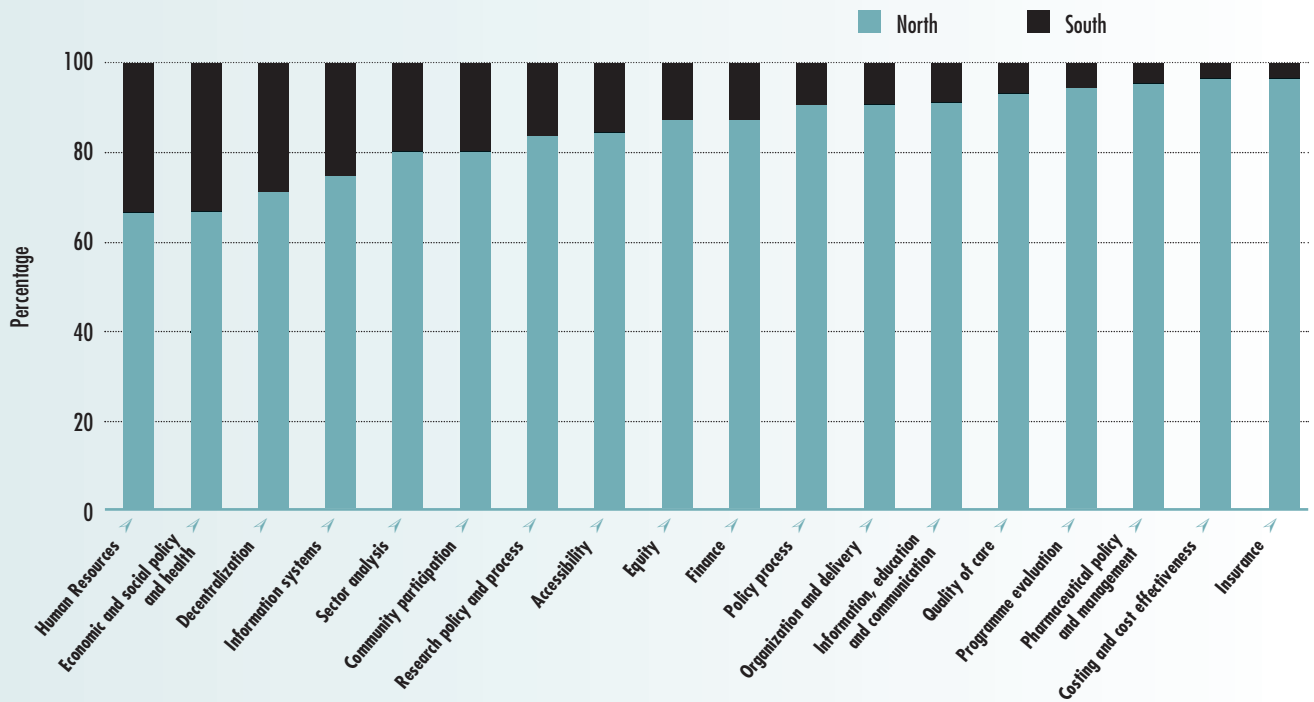


FIGURE 11

HEALTH SYSTEMS RESEARCH TOPICS IN MEDLINE FOR DEVELOPING COUNTRIES THAT SHOW AN INCREASE IN THEIR PROPORTIONAL CONTRIBUTION, 1991-2003

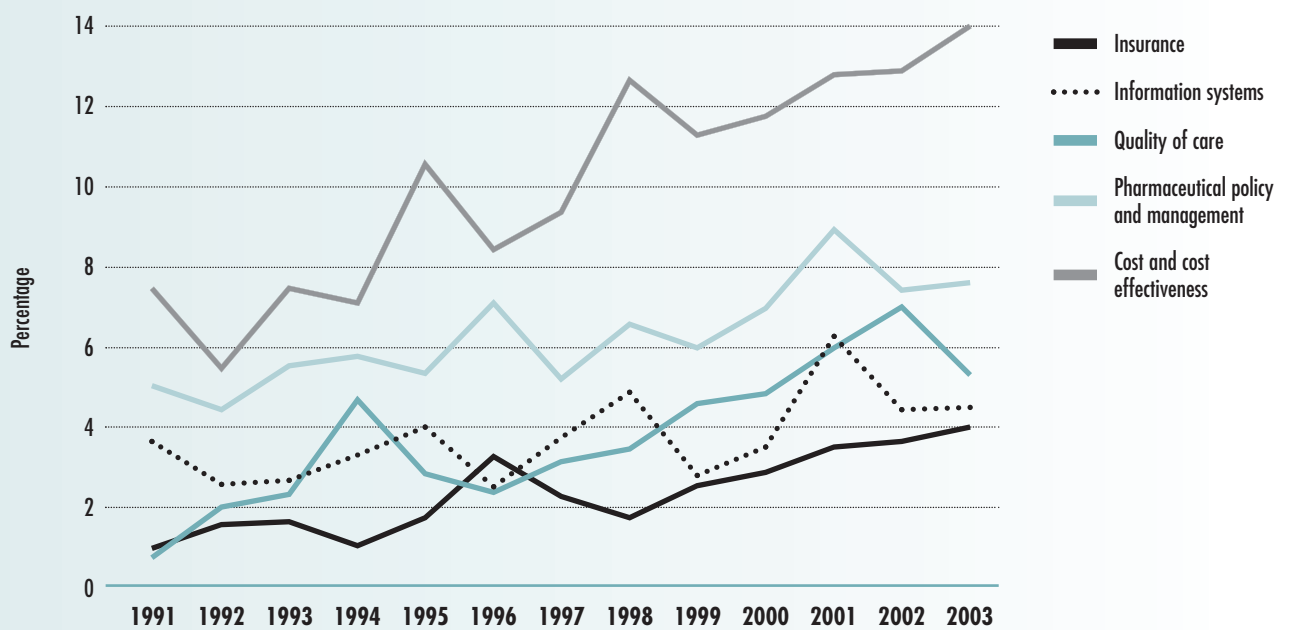


FIGURE 12

MEDLINE HEALTH SYSTEMS RESEARCH TOPICS FOR DEVELOPING COUNTRIES THAT SHOW A DECLINE IN THEIR PROPORTIONAL CONTRIBUTION, 1991-2003

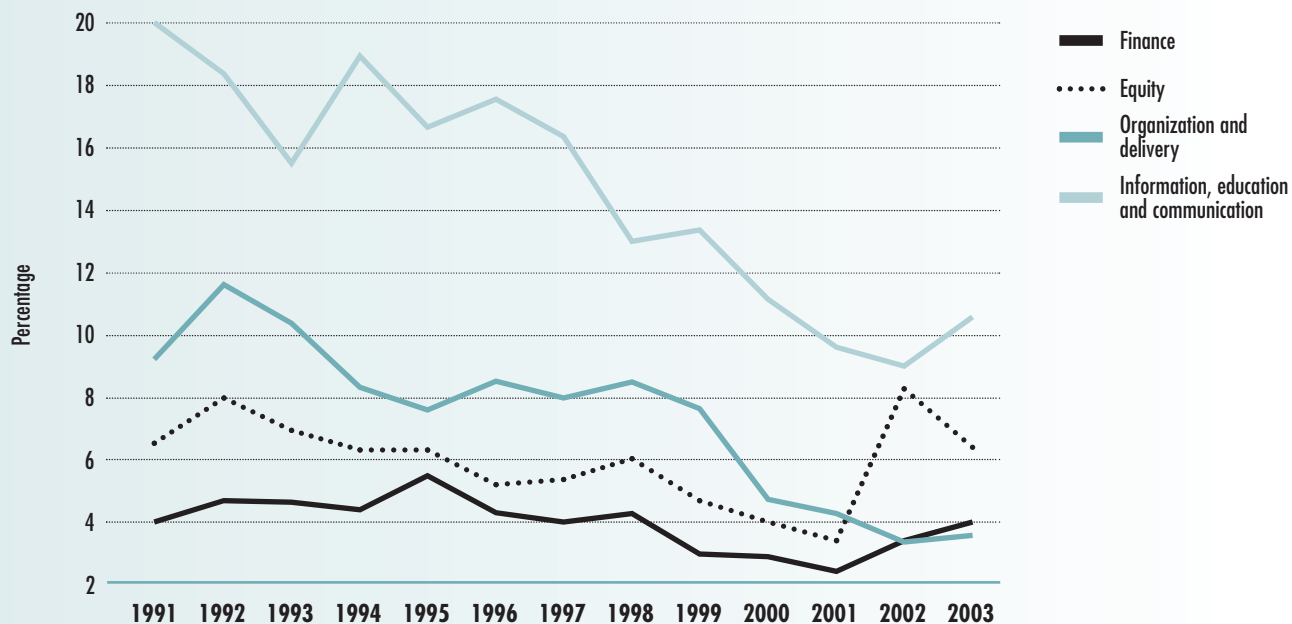


FIGURE 13

MEDLINE HEALTH SYSTEMS RESEARCH TOPICS FOR DEVELOPING COUNTRIES THAT SHOW NO CLEAR TREND IN THEIR PROPORTIONAL CONTRIBUTION, 1991-2003

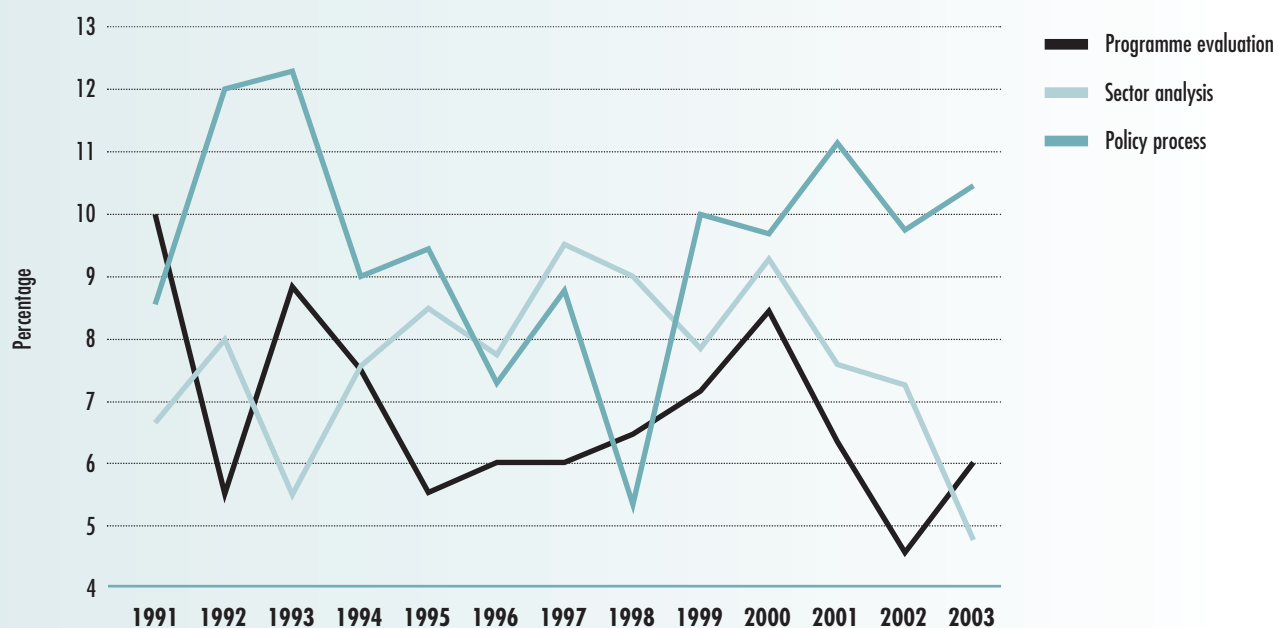
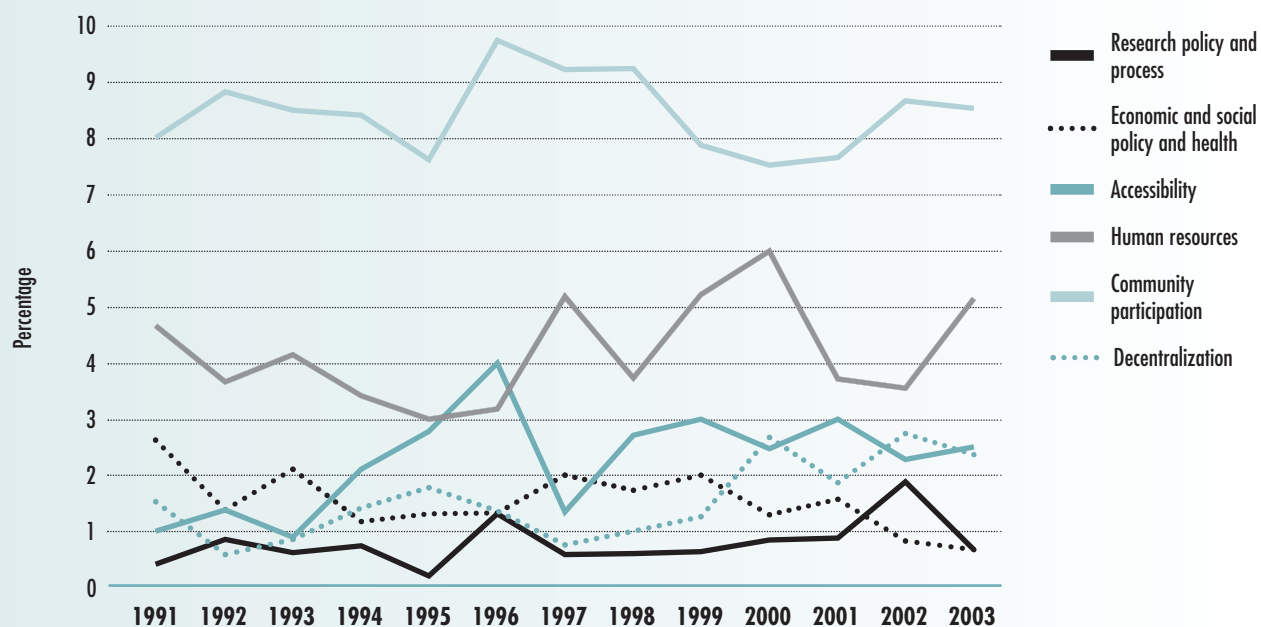


FIGURE 14

MEDLINE HEALTH SYSTEMS RESEARCH TOPICS FOR DEVELOPING COUNTRIES THAT SHOW SMALL CHANGE IN THEIR PROPORTIONAL CONTRIBUTION, 1991-2003



PARTNERS OF THE ALLIANCE FOR HEALTH POLICY AND SYSTEMS RESEARCH

The e-mail addresses, further contact details and web sites locations of these partners are available through the Partners section of the Alliance web site at www.alliance-hpsr.org

COUNTRY	INSTITUTION	DEPARTMENT
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ALGERIA	Applied Economics Research Centre for Development	Human Resource Unit
	École Nationale de Santé, Publique	Laboratoire de Gestion des Service de Santé
BENIN	Centre Régional pour le développement et la Santé	Département de Santé, Unité d'Enseignement et de Recherche en Santé au Travail
	Département de Santé Publique	
BURKINA FASO	Action Pour L'Enfance et la Santé, Direction des Études et de la planification du Ministère de la Santé	Bureau Recherche en Santé
BURUNDI	Save The Children Netherlands	Département des Projets et Programmes de Santé
	Ministère de la Santé Publique, Institut National de Santé Publique, Université de Burundi, Faculté de Médecine	
CAMEROON	Institute of Medical Research	
	Tropical Medical Research Station	
	University of Buea, Faculty of Health Sciences	
	University of Yaoundé, Faculty of Medicine	
CONGO	Université Protestante au Congo	Centre de Recherche en Santé Publique pour le Développement Global en Afrique Centrale
CÔTE D'IVOIRE	Institut National de Santé Publique	Sous Direction Formation-Recherche
	Ministère de la Santé Publique, National Institute of Public Health	Under Direction of Applied Research and Planning
ERITREA	Ministry of Health	National Health Management Information Systems
ETHIOPIA	Addis Ababa University, Faculty of Medicine	Clinical Epidemiology Unit
	Ethiopian Science and Technology Commission	Health Research Department
	Federal Ministry of Health	Planning and Programming Department
GHANA	Centre for the Development of People	Community Reproductive Health; Gender and Development; Training and Research Services; Community Leadership Development
	Ghana Medical School	Korle-Bu Teaching Hospital, Department of Surgery
	National Catholic Secretariat	Department of Health
	University of Ghana, Institute of Statistical, Social and Economic Research	Health Social Sciences Research Unit
GUINEA	Ministère de la Santé Publique	Recherche et Documentation
GUINEA-BISSAU	Bandim Health Project	
KENYA	Christian Health Association of Kenya	Department of Geography
	Economic Finance and Development Consultants	
	Egerton University	
	Kenya AIDS Education and Training	Commission for Health and Family Life
	Kenya Catholic Secretariat	
	Kenya Medical Research Institute/Wellcome Trust Collaborative Programme	
	University of Nairobi, Faculty of Arts	Public Health Group
MALI	Institut National de Recherche en Santé, Publique	Health Department

MAURITIUS	Institute of Health	Research Unit
MOZAMBIQUE	Ministry of Health, National Institute of Health	
NIGERIA	African Council for Sustainable Health Development	
	Babcock University	Health Sciences
	Care and Action Research Non-Governmental Organisation	
	Centre for Health Policy & Strategic Studies	
	Centre for Health Sciences Training, Research and Development International	
	Community Development Initiative	
	Health Data Dynamics	Centre for Health Policy Analysis and Development Management
	Ilorin Teaching Hospital	Maternity Wing
	Mechanical Division Medical Stores	Pharmacy Department
	National Institute for Pharmaceutical Research and Development	Department of Pharmacology & Toxicology
	Obafemi Awolowo University	Department of Mental Health; Department of Nursing; Department of Sociology/Anthropology; Department of Psychology, Demography and Social Statistics
	Ogun State University Teaching Hospital	
	University of Lagos, College of Medicine	Pharmacology Department, College of Medicine Clinical Pharmacy and Biopharmacy
	University of Nigeria	Department of Sociology and Anthropology
	University of Nigeria, Enugu Campus, College of Medicine	Health Policy Research Unit, Pharmaceuticals & Therapeutics Community Medicine
SENEGAL	Institution de Santé et Développement	
	Ministère de la Santé, École Nationale de Développement Sanitaire et Social	Division des Études et de la Recherche; Division de la Statistique et de la Documentation
	Université Cheikh Anta Diop de Dakar	Neurochirurgien des Hopitaux
SEYCHELLES	Ministry of Health	Planning, Research and Health Information
SOUTH AFRICA	Health Systems Trust	Research Programme; Initiative for Sub-District Support
	Medical Research Council	Health Systems Research
	Ministry of Health & Social Services	Research Unit
	University of Cape Town, Health Sciences Faculty	Department of Public Health, Health Economics Unit Department of Biomedical Engineering, Healthcare Technology Management Programme Child Health Policy Institute Human Biology/HTM Programme
	University of Cape Town, Centre for Actuarial Research	
	University of Kwazulu Natal	Nelson Mandela School of Medicine, School of Public Health
	University of Pretoria, School of Health Systems and Public Health	Health Policy and Management
	University of The Witwatersrand, School of Public Health	
	Khartoum State Ministry of Health	Research Department and Directorates of Planning, Primary Health Care, Health Insurance, Pharmacy, Curative Medicine and Preventive Medicine
	Research Directorate	
SUDAN	Sudanese Community Physicians Association	
	Tropical Medicine Research Institute	
	University of Khartoum, Faculty of Medicine	Community Medicine
	University of Khartoum, Institute of Endemic Disease	Epidemiology Department
	Ministry of Public Health, National Health Institute	Project Management Unit
TUNISIA	Union Médecins Arabes	

UGANDA	Makerere Institute of Social Research	
	Makerere University, Institute of Public Health	
	Makerere University, Faculty of Medicine	
	Makerere University, Faculty of Social Sciences	
	Makerere University, Child Health and Development Centre	
	Rakai District Directorate of Health Services	
	The Integrated Community Health and Education Resources	
	Uganda National Health Research Organisation	Health Policy Analysis and Development Group
UNITED REPUBLIC OF TANZANIA	Christian Social Services Commission	
	Ifakara Health Research and Development Centre	Health Economics and Financing; Health Systems
	Ministry of Health, Policy and Planning Department	Health Systems Research Unit
	Mzumbe University, Institute of Public Administration	
	National Institute for Medical Research	Health Systems & Policy Research Department
ZAMBIA	Central Board of Health	
	Mwengu Social and Health Research Centre	Research Department
	University of Zambia	
ZIMBABWE	Medical Research Council of Zimbabwe	
	Southern Africa Aids Information Dissemination Service	
	University of Zimbabwe	Clinical Epidemiology Unit
	Zimbabwe Association of Church-Related Hospitals	
	Zimbabwe National Family Planning Council	Evaluation and Research Unit; Information, Education and Communication; Service Delivery and Training Units

AMERICAS

ARGENTINA	Center for the Implementation of Public Policies Promoting Equity and Growth	Programme Development
	Centro de Estudios Sanitarios y Sociales	
	Fundación de Medicina Familiar y Preventiva. Hospital Italiano de Buenos Aires	Unidad de Medicina Familiar
	Instituto Universitario de la Fundación Salud	Secretaría de Ciencia y Técnica
	Maestría en Epidemiología, Gestión y Políticas de Salud	
	National University	School of Medical Sciences, INUS Center
	Universidad Nacional de Lanus, Maestría en Epidemiología y Gestión	
	Universidad Nacional del Nordeste, Facultad de Medicina	Cátedra de Medicina Sanitaria
BARBADOS	University of The West Indies, Trinidad and Tobago Campus, Sir Arthur Lewis Institute of Social and Economic Studies	Health Economics Unit
BRAZIL	Centro de Estudos de Cultura Contemporânea	Citizenship, State and Social Policies Research Group
	Centro de Estudos e Pesquisa em Saúde Coletiva	
	Escola Brasileira de Administração Pública	
	Faculdade de Ciências Médicas da Santa Casa de Misericórdia de São Paulo	Centro de Saúde Escola Barra Funda
	National School of Public Health, Ministry of Health	Department of Planning and Administration; Department of Social Science; Department of Epidemiology
CANADA	Canadian Society for International Health	
	University of Toronto, Faculty of Medicine	Centre for International Health
	University of Montreal	Public Health Sector, International Health Unit & Department of Health Administration
	University of Ottawa, Institute for Population Health	Centre for Global Health

CHILE	Asociación de ISAPRES	Gerencia de Estudios
	Universidad Católica de Chile	Departamento Salud Pública
COLOMBIA	Asesores gerenciales y auditores en salud (AGS)	Gerencia de Proyectos
	Asociación Centro de Gestión Hospitalaria	
	Centro de Proyectos Para el Desarrollo (CENDEX)	Area de Seguridad Social; Area de Gestión para el Desarrollo
	Colombian Health Association (ASSALUD)	
	Department of Health	Centre for Health Development, Eastern Visayas
	Facultad Nacional de Salud Pública	Grupo de Gestión en Salud
	Fundación FES Social	
	Fundación Gamma Ideal	
	National University of Colombia, Public Health Institute	Department of Public and Tropical Health
	Universidad de Antioquia, Facultad Nacional de Salud Pública	
	Universidad de Caldas, Facultad de Ciencias para la Salud	Programa de Investigación en Sistemas de Salud
	Universidad Externado de Colombia	Políticas sociales
COSTA RICA	Central American Health Institute	
	Instituto Latinoamericano de Políticas Públicas	
	International Health Central American Institute Foundation (IHCAI)	
	Universidad de Costa Rica, Escuela de Salud Pública	Programa de Investigación en Políticas de Salud; Programa de Investigación en Gestión Local de la Interfase Ambiente y Salud
CUBA	Universidad de Costa Rica, Escuela de Enfermería	Programa Postgrado en Ciencias en Enfermería
	Centro Provincial de Higiene	Clinical Research Centre
	Ministerio de Salud Pública, Dirección de Planificación y Economía	Departamento de Planificación de Salud
	Escuela Nacional de Salud Pública	Área de Ciencia y Tecnología; Área Académica
	Facultad de Ciencias Médicas de Ciego de Avila	Departamento de Salud; Departamento de Filosofía; Centro Provincial de Información de Ciencias Médicas
	Instituto Nacional de Angiología y Cirugía Vascular	
	Instituto Nacional de Higiene, Epidemiología y Microbiología.	Vice-Direcciones de Epidemiología, Salud Ambiental y de Docencia e Investigación
	Instituto Pedrokouri	Subdirección de Epidemiología
	Vedado Health Community Centre	Primary Care Research Unit
ECUADOR	Catholic University of Quito, Public Health Institute	
	Facultad Latinoamericana de Ciencias Sociales	
	Fundación Juan César García	
	National Association of Faculties of Medicine	
	University of Cuenca	Foro Nacional de Investigadores en Salud (FORNISA)
	University of Cuenca, Research Institute	
EL SALVADOR	Universidad de El Salvador, Unidad de Ciencias Básicas	
HAITI	DASH Health Systems	
HONDURAS	Ministry of Health, Research Unit	
	National Council on Drug Abuse	Information and Research
MEXICO	El Colegio de Sonora	Programa Salud y Sociedad
	Institutos Nacionales de Salud	Coordinación de Desarrollo
	Mexican Health Foundation	Centre for Social and Economic Analysis
	Mexican Institute of Social Security	Central Area of Planning Coordination
		Health Research Council
	National Institute of Public Health, Centre for Health Systems Research	
	Universidad Autónoma del Estado de México, Centro de Investigación en Ciencias Médicas	
PANAMÁ	Ministerio de Salud	
	Universidad Latina, Facultad de Ciencias Médicas y de la Salud	

PERU	Almenara National Hospital	Quality Assurance Office
	Escuela Nacional de Salud Pública	
	Universidad Nacional de la Amazonia Peruana, Facultad de Enfermería	Instituto de Investigación
	Instituto de Investigación Nutricional	
	Ministry of Health	Proyecto 2000
	Ministry of Health, Dirección de Cooperación Internacional	
	Universidad Nacional de Ingeniería	Ingeniería Ambiental y Sanitaria
SAINT KITTS AND NEVIS	Basseterre Health Centre	Department of Community Health Services
TRINIDAD AND TOBAGO	Ministry of Health	
UNITED STATES OF AMERICA	Boston University, Center for International Health	
	Breast Health Global Initiative	Fred Hutchinson Cancer Research Centre, Public Health Sciences Division
	Carolina Consulting Corporation	
	Family Health International	Family Planning & Reproductive Health Program
	Fogarty International Center	Policy Unit
	International Food Policy Research Institute	Food Consumption and Nutrition Division
	International Health Summit	Research Group
	John Hopkins University, Bloomberg School of Public Health	Department of International Health
	Partners for Health ReformPlus (Abt Associates)	Resource Center
	Tufts University School of Medicine	Family Medicine & Community Health
	University of California, Los Angeles, School of Public Health	Department of Health Services
	University of New Mexico, Faculty of Medicine	Division of Community Medicine, Public Health Programme
	University of Pennsylvania, School of Nursing	Center for Nursing Outcomes Research
	Yale University, School of Medicine	Division of International Health, Department of Epidemiology and Public Health
URUGUAY	Centro de Estudios de Economía y Salud	
	Centro de Informaciones y Estudios	
	Group for the Study of Economics, Organisation and Social Policy (GEOPS)	
	Universidad de la República, Facultad de Ciencias Sociales	Departamento de Trabajo Social
VENEZUELA	Universidad Central de Venezuela, Centro de Estudios del Desarrollo	Proyecto Reforma de Salud en Venezuela

ASIA

AUSTRALIA	Centre for Health Policy and Management	
	Institute for International Health	Policy & Practice
	La Trobe University, School of Public Health	
	The University of Queensland, School of Population Health	International Health
	University of Newcastle, Centre for Clinical Epidemiology and Biostatistics	
	University of Wollongong, Graduate School of Public Health	

BANGLADESH	Bangladesh Institute of Development Studies	Population Studies Division
	Bangladesh Institute of Research for Health Promotion	
	Bangladesh Institute of Research for Promotion of Essential Reproductive Health and Technologies	Research Division
	Bangladesh Women's Health Coalition	Units of Health, Community Based Program and Management Information Systems and Operations Research
	BRAC	Health, Nutrition and Population Programme
	Centre for Medical Education	
	Development Policy Group	
	ICDDR,B	Centre for Health and Population Research
	Institute of Allergy and Clinical Immunology	Policy Research
	North-South University, Institute of Development	Environment and Strategic Studies
	Organization for Social Development and Research	Research Division
CHINA	Beijing Hui Long Guan Hospital	Clinical Epidemiology Research Centre
	Beijing Municipal Centres for Disease Prevention and Control	Centre for Health Economics
	Beijing Suicide Research & Prevention Centre	Clinical Epidemiology Research Centre
	Central South University (Formerly Hunan Medical University), School of Public Health	Health Economics and Social Medicine
	Sichuan Province Centre for Disease Control	Socio-Economics Research Department
	Centre for Health Economics and Social Medicine Studies	
	China Academy of Health Policy at Peking University	China Centre for Economic Research
	China Health Economics Institute	Department of Health Policy Research
	Fudan University (The Former Shanghai Medical University), School of Public Health	
	Harbin Medical University	Health Economics
	Shandong Province Health Department	Division of Maternal and Child Health
	Jinan Maternity and Children Health Care Institution	
	Nanjing Medical University, The School of Health Policy & Management	
	Peking University, Health Science Centre	Department of Health Policy & Management; Department of Health Economics
	Shandong Academy of Medical Sciences	Science Research and Information, Medical Information Research
	Shandong Medical University, Centre for Health Management and Policy	Units of Social Medicine and Health Policy, Health Economics and Medical Service Cost Accounting
	Shanghai Second Medical University, School of Public Health	Health Management and Health Economics
	The Chinese University of Hong Kong	Chung Chi College
	The Fourth Military Medical University	Department of Health Services
	Tongji Medical University	
	Weri Fan Medical College	Department of Health Service Management
FIJI	Pacific Health Research Council	
INDIA	Administrative Staff College of India, Health Policy Centre for Social Services	
	All-India Institute of Medical Science	Department of Hospital Administration
	Aravind Eye Hospital	Administration
	Centre for Gerontological Studies	
	Centre for Health Education, Training and Nutrition Awareness	
	Child Development Centre	
	Christian Medical College & Hospital	
	Emmanuel Hospital Association	
	Foundation for Research in Health Systems	Foundation for Sustainable Development
	Indian Institute of Technology (Madras), Humanities and Social Sciences	
	Institute of Health Systems	Groups in Health Sector Reform, Health System Performance Assessment and Health Informatics

INDONESIA	Maharashtra Association of Anthropological Sciences	Centre for Health Research and Development; Centre for Tribal and Rural Development
	Mahatma Gandhi Institute of Medical Sciences	Department of Community Medicine
	National Council of Applied Economic Research	
	National Institute for Research In Reproductive Health	Departments of Operational Research, Clinical Research and Biostatistics
	National Institute of Health and Family Welfare	Epidemiology, Social Sciences, Planning and Evaluation
	Seva Mandir	Rural and tribal development
	Tata Institute of Social Sciences	Department of Health Services Studies
	Volunteers for Rural Health, Education and Information Technology (THRIVE)	Health Systems
	Voluntary Health Association of India	Independent Commission on Health in India
	Centre for Community Development and Education	Community Health Department
	Centre for Health Systems and Service Research and Development	Group of Research for Health Policy and Resources Research and Development; Group of Research for Health Trend Assessment and Impact of Health Services
	University of Indonesia, Faculty of Economics	Research and Population Information Demographic Institute
	Diponegoro University	Clinical Epidemiology and Biostatistics Unit
	Gadjah Mada University, Faculty of Medicine	Department of Clinical Pharmacology
IRAN, ISLAMIC REPUBLIC OF	National Institute of Health Research and Development	
	Sebelas Maret University, Faculty of Medicine	Department of Public Health
	Yayasan Kusuma Buana Foundation	
JAPAN	Hormozgan University of Medical Sciences	Departments of Community Medicine and Health System Research
	Iran National Centre for Medical Sciences Research	
	Ministry of Health and Medical Education	
KYRGYZSTAN	Tohoku University School of Medicine	Division of International Health
LAO PEOPLES DEMOCRATIC REPUBLIC	Ministry of Health, Department of Coordination and Reform	Manas Health Policy Analysis Project and WHO/DfID Health Policy Analysis project
	Ministry of Health, National Institute of Public Health	Departments of Health System Research, Health Policy Research and Health Information Development
LEBANON	American University of Beirut, Faculty of Health Sciences	Department of Health Management and Policy
	Salem Health Research Consultants	
MALAYSIA	Institute for Medical Research	
	Ministry of Health, Public Health Institute	
MONGOLIA	Health Sciences University, School of Public Health	Department of Health Economics
	Mongolian Academy of Sciences	
NEPAL	Healthcon.Itgo.Com. A Health Policy Debate in Nepal	
	International Network for Rational Use of Drugs (INRUD)	
	Nepal Health Research Council	
	Public Health Development and Research Centre	
	Resource Centre for Primary Health Care	Essential National Health Research Nepal Network
	Tribhuvan University, Institute of Medicine	Centre for Ophthalmic Studies, Research and Policy Unit
	Weekly Narayani	
NEW ZEALAND	Aotearoa Health	Policy and Management
	Christchurch School of Medicine	Public Health and General Practice
	Ministry of Health	Public Health Intelligence
	University of Auckland	Department of Maori and Pacific Health
OMAN	Ministry of Health	Department of Research and Studies
PAKISTAN	Centre for Health & Population Studies	
	Dow Medical College	Clinical Science Department
	Ministry of Health	National Health Information Systems Cell
	Pakistan Medical Research Council	
	Provincial Health Services Academy	Monitoring, Research and Evaluation
	The Aga Khan University	Health Systems Division; Public Health Practice Division; Reproductive Health Programme

PAPUA NEW GUINEA	Department of Health	Monitoring and Research
	Health Services Department	Health Services Support Program
	Public Health Associated Consultants	
PHILIPPINES	Ateneo de Manila University	Institute of Philippine Culture
	Brokenshire Hospital	Brokenshire Women's Center
	Department of Health, Regional Field Office No. VIII	Research and Development; Infectious Diseases; Non-Communicable & Degenerative Diseases; Maternal and Child Health Unit
	Philippine Council for Health Research and Development	Research Management and Development Division; Research Information, Communication and Utilization Division; Human Resource and Institution Development
	Philippine Health Social Science Association - Western Visayas	
	Social Health Insurance; Networking and Empowerment (SHINE)	Corporate Planning Department, Phil. Health Insurance Corporation; Health Policy Development Staff, Department of Health; SHINE Project
	University of The Philippines, College of Medicine	Department of Clinical Epidemiology
	University of The Philippines, College of Public Health	
	University of The Philippines, National Institutes of Health	Institute of Health Policy and Development Studies
	University of The Philippines, School of Economics	
	Xavier University, College of Arts	Faculty Research Unit
SRI LANKA	Institute of Policy Studies	Health Policy Programme
	Marga Institute	Research and Social Studies; Macro Economics
	Organisation Development Unit	Department of Health Services
	University of Colombo, Faculty of Medicine	Department of Community Medicine; Department of Psychological Medicine
	University of Colombo, Faculty of Humanities	Department of Economics
	University of Peradeniya	Department of Sociology
TAJIKISTAN	Scientific Research Institute	Ob/Gyn and Paediatrics
THAILAND	Asian Regional Centre (AVRDC)	
	Chiang Mai University, Faculty of Nursing	
	Chiang Mai University, Faculty of Medicine	Health System Research Institute (Northern Branch)
	Chulalongkorn University	Department of Paediatrics
	Chulalongkorn University, College of Public Health	
	Chulalongkorn University, Faculty of Economics	Centre for Health Economics
	Mahidol University, Faculty of Public Health	Department of Nutrition
	Mahidol University, Faculty of Social Sciences & Humanities	Health Management Unit; Health Social Science Program
	Ministry of Public Health, Health Systems Reform Office	
	Ministry of Public Health, Bureau of Health Policy and Planning	
	Ministry of Public Health, Health System Research Institute	International Health Policy Programme
	Prince of Songkla University, Faculty of Nursing	
	Prince of Songkla University, Faculty of Medicine	Department of Community Medicine
	Thammasat University, Faculty of Economics	
VIET NAM	Hanoi Medical University	
	Ministry of Health	Department of Science and Training
	Research and Training Centre for Community Development	Community Health and Nutrition Unit
	The Centre for Reproductive and Family Health	

EUROPE

BELGIUM	Free University of Brussels, School of Public Health	Centre Scientifique et Médical de l'Université Libre de Bruxelles pour ses Activités de Coopération (CEMUBAC)
	Ghent University	Department of General Medicine and Primary Care
BULGARIA	Medical University	Social Medicine and Management of Public Health; Economics of Public Health; Medical Informatics and Statistics; Health Management
	National Centre of Health Informatics	Departments of Information Systems, Health Statistics and Technical Assistance
DENMARK	University of Copenhagen, Institute of Public Health	International Health and Department of Health Services Research
FINLAND	University of Tampere, School of Public Health	
FRANCE	Centre d'Études et de Recherches sur le Développement International (CERDI)	
	CREDES Public Health Consulting	
GEORGIA	Curatio International Foundation	Units of Programme Development, Health Systems Research and Policy Advocacy, and Project Management
	State Medical Academy	Postgraduate Education
GERMANY	University of Hanover	Institute for Health Economics; Institute for Insurance Economics; Centre for Health Economics and Health System Research
HUNGARY	Semmelweis University, Faculty of Health Sciences	
ISRAEL	Bar-Ilan University	Department of Sociology and Anthropology
ITALY	Istituto Superiore Di Sanita	Department of Psychiatry
	National Institute of Nutrition	
LITHUANIA	Institute for Biomedical Research	Departments of Preventive Medicine, Social Paediatrics, Anthropogenic Factors and Ecological Monitoring of Human Health
	Kaunans University of Medicine	Institute for Biomedical Research
NETHERLANDS	Dutch Institute for Healthcare Improvement	International Programme
	Erasmus University, Faculty of Medicine and Health Sciences	Institute of Medical Technology Assessment and Institute of Health Policy and Management
	Vrije Universiteit Amsterdam	Medical Faculty, Health Care and Culture
NORWAY	University of Bergen, Centre for International Health	
REPUBLIC OF MOLDOVA	National Scientific and Applied Centre for Preventive Medicine	Departments of Scientific Research for Epidemiological and Hygienic Surveillance, Epidemiological and Hygienic Management and Promoting Public Health
ROMANIA	National Institute for Research and Development in Health	Development Programs and Marketing
RUSSIAN FEDERATION	Smolensk State Medical Academy, Institute of Antimicrobial Chemotherapy	
SPAIN	CHC Consultoria I Gestió	
SWEDEN	Swedish Medical Association	
	Umeå University	Departments of Public Health & Clinical Medicine
SWITZERLAND	Swiss Tropical Institute	Swiss Centre for International Health
UKRAINE	Lviv Medical University, Lviv State Regional Administration	Health Care Management Department
UNITED KINGDOM	Aberdeen Maternity Hospital	Dugald Baird Centre, IMMPACT Project
	Institute of Development Studies	Health and Social Change Team
	International Burden of Disease Network	
	International Organisation for Quality in Health Care	
	Kedeco Foundation	Kenya Project
	Liverpool School of Tropical Medicine	
	London School of Hygiene and Tropical Medicine	Public Health and Policy
	Nuffield Institute for Health	
	Queen Margaret University College, Centre for International Health Studies	
	Teaching Aids At Low Cost (TALC)	
	University of Birmingham	School of Social Sciences, Centre for Development Studies, Institute of Applied Social Studies

INTERNATIONAL AGENCIES

International Clinical Epidemiology Network (INCLEN Trust)
International Council of Nurses
International Council on Alcohol and Addictions
International Development Research Centre , Research for International Tobacco Control
International Health Economics Association
Panamerican Federation of Associations of Medical Schools
The Aga Khan Foundation, Health Programmes

HEALTH SYSTEMS RESEARCH NETWORKS

Andean and Caribbean Network of Research in Health Systems and Policies
Asia Pacific Health Economics Network (APHEN)
Caribbean Regional Health Policy and Health Systems Research Network
China Health Economics Research and Training Network (CHERTN)
José Luis Bobadilla Inter-American Health Policy Network
Network for Health Systems and Services Research in the Southern Cone of Latin America (RED)
Private Public Mix Network (PPMNet)
Research Network in Policies and Health Systems in Central America and the Caribbean (REISSCAC)
Sub-Saharan Health Economics and Policy Network (HEPNet)

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Biographies of chapter co-ordinators and contributors

Sara Bennett. PhD in Health Economics from the London School of Economics and Political Science, she has over 15 years of experience in health policy and systems research in low and middle-income countries. Her publications have covered the nature of markets for health care; health financing mechanisms; regulation, incentive setting and payment mechanisms; human resources and health, and government capacity to perform stewardship roles. She is a Principal Associate at Abt Associates managing the research programme of the USAID flagship project for health systems strengthening and also holds a part-time post at the London School of Hygiene and Tropical Medicine.

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Aparnaa Somanatha. Research Economist at the Institute of Policy in Sri Lanka, she was trained in Economics at Cambridge University and in Health Economics at the University of York. She is currently enrolled in a doctoral programme in International Health Economics at Harvard University. Her research interests are in health systems economics, in particular equity of health care financing and delivery, financing of reproductive health services and public hospital efficiency in developing countries.



Strengthening health systems: *the role and promise of policy and systems research*

Rapid progress towards disease control targets in developing countries is greatly hampered by weak, poorly functioning or in some cases non-existent health systems. It is critical to know how best to approach health system strengthening, and what specific actions are appropriate in different settings. Much is known about the barriers or constraints to 'scaling up' health services. However, remarkably little is known about how best to relax these constraints.

The central concern of this book is how knowledge of health systems can be significantly increased and effectively applied to improve the health of the worst-off of the world's population. The book provides important insights:

- ▶ Policies and programmes play a critical role in setting the research agenda and in enabling high quality research
- ▶ Health systems research can significantly contribute to health policies and programmes. Lack of research can lead to undesirable results.
- ▶ Research can contribute most when issues are formulated through clear and empirically verifiable hypotheses
- ▶ Health systems research has developed a rich body of knowledge to support evidence-based policy making
- ▶ Funding for health systems research in developing countries is at around 0.02% of health expenditure, far too low to ensure impact
- ▶ Only 5% of total publications on health systems world-wide focus on developing countries
- ▶ Stakeholders support various priorities, and critical problems are not always targeted.
- ▶ Priorities can be harmonized to advocate for increased funding; successful strategies have been documented
- ▶ Getting research to policy and practice can be enhanced through affordable interventions that ensure the pay-back from research
- ▶ Research capacity has to be strengthened across all regions through, among other strategies, problem-oriented stakeholder alliances

ALLIANCE FOR HEALTH POLICY AND SYSTEMS RESEARCH

