The Millennium Development Goals will not be attained without new research addressing health system constraints to delivering effective interventions

Report of the Task Force on Health Systems Research

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Executive summary

The Task Force on Health Systems Research was set up by WHO at the end of 2003 to develop a research agenda to support the attainment of the Millennium Development Goals.

The Task Force report notes that:

- Health system constraints constitute major barriers to achieving the MDGs.
- There are many unanswered questions about how to strengthen health systems and scale-up effective interventions.
- More resources are needed to answer these questions and build capacity within less-developed countries.

After wide consultation the Task Force suggests that in order to generate the knowledge to strengthen health systems and achieve the MDGs, research on health systems should address the 12 topic areas outlined in the appendix.

The Task Force also recommends that WHO should:

- concentrate currently available resources for health systems research on high priority projects in order to ensure adequate funding for methodologically sound investigations;
- secure funds to evaluate the implementation of its major programmes and to address cross-cutting problems within national health systems that limit the potential for success of all of these initiatives;
- ensure a coordinated and adequately resourced ongoing effort to identify and address emerging needs for health systems research across clusters and programmes;
- promote the compilation and use of systematic reviews of topics relevant to health systems;
- support member countries to take coordinated action to strengthen health systems research within and across countries by building research capacity and developing collaborative networks;
- facilitate the development of effective mechanisms to promote the uptake of research findings by national and international policy makers;
- assess the feasibility of establishing a special programme on health systems research; and
- monitor progress towards the achievement of these recommendations through the WHO Advisory Committee on Health Research.

Introduction

In 2000, 189 countries signed the United Nations Millennium Declaration. The document includes eight Millennium Development Goals (MDGs) with specific targets for poverty eradication and development that are to be achieved by 2015.[1] Three of the eight MDGs are directly related to health: reducing child mortality; improving maternal health; and combating HIV/AIDS, malaria, and other diseases (Table 1). Health also underpins many of the other MDGs, primarily because poverty is a potent cause of ill-health, but also because illness can lead to poverty as a result of loss of income and/or catastrophic health expenditures.[2]

The ambitious nature of these goals, along with concerns about the massive health challenges facing the world's poorest countries, has led to a growing momentum within the field of global health. This has included a series of high-profile global health initiatives such as the Global Fund to Fight AIDS, Tuberculosis and Malaria, Stop TB, Roll Back Malaria, the 3x5 programme (which aims to ensure that three million HIV-positive people are receiving treatment with antiretrovirals by the end of 2005), the US President's Emergency Plan for AIDS Relief (PEPFAR), and the Global Alliance for Vaccines and Immunization (GAVI).

Recent evidence, however, suggests that many low-income countries are unlikely to achieve the MDG health targets by 2015[3,4] and that those countries furthest away from the targets are least likely to make significant progress. Even though the number of effective and affordable interventions is growing and international assistance in the form of billion-dollar funds for specific diseases is increasing, this is still inadequate. Around $30 billion annually would be needed

Table 1 The Millennium Development Goals

Goal 1: Eradicate extreme poverty and hunger

Goal 2: Achieve universal primary education

Goal 3: Promote gender equality and empower women

Goal 4: Reduce child mortality

Goal 5: Improve maternal health

Goal 6: Combat HIV/AIDS, malaria, and other diseases

Goal 7: Ensure environmental sustainability

Goal 8: Develop a global partnership for development

For a full list of MDGs, their targets and indicators, see http://unstats.un.org/unsd/mi/mi_goals.asp

from donors by 2007 to enable the poorest countries to deliver essential health services. This is equivalent to around 0.1% of donor country income and could therefore easily be achieved by increasing current Overseas Development Assistance from 0.25% of GNP to the target level of 0.7%.[5] Low-income countries also need to allocate more of their national budgetary revenues to the health sector. The WHO Commission on Macroeconomics and Health called for an increase of 1% of GNP in annual health spending in public sector budgets by 2007.[6]

Increased resources for health are essential but in addition there is a growing consensus that "a primary bottleneck to achieving the MDGs in low-income countries is health systems that are too fragile and fragmented to deliver the volume and quality of services to those in need".[7] Although further basic research is needed to develop better interventions, the full implementation of existing interventions would, for example, reduce child mortality by around two thirds[8] (Figure 1) and maternal mortality by around three quarters.[3]

Many of the barriers to scaling up effective interventions are common to a range of global programmes addressing priority health problems. Reviews of programmes focused on child health, maternal health, HIV/AIDS, malaria, and tuberculosis in a range of countries have identified a number of health system challenges to delivering effective and affordable interventions, including:[*]

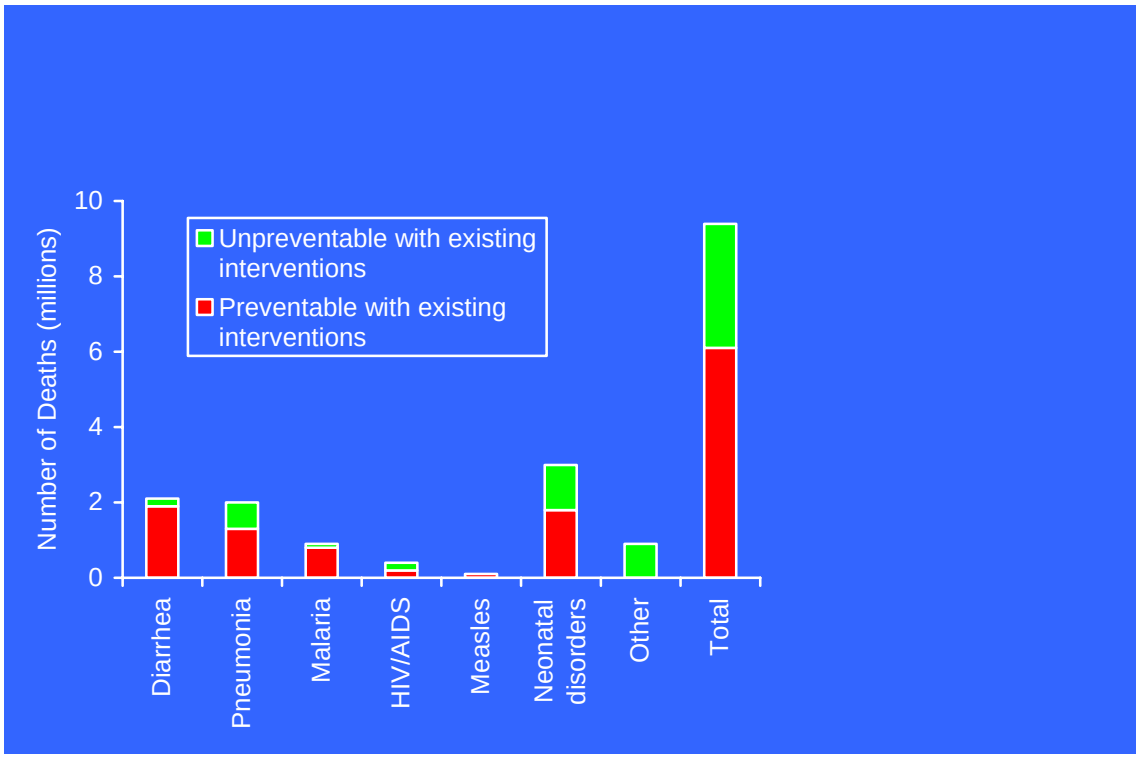
- lack of demand for the interventions at the individual and community level;
- policies that do not support the use of effective and affordable drugs;
- multiple uncoordinated actors (public and private sectors) who have different priorities and modes of working;
- underdeveloped service management capacity;
- competition between programmes;
- inefficiency and/or inequity in financing and resource allocation;
- weak health information systems; and
- limited availability and suboptimal performance of human resources.

At the same time, the many health policies and approaches to organizing and delivering services have not been adequately evaluated, and so the evidence base for strengthening health systems in low-income settings is weak.

This knowledge deficit about how best to strengthen health systems in resource-poor settings prompted Dr Tim Evans, Assistant Director General of WHO, to convene the Task Force on Health Systems Research. Its primary aim was to develop an agenda for health systems research, which if addressed, would support the attainment of the MDGs.

[*] for a more detailed discussion of challenges see reference 7

Figure 1 Comparison of child deaths that are preventable and not preventable with existing health interventions [8]



The process of developing a research agenda

The Task Force met on two occasions: in December 2003, during the Global Forum for Health Research Conference in Geneva, and again in November 2004 in Mexico City, during the Ministerial Summit on Health Research and the Global Forum for Health Research conference. The Task Force's membership and the names of those who contributed to its work are listed at the end of this report.

Previous approaches to priority setting in health research were reviewed for their applicability to health systems research. The Ad Hoc Committee on Health Research developed a five-step process for research priority setting[9] and there have been a number of subsequent approaches focusing particularly on specific diseases, for example, using epidemiological data on the burden of disease.[10] But because health systems underpin the effective prevention and care of a range of health problems, the development of a research agenda poses particular challenges. It has been suggested that in these circumstances, interpretive approaches based on the consensus views of informed participants may be attractive because of "their ability to juggle multiple assumptions and objectives".[11]

Of course, a number of stakeholders have legitimate perspectives on what is important, including policy makers, health personnel, and civil society. As a result, the Task Force was asked to consult widely with this diverse group of stakeholders to elicit their opinions about the new knowledge required to strengthen health systems and attain the MDGs.

The Task Force's thinking was influenced by analyses of health systems constraints to achieving the MDGs[7,12,13] and previous work aimed at identifying priority research topics on health systems.[14] With inputs from WHO staff and other experts, a tentative research agenda was developed comprising 12 topic areas that were intended to cover the important barriers to improving health systems performance (see Table 2).

Improved knowledge in each of these topic areas could contribute particularly to the attainment of the MDGs directly related to health but also to the attainment of the other MDGs (see Table 1). The relationships are complex because each goal can be affected by a range of factors interacting both directly and indirectly with health. For example, improvements in the health of women and girls could reduce gender disparities in education (MDG 3).[15]

The Task Force then undertook a consultative process involving several WHO regional meetings, an article in *The Lancet,*[15] a presentation at the Ministerial Summit in Health Research in Mexico,[16] and the extensive circulation of the preliminary research agenda using e-mail discussion lists. Reflecting the feedback that was received throughout the consultative process, brief templates were prepared for each proposed topic (see the appendix). They address the following questions:

- What is the problem and why is it important?
- What is known and what is not known?
- What research is needed and how would it help?

In the remainder of this report we focus on a few broader issues that should apply to all health systems research and that are essential to factor into any attempt to move the health systems research agenda forward—equity, systematic reviews, methodology, networking, funding, and evaluation.

The central importance of equity

The "inverse care law", initially put forward over 30 years ago, still applies today: "the availability of good medical care tends to vary inversely with the need to it in the population served".[17] The MDGs address inequities between nations but there are also major health inequities within nations that need to be addressed.

For example, in a recent review of 56 developing countries, death rates were nearly twice as high, on average, among infants and children in the bottom

Table 2 Suggested topics for health systems research

Financial and human resources:

- Community-based financing and national health insurance
- Human resources for health at the district level and below
- Human resources for health at the national level

Organization and delivery of health services:

- Community involvement
- Equitable, effective and efficient health care
- Approaches to the organisation of health services
- Drug and diagnostic policies

Governance, stewardship, and knowledge management:

- Governance and accountability
- Health information systems
- Priority setting and evidence-informed policy making
- Effective approaches for intersectoral engagement in health

Global influences:

- Effects of global initiatives and policies (including trade, donors, and international agencies) on health systems

economic quintile of the population compared with the wealthiest 20%.[18] The opposite trend was found in disparities with respect to access to health systems—the better-off generally fared far better than the disadvantaged. Gender is also a significant contributing factor to inequities in health within many nations both because health systems may not deliver services appropriately to cater for the needs of women and because women suffer more from the effects of poverty in many societies.

Any health systems research agenda, therefore, needs to address explicitly how to reduce the socioeconomic differentials in access to effective health care, which may be compounded by political and cultural factors. In recognition of the central role of primary health care in achieving the MDGs by reaching vulnerable and disadvantaged populations, many of the priority topics have a strong focus on the research that is required (at the global, national, and local level) to strengthen this central component of health systems in low- and middle-income countries.

For a further discussion on equity, gender, health, and research we refer readers to “Priorities for research to take forward the health equity policy agenda”, published in October 2004 by the WHO Task Force on Health System Research Priorities for Equity in Health (see www.who.int/rpc/meetings/en/). In addition, the People’s Health Movement has developed an agenda for global health research that aims to reduce health and heath-care inequities.[19] Both complement our report, which covers a wide range of health system topics. Moreover, the WHO has recently launched the Commission on Social Determinants of Health, which has a mission to act upon the social and environmental causes of health inequities and increase vulnerable people's chances for a healthy life**.** Our report, therefore, does not attempt to encompass research on the determinants of health in a comprehensive fashion and only includes research questions on how the health system can more effectively engage with other sectors to improve health.

More systematic reviews required

Although more primary research is clearly needed to fill in the knowledge gaps that are highlighted in the 12 templates, it is also essential to map out the relevant research that has already been undertaken. Systematic reviews of each of the topic areas are a necessary prerequisite to commissioning new research and will ensure there is no unnecessary duplication of pre-existing work. By synthesizing all relevant existing knowledge, a systematic review reduces bias and the role of chance, and thus provides a more precise estimate of the strength of the evidence.

More high-quality systematic reviews of topics relevant to health systems in the developing world are required. Only a few of the reviews that have been completed by the Cochrane Collaboration’s Effective Practice and Organisation of Care group[20] are from low- and middle-income countries; and although their numbers have been rising, in 2003 only 8.2% the Cochrane Collaboration’s reviewers were from developing countries.[21]

There are a number of challenges in undertaking reviews of health systems topics, including the publication of many reports in the grey literature; the frequent lack of clear descriptions of complex interventions; and the frequent changes to the governance, financial, and delivery arrangements within which interventions are delivered. Nevertheless, they can provide useful information for researchers and policy makers and should be supported by donors, international agencies, and national governments.

Making research valid and transferable

Rigorous health systems research requires contributions from many disciplines including epidemiology, biostatistics, health economics, sociology, anthropology, and policy analysis. Both qualitative and quantitative research methods have important roles to play. In some circumstances, interventions can be evaluated

using randomized trials—particularly cluster trials where the unit of randomization may be communities or health facilities—but such opportunities are often missed.

Many research questions, however, cannot be addressed by randomized trials—for example, because they may be system-wide in their scope. Other approaches, such as controlled before–after studies and interrupted time-series analyses, need to be considered, as well as process evaluations to better understand how and why interventions work or do not work as intended. Participatory action research has the potential to elucidate both constraints to success of interventions and improve the performance of health staff.[22]

Recommendations for the improved design and reporting of non-randomized and randomized studies (most recently including cluster randomized trials) have been published and should be followed.[23,24] Contextual factors are generally thought to be important effect modifiers but are often poorly described by researchers, making it difficult to determine why a particular intervention or policy has been effective or ineffective. Better description of relevant contextual factors and more attention to assessing the influence of contextual factors on the local applicability of research in general and systematic reviews in particular is needed.[25]

Fostering research networks

There are specific features of health systems research that argue for promoting collaborative networks to develop priorities, improve methodological approaches, undertake both primary research and systematic reviews, and strengthen research capacity. Firstly, as has already been highlighted, many aspects of health policies and systems are heavily influenced by the local context. As a result, multicentre and multicountry studies have an important role to play. They permit a specific intervention to be studied in contexts that can be both similar and different, allowing conclusions to be drawn on the dependence of the outcome on the context.

Secondly, some strategic issues are driven by global or supra-national influences, such as the impact of global trade negotiations on the movement of health personnel, the spread of private health insurance companies, and access to essential drugs. Thus health systems research needs to take into account global influences on health systems and to incorporate a global perspective about research on issues that may be subject to such influences.

Thirdly, health systems research capacity is as yet limited in almost all countries. It is an interdisciplinary endeavour that demands not only technical expertise, but also expertise in relating to and working with policy and other decision makers in developing research agendas, conducting and interpreting research, and supporting action based on the findings. While training plays an important role in developing research capacity, expertise also has to be built “on the job”, by doing research.

The need, on all three counts, for larger and more widely applicable research programmes that compare policies and interventions in a range of settings,

assess the impact of global factors, and build health systems research capacity is thus a strong argument for the development of multicountry collaborative health system research networks.

Bridging the gap between researchers and the users of research

In order to facilitate the uptake of research findings, it is important to bridge the gap between the producers and users of research (particularly policy makers).[25,26] Networks should also provide the opportunity for decision makers to interact with each other and with researchers in order to identify common problems, issue calls for priority research, and define critical needs from a policy development perspective. Such networks will allow for both producers and users to be better informed of the needs of the other group and promote joint approaches to key issues requiring research.

The European Observatory on Health Systems and Policies provides one model for a support function for public policy makers that could be adapted for low- and middle-income countries.[27] The secretariat for such an entity could take responsibility for identifying topics for systematic reviews, developing actionable messages for policy makers from such reviews, and promoting interactions between researchers, policy makers, and other stakeholders.

Allocating more funds to health systems research

Few resources are spent on research directed at health systems issues. Recent estimates suggest that only about 0.017% of health expenditure in low- and middle-income countries is devoted to such research.[28] At a time when substantial sums are being made available for the purchase of effective interventions and the development of more effective drugs, vaccines, and other products, it is essential to channel more resources to address the preparedness of health systems to delivering these interventions.

The ongoing evaluation of the Integrated Management of Childhood Illness (IMCI) programme[28,29] gives an indication of both the likely scale of resources required to evaluate a major international health programme and the potential benefits of doing so. The IMCI evaluation, which began in 2000 and will take seven years to complete, will cost approximately $10 million.[29] The research completed to date includes a major cluster trial of the IMCI strategy in Bangladesh, which showed substantial improvements in the quality of care for children in first-level facilities and a more than three-fold increase in the use of such health facilities for the care of sick children.[30] It also indicated aspects of care where further improvements were needed to capitalize on the full potential of IMCI, such as low rates of referral among children with severe illness sent to local hospitals. The evaluation will ultimately provide data on the impact of IMCI on mortality and on IMCI's cost effectiveness. A smaller study in Tanzania showed improvements in the quality of care and possible improvements in

mortality with similar or lower costs in two intervention districts compared with two districts that served as controls.[31]

The experience with IMCI suggests that a programme of research on a major international public health priority topic might cost $10-20 million depending on the questions addressed and the scope of the research. Such costs are very modest in relation to the overall costs of implementing major programmes and have the potential to represent an excellent return on investment. Without such research the lessons from failed and successful implementation will not be learnt and disseminated. Doubling the current annual health systems research expenditure of $134 million[28] seems a reasonable aspiration in the near term: it is equivalent to a small proportion of the funds committed by the Global Fund to Fight AIDS, Tuberculosis and Malaria (around $3 billion) or the U.S. President's Emergency Plan for AIDS Relief ($15 billion requested).

We note that the Mexico Statement from the Ministerial Summit on Health Research, which took place in Mexico City in November 2004, urges developing countries to implement the recommendations of the Commission on Health Research for Development, which has stated that at least 2% of national health expenditures and at least 5% of external donor funds for health should be invested in research and capacity building. The Statement also calls for governments to allocate adequate funds to support health systems research in order to address priority questions.[16] If the Mexico Summit recommendations were followed for low-income countries, a total of $407 million would be available for health research—$278 million from internal funds and $129 million from external funds (using 2002 data). For low-middle income countries, the total would be $2,082 million—$2,022 million from internal funds and $60 million from external funds.[31] Therefore, if acted on, the recommendations should be sufficient to fund necessary health systems research while still providing sufficient funding to support other categories of health research.

Moreover, ensuring that relevant research is accepted as a legitimate call on additional funds of perhaps $50 billion annually—which will become available in the event of the launch of the proposed International Finance Facility[33]—would provide a new source of funding for the governments of low-income countries to commission such research.

Committing to evaluation

Making the case for urgent investment in research to evaluate the major programmes now being rolled out to deliver interventions for priority diseases seems the most promising strategy for scaling up health systems research in the near term; such research not only meets the operational needs of programmes but also capitalizes on the opportunities to compare different approaches to the delivery of effective interventions.[34]

It will be important, however, to ensure that the opportunity to investigate cross-cutting health systems issues relevant to a number of programmes is not lost,

otherwise there is a danger that the overall benefits to public health of such programmes will be less than anticipated. This could result, for example, from competition between programmes for limited health personnel or inefficiencies resulting from the introduction of parallel drug delivery and training programmes.

The recent tsunami that caused such a tragic loss of life in India, Indonesia, Sri Lanka, and Thailand has illustrated the importance of strengthening our knowledge of how to reconstruct health systems after major disasters. Key questions include how best to manage the transition between disaster relief and reconstruction and how to improve the resilience of health systems by better disaster preparedness.

Post conflict countries and regions also pose particular challenges and little is known about how best to reconstruct health systems and reconstitute health workforces in such situations. Post conflict environments may result in a high level of physical trauma, for example as a result of landmine and cluster bomb injuries. There may be an increased risk of HIV transmission because of the presence of large numbers of military personnel and the breakdown of law and order, as well as an increased prevalence of common mental disorders as a result of exposure to violence. Better evidence is needed about how to integrate strategies to address such priorities with those to tackle pre-existing health problems in situations where trained health personnel may be lacking and health systems are particularly fragmented.

At the moment, there is no mechanism to ensure that the opportunities for research are capitalized on with a view to improving implementation of priority interventions and programmes. Research funds are not made available routinely alongside global health programmes. And although the Global Fund will support research in country to improve the likelihood of implementation, there is no way to facilitate the development of appropriate research proposals where research capacity is lacking or policy makers are indifferent to the opportunities for generating health systems research knowledge and linking that knowledge to action.

Judging by the lack of research that has so far resulted from the Global Fund's investments and the failure of recipient governments to spend monitoring and evaluation funding linked to World Bank loans, there is little likelihood that such research will arise spontaneously. There is therefore a need to make funds available for experienced researchers to work in very close cooperation with those developing, managing, and delivering services to ensure that relevant research questions are addressed in a methodologically appropriate fashion.

The sources, management, and mechanisms for the disbursement of such funds are matters that will require considerable discussion among stakeholders. Nevertheless, WHO can play a key role by ensuring that such research takes place and that the findings influence policy and practice. It can, for example, make a commitment that all its own priority programmes will be accompanied by a rigorous programme of evaluative research (as was undertaken by the IMCI programme). In addition, WHO can work with other international agencies,

bilateral donors, and major NGOs that fund and implement health programmes to develop a code of practice to ensure that evaluation is built in at the beginning of such initiatives and that there is a commitment to be guided by the evidence that emerges as a consequence.

Conclusions

Health systems research is essential to reduce our collective uncertainty about how to achieve the MDGs and to provide a basis for well-informed decisions and actions through which the findings of such research can be implemented. There are opportunities to initiate substantial research programmes by collective action among research funding bodies and by ensuring that major programmes focused on specific diseases or target groups incorporate the evaluation of impacts.

There are some early indications that the work of the Task Force and others has succeeded in drawing attention to the importance of health systems research and that the global health research community will respond to our urgent call for action. For example, we are glad to note WHO is assessing the feasibility of establishing a major new programme on health systems research. Building on existing initiatives such as the Alliance for Health Policy and Systems Research, its proposed mission will be to promote the generation and use of knowledge in strengthening health systems in low- and middle-income countries in order to accelerate the achievement of the health-related MDGs, improve equity in health, and reduce poverty.

However, as this report has clearly stated, the primary need is for sufficient resources to be made available to undertake major research programmes directed at health system barriers to attaining the MDGs. The Task Force believes that the best way the proposed WHO programme could catalyse health systems research and generate support is through commissioning adequately funded projects and programmes that illustrate to policy makers the benefits of such research. It should also focus on supporting member countries to take coordinated action to strengthen health systems research within countries and, especially, across countries. Such a programme could also play a role in regularly reviewing the research agenda outlined by the Task Force in the light of changing health priorities and challenges.

Finally, the WHO Advisory Committee on Health Research has an important role to play in monitoring progress towards the achievement of the broader recommendations that have been made by the Task Force in this report.

Only a decade exists before the target date for the MDGs in 2015. It is now a matter of urgency to ensure that health systems become the focus of national and international efforts to improve capacity to deliver effective interventions in an equitable fashion to those who can benefit.

References

1. A/RES/55/2: United Nations Millennium Declaration: resolution adopted by the General Assembly. 55/2. Sept 18, 2000.
2. Xu K, Evans DB, Kawabata K, Zeramdini R, Klavus J, Murray CJ. Household catastrophic health expenditure: a multicountry analysis. *Lancet* 2003; 362: 111–17.
3. World Bank. The Millennium Development Goals for health: rising to the challenges. Washington: World Bank, 2004.
4. Haines A, Cassels A. Can the millennium development goals be attained? *BMJ* 2004; 329: 394–97.
5. Sachs J. Health in the developing world: achieving the Millennium Development Goals. *Bulletin of the World Health Organization* 2004; 82: 947–52.
6. WHO. Macroeconomics and Health: investing in health for economic development. Report of the Commission on Macroeconomics and Health. Geneva: World Health Organization, 2001.
7. Travis P, Bennett S, Haines A, et al. Overcoming health-systems constraints to achieve the Millennium Development Goals. *Lancet* 2004; 364: 900–06.
8. Jones G, Stekettee RW, Black RE, Bhutta ZA, Morris SS, and the Bellagio Child Survival Study Group. How many child deaths can we prevent this year? *Lancet* 2003; 362: 65-71.
9. WHO. Investing in Health and Development. Report of the ad hoc committee on health research relating to future intervention options. Geneva: World Health Organization, 1996.
10. Global Forum for Health Research. The 10/90 report on health research 2003–4. Geneva: Global Forum for Health Research, 2004.
11. Lomas J, Fulop N, Gagnon D, Allen P. On being a good listener: setting priorities for applied health services research. *Milbank Quarterly* 2003; 81: 363–88.
12. Hanson K, Ranson K, Oliveira-Cruz V, Mills A. Expanding access to health interventions: a framework for understanding the constraints to scaling-up. *Journal of International Development* 2003; 15: 1–14.
13. Oliveira-Cruz V, Hanson K, Mills A. Approaches to overcoming health systems constraints at the peripheral level: a review of the evidence. *Journal of International Development* 2003; 15: 41–66.
14. Janovsky K, ed. Health policy and systems development. An agenda for research WHO/SNS/NHP 96.1. Geneva: World Health Organization, 1996.
15. Task Force on Health Systems Research. Informed choices for attaining the Millennium Development Goals: towards an international cooperative agenda for health systems research. *Lancet* 2004; 364: 997–1003.

16. The Lancet. Mexico, 2004: research for global health and security. *Lancet* 2003; 362: 2033.

17. Hart JT. The inverse care law. *Lancet* 1971; 1: 405–12.

18. Gwatkin D, Rutstein S, Johnson K, Suliman E, Wagstaff A. Socio-economic differences in health, nutrition, and population. Second edn. http://www.worldbank.org/poverty/health/data/round2.htm.

19. McCoy D, Sanders D, Baum F, Narayan T, Legge D. Pushing the international health research agenda towards equity and effectiveness. *Lancet* 2004; 364: 1630–31.

20. Cochrane Effective Practice and Organisation of Care group http://www.epoc.uottawa.ca

21. Allen C, Clarke M. International activity within Cochrane Review Groups. Proceedings of the 11th Cochrane Colloquium; 2003 October 26-31; Barcelona, Spain: 44.

22. Puoane T, Sanders D, Ashworth A, Chopra M, Strasser S. Improving the hospital management of malnourished children by participatory research. *International Journal for Quality of Health Care* 2004; 16: 31–40.

23. Des Jarlais DC, Lyles C, Crepaz N, and the TREND group. Improving the reporting quality of non-randomized evaluation of behavioural and public-health interventions: the TREND statement. *American Journal of Public Health* 2004; 94: 361–66.

24. Campbell MK, Elbourne D, Altman DG. CONSORT statement: extension to cluster randomised trials. *BMJ* 2004; 328: 702–08.

25. Lavis J, Becerra-Posada F, Haines A, Osei E. Using research to inform public policy making. *Lancet* 2004; 364: 1615–21.

26. WHO. World report on knowledge for better health—strengthening health systems. Geneva: World Health Organization, 2004; chapter 4.

27. European Observatory on Health Systems and Policies. http://www.euro.who.int./observatory

28. Alliance for Health Policy and Systems Research. Strengthening health systems in developing countries: the promise of research on policy and systems. Geneva, 2004.

29. Scherpbier R, WHO, personal communication.

30. El Arifeen S, Blum L, Emdadul Hoque DM, et al. Integrated Management of Childhood Illness (IMCI) in Bangladesh: early findings from a cluster-randomised study. *Lancet* 2004; 364: 1595–602.

31. Armstrong Schellenberg JRM, Adam T, Mshinda H, et al. Effectiveness and cost of facility-based Integrated Management of Childhood Illness (IMCI) in Tanzania. *Lancet* 2004; 364: 1583–94.

32. Evans D. WHO, personal communication.

33. www.hm-treasury.gov.uk/documents/international_issues/int_gnd_intfinance.cfm

34. Feacham RGA. The research imperative: fighting AIDS, TB, and malaria. *Tropical Medicine and International Health* 2004; 9: 1139–141.

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The views expressed in this report are those of the Task Force and are not the official policy of WHO.

Report of the Task Force on Health Systems Research
Appendix

Templates for 12 topic areas

Community financing, social health insurance, and universal coverage

What is the problem and why is it important?

Most low- and middle-income countries provide very imperfect financial risk protection for their citizens. As a result, households that lack protection have much lower access to care and can be driven into poverty by catastrophic health expenses. By contrast, most high-income countries offer universal protection against the cost of health care through a variety of schemes that also provide means to influence the cost and quality of health care.[1] Some middle-income countries, such as Thailand, have recently implemented arrangements that provide risk protection to the entire populace.[2] And in neighbouring Malaysia, all citizens have long had access to health-care services in a public system that is funded from general tax revenues. But there are still many countries where a substantial share of the population has little or no protection.

A shortage of resources for health services, including severe limits on government funding, and the known disadvantages of user fees, have encouraged many countries to look for additional sources of funding for their health systems. Some have opted for community financing, especially voluntary, community-based health insurance, and others for social (compulsory) health insurance.[3] Community-based health insurance, for example, was recommended as a means of additional domestic resource mobilization by the Commission on Macroeconomics and Health's Working Group 2.[4] Insurance is not only a potential source of additional money for health services, it is also a vital means of spreading risk across individuals. Spreading risk protects households with ill family members from catastrophic health expenditures. Universal coverage refers to a situation where risk-pooling arrangements (funded by tax and/or insurance) cover the whole population, and can be achieved either through one comprehensive scheme or through a combination of schemes serving different population groups.

What is known and what is not known?

Several reviews of community-based health insurance schemes illustrate how they influence financial protection, the utilization of care, health-service quality, total funding, and equity, as well as empowerment and institutional development.[4,5,6,7] Although there are some examples of well-functioning schemes, there are many examples of schemes that appear to have made little difference in terms of financial protection or access to good quality health care.

This is due to a number of reasons:

- In many resource-poor settings, prepayments can make only a limited contribution to the direct cost of health care, which means that without external support, many schemes struggle to survive or are ineffective.

- Schemes are generally small so their contribution towards overall health systems goals is very limited. For example, 70% of the schemes covered in a review by the International Labour Organisation had 2,000 members or less.[5]
- Fairly consistently, the schemes have been found to exclude the poorest among the poor—at least in part because they generally charge a flat-rate premium that is unaffordable for the poorest.[7]
- Direct costs of care are only part of the total cost of health care and only one of the barriers to the use of services.

Still, it is difficult to draw firm general conclusions from the studies because they lack common definitions of community-based health insurance and evaluate different objectives. Another serious problem is that the studies generally lack methodological rigour. For example, of the 127 studies of community-based schemes included in the ILO review mentioned above, only one had a high level of internal validity.[5]

As for social health insurance, the experience in low- and middle-income countries is currently not all positive.[8] Such schemes often cover only a minority of the population (those in formal sector employment), and in some cases attract a government subsidy higher than the funding available for health care for poor populations. This raises major equity concerns. Although schemes have been introduced with the aim of raising coverage over time, this has generally not happened in countries with slow rates of economic growth. In Africa, a few countries are attempting to establish a nationwide social health insurance scheme, taking account of the errors of the past. Obviously, evidence about the degree of success or failure of such initiatives would need to be built up. Some of the newer schemes in Southeast Asia have experienced substantial problems in terms of cost escalation, primarily because the methods used to pay practitioners provide incentives to increase service volume without regard to the cost-effectiveness of the interventions used.[1] Not enough is known about how best to design social insurance arrangements to achieve equity and efficiency goals.

Knowledge of universal coverage arrangements comes mainly from high-income countries. One of the few sources of information from countries where funding is more constrained is a book from a conference.[9] But it is of limited value because it does not provide in-depth analyses of different experiences and covers very few countries outside of Asia. In addition, some of the Asian schemes reported in the book have evolved since the material was first published and so some of the chapters are out of date.

What research is needed and how will it help?

Research is needed to examine the potential roles of existing community-based health insurance and social health insurance in overall health-care financing arrangements and the types of external support that may be needed for their successful functioning. In order to evaluate their potential contribution to improved health services and health status, research also needs to examine

issues such as their role in local institutional development, reduction of out-of-pocket spending, empowerment of communities, and impact on health-care quality. What's more, their impact on traditional mechanisms of gifting/borrowing should be evaluated as there is a risk that schemes might compete with and/or replace traditional networks, only to go bankrupt. Finally, research is needed to look at how to address the many barriers faced by the poorest households when they need medical care (such as lack of knowledge of what services are available and how to access them, distance, opportunity costs/indirect costs, and direct financial barriers).

This will require in-depth case studies of existing community-based health insurance and social health insurance schemes and their role in national or regional financing systems. There is also a role for intervention research to test approaches for improving the coverage and impact of those schemes that are functioning reasonably well.

Research is also needed to:

- assess the financial implications of universal coverage in different settings—in particular this would focus on the extent to which people can contribute to the costs of universal coverage from their own income and the extent to which costs will need to be covered from general tax revenues;
- identify the appropriate benefit package, its costs, and the feasibility of implementation; and
- identify the most efficient and equitable design features of a universal scheme, such as revenue raising mechanisms, risk-pooling arrangements, provider payment and resource allocation mechanisms, selection of providers, governance, management, and regulation.

This will require both large-scale, comparative, quantitative analyses and in-depth national case studies.

As the authors of a recent review of health financing strategies in low-income settings conclude: "Larger scale, up-front funding for evaluation of health financing initiatives is necessary to ensure an evidence base that corresponds to the importance of this issue for reaching development goals." [10]

References

1. Ruger J, Jamison D, and Bloom DE. Health and the economy. In: Merson MH, Black RE and Mills AJ. International Public Health. Diseases, Programs, Systems and Policies. Maryland: Aspen, 2001.
2. Towse A, Mills A, Tangcharoensathien V. Learning from Thailand's health reforms. *BMJ* 2004; 328: 103–5.
3. Carrin G. Social health insurance in developing countries: a continuing challenge. *International Social Security Review* 2002; 55: 57–69.

4. Preker AS, Carrin G, Dror D, Jakab M, Hsiao W, Arhin-Tenkorang D. Effectiveness of community health financing in meeting the cost of illness. *Bulletin of the World Health Organization* 2002; 80: 143–50.
5. ILO-Universitas Programme. Extending social protection through community based health organizations: evidence and challenges. Geneva: International Labour Organization, 2002.
6. Carrin G. Community based health insurance schemes in developing countries: facts, problems and perspectives. Geneva: World Health Organization, 2003. (Health Financing Policy Issues Paper, WHO/EIP)
7. Bennett S, Creese A. Health insurance schemes for people outside formal sector employment. Geneva: World Health Organization, 1998. (WHO ARA Paper No 16)
8. Savedoff W. Is there a case for social insurance? *Health Policy and Planning* 2004; 19: 183–84.
9. Nitayarumphong S, Mills A. Achieving universal coverage of health care. Bangkok: Ministry of Public Health, 1998.
10. Palmer N, Mueller DH, Gilson L, Mills A, Haines A. Health financing to promote access in low income settings—how much do we know? *Lancet* 2004; 364: 1365–70.

Human resources for health at the district level and below

What is the problem and why is it important?

Human resources for health are central to delivering and managing health services. At the district and subdistrict level, health workers are responsible for health-service delivery and health systems development in hospitals, clinics, and communities. Yet human resources are in crisis in many developing countries, particularly across Africa. As the recently published report of the Joint Learning Initiative on human resources for health points out, three major forces are responsible for the devastating situation: HIV/AIDS; accelerating migration of doctors and nurses from countries already suffering chronic labour shortages; and the "legacy of chronic under-investment in human resources".[1] The impact of internal and external migration is often particularly felt at the district level. This is especially true in rural areas where the lack of educational and social opportunities for families may act as an added deterrent to the recruitment and retention of health professionals. Absenteeism and low productivity are common problems in many countries. A recent study from India showed that health workers particularly valued training opportunities, good relations with colleagues, a desirable location, and good physical working conditions even above better pay.[2]

The Joint Learning Initiative estimates that there is a shortage of four million health workers around the globe. It also notes that sub-Saharan African countries will have to add "one million health workers through retention, recruitment, and training if they are to come close to approaching the MDGs for health".[1]

In the last 20 years there have been substantial moves towards transforming and decentralizing health systems development worldwide. But in most countries, particularly in the developing world, human resource development, organization, and structure have remained largely unchanged. Furthermore, the evidence base for human resource policies is weak because of a lack of robust research.

What is known and what is not known?

Health systems cannot function without adequate and appropriate human resources, yet human resource development does not receive enough attention or support within the spectrum of health research and planning. In particular, the overall availability and balance of different types of health personnel at the district and subdistrict level are often inadequate and inappropriate.

Various options to address shortfalls in both the number and skill level of health personnel are being explored, more specifically against the background of the HIV/AIDS crisis. This is the context for the revival of the debate around the role of community health workers and the appropriate skills required to provide adequate health services at the district level and below. It is known, for example, that mid-level and community-based workers have played an important role in health-care delivery in countries and in situations when other cadres were not

available (for instance, Mozambique and Tanzania). This is of particular importance to rural areas in developing countries, which have been the hardest hit by the migration of health workers.

In many cases the evidence of what is known is not systematic enough or is fragmented.[3] Crucially, in the last twenty years, there has been no documentation of experiences and best practices in human resource planning, production, and management at the district and subdistrict level. Nor is it known what the reasons are for the frequently wide gap between human resource policies and practices.

A review of the impact of community health workers in Africa illustrated the limitations of the evidence, arguing that not enough is known about the impact or effectiveness of different models of community health worker programmes.[4] A recent systematic review of the effectiveness of lay health worker interventions in primary care and community health[5] found only eight of 44 randomized controlled trials meeting the inclusion criteria were based in low- and middle-income countries. In 30 studies the intervention was delivered to consumers/patients in their homes, while a further ten involved a combination of home, primary care, and community interventions. A small portion of the studies used multi-faceted interventions that could not be assigned to any one category. There was some evidence that such interventions could promote immunization uptake in children and adults and possibly lead to the improved diagnosis and treatment of some infectious diseases such as malaria. The review concluded that for other health issues there is insufficient evidence for the effectiveness of interventions provided by lay health workers to make clear recommendations.

Other categories of community-based health workers may be able to deliver interventions and have an impact on health outcomes. In contrast to commonly held views, a recent systematic review of research on traditional birth attendants identified possible benefits on maternal mortality and perhaps morbidity although there were methodological limitations in the research.[6] In a landmark study from rural India, Bang et al demonstrated that community health workers could administer a package of interventions in domiciliary settings that reduced neonatal mortality by over 50%.[7]

While the impacts of migration, particularly of nurses and doctors, have to some extent been documented, little is known about how to effectively improve recruitment and retention of the health workforce at the district level.

What research is needed and how will it help?

Research is required on a number of issues relating to the capacity of human resources to deliver services at the district and subdistrict level:

- how to achieve the right balance and strength of clinical and public-health competencies at district and subdistrict levels;
- optimal personnel/skills mix to perform clinical and management functions;

- roles, training, and support of mid-level, community-based, and traditional health workers;
- strategies to recruit, retain, and motivate health workers at the district level, including the use of financial and non-financial incentives;
- role of leadership, support, and capacity development in improving and maintaining district health systems and service delivery;
- requirements of those delivering care at the district level (drug supply, essential diagnostic testing and information systems, for example); and
- role(s) of community health workers in overcoming demand-side barriers (including those related to gender) that prevent access to and use of health services, in achieving the MDGs, and in improving health outcomes in general. More specifically, there is a need to evaluate approaches such as regular visiting of households, targeting high-risk groups, prescribing medications, promoting adherence to treatment, and running community health education programmes.

Clearly, a better understanding of training and capacity development, leadership, and management issues at the district and subdistrict level can lay the basis for substantial improvements in the quality of care. It should be understood, however, that human resource issues by their very nature are cross-cutting. For example, they affect and are affected by the planning and management of programmes focused on a particular health issue or a specific disease. Moreover, what is happening at the national and provincial/state level in terms of human resource policy and implementation (see template on human resources at the national level) has a direct and profound effect on human resources and service delivery at the district and subdistrict level.

Thus far, methodologies used in research into human resources for health have lacked creativity and sharpness. Attention to methodological innovation, with a particular focus on participatory approaches that can also enhance service delivery, is an urgent requirement if research is to improve in this area.

In addition, large-scale intervention studies are required, including, where feasible, pragmatic randomized trials using accepted approaches to the development and evaluation of complex interventions. Finally, there is a need to document and synthesize the lessons of managing human resources in decentralized health systems that have accrued over the past few decades.

References

1. Chen L, Evans T, Anand S, et al. Human resources for health: overcoming the crisis. *Lancet* 2004; 364: 184–90.

2. Peters DH, Yasbeck AS, Sharma R, Ramana G, Pritchett LH, Wagstaff A. Better health systems for India's poor: findings, analysis and options. Washington DC: World Bank, 2002.
3. Martinez J, Martineau T. Rethinking human resources: an agenda for the millennium. *Health Policy and Planning* 1998; 13: 345–58.
4. Lehmann U, Friedman I, Sanders D. A joint learning initiative: human resources for health and development. Review of the utilization and effectiveness of community-based health workers in Africa. JLI Working Paper 4–1, 2004. http://www.globalhealthtrust.org/publication.htm.
5. Lewin SA, Dick J, Pond P, Zwarenstein M, Aja G, van Wyk B, Bosch-Capblanch X, Patrick M. Lay health workers in primary and community health care. The Cochrane Database of Systematic Reviews 2005, Issue 1. (Art No: CD004015. DOI: 10.1002/14651858. CD004015. pub2)
6. Ray AM, Salihu HM. The impact of maternal mortality interventions using traditional birth attendants and village midwives. *Journal of Obstetrics and Gynaecology* 2004; 24: 5–11.
7. Bang AT, Bang RA, Baitule SB, Reddy MH, Deshmukh MD. Effect of home-based neonatal care and management of sepsis on neonatal mortality: field trial in rural India. *Lancet* 1999; 354: 1955–61.

Human resources for health at the national level

What is the problem and why is it important?

The performance of the health workforce is considered by many to be the principal constraint to achieving the MDGs and other priority health goals such as "3 by 5" (ie, three million HIV-positive people receiving treatment with antiretrovirals by the end of 2005). Another template has outlined the general problems in human resources for health and identified the priority research questions concerning human resources at the district and community level. This template considers research priorities and human resources for health needs at higher management levels. National level policy and planning decisions are required to address the extreme shortages in health personnel facing much of the developing world. They are also required to respond to the severe "brain drain" due to the migration of qualified health personnel across borders from developed to developing countries, as well as within countries from rural to urban areas and from the public to the private sector.

The problems are similar to those identified in the previous template but, in addition, ministries of health and provincial health departments frequently lack the skilled personnel to enable them to use research evidence to set and implement policy priorities or to deal with the demands of multiple, uncoordinated donor-driven initiatives. Within the health sector, human resource management has for many years been viewed as an administrative function rather than a strategic function whose planning and management should be informed by research.[1]

What is known and what is not known?

Overall, there is a dearth of reliable evidence to inform health workforce policy, planning, and management. While research confirms a strong association between higher densities of health workers and better health outcomes (independently of socioeconomic determinants),[2] there is currently little understanding of why some countries achieve better outcomes with similar densities of health workers. Differences in skill level, occupational mix, urban–rural and public–private distribution, substitutability, and synergy between different categories of health workers need to be taken into account. Also not well understood are the influences of complex issues—such as global and national macroeconomic trends and health system reform—on the demand for human resources for health.

What little research that has been undertaken in this area has been revealing. One example is a study in Latin America that found the two most important reform policies—decentralization and privatization—have had a negative impact on the conditions of employment and prompted strong opposition from organized professionals and unions. In several countries included in the study, the workforce became the most important obstacle to successful reform leading the

researchers to suggest that it is important to ensure a match between the types of personnel needed for reform and the availability of professionals.[3]

Another example is a study looking at the migration to the US of physicians trained in sub-Saharan Africa. It found that almost one quarter of physicians licensed to practise in the US had received their medical training elsewhere, the majority (64%) in low-income or lower middle-income countries. In that group were 5334 physicians from sub-Saharan Africa—nearly 86% originated from only three countries (Nigeria, South Africa and Ghana) and 79% were trained at only 10 medical schools. The researchers concluded that policy interventions in only a few locations could be effective in stemming the brain drain.[4]

A group of researchers exploring the migration of health professionals concluded that "better information is needed to monitor migration flows; source countries need to improve staff attraction and retention strategies; and recipient countries need to ensure that they do not become a permanent drain on health professionals from the developing countries."[5]

What research is needed and how will it help?

A prerequisite to the development of effective solutions is a deeper and clearer understanding of the issues of supply, demand, and mobility of the health workforce. The Joint Learning Initiative has identified four strategies to respond to the global human resources for health crisis: "raise the profile of the issue of human resources; improve the conceptual base and evidence available to decision makers; collect, share, and learn from country experiences; and begin to formulate and enact policies at the country level that affect all aspects of the crisis."[6]

In the view of the Task Force, particular attention should be devoted to research that can build an evidence base and inform national human resources for health policy and planning in four areas.

1. Addressing shortages and imbalances (functional and geographic) by:
    - developing methods to project future health workforce needs and the desired skill mix in terms of doctors, nurses, medical assistants, and midwives;
    - determining what capacity is needed at higher management levels—central and provincial/state;
    - coordinating supply and demand to address these needs;
    - developing recruitment, training, and retention strategies—including strategies specifically addressing gender-based barriers and constraints that prevent women from entering and staying in the health workforce;[7]

- identifying effective ways to improve motivation and performance (working environment, compensation, non-financial incentives, removal of disincentives, supervision, and support); and
- engaging the private sector effectively (impact of regulation and of dual public and private practices on the health system).

2. Generating a future workforce through education and training with an emphasis on building primary health-care skills (see also template on human resources at district level) through:
    - creating new cadres of health workers who are not likely to migrate, including an adequate number of female workers to improve women's access to primary health-care services;
    - adapting existing training programmes for rapid scale up—teaching people what they really need to know to make a difference;
    - developing leadership and managerial capacity, including support and education aimed at the higher management level—determine what is required to attract and retain highly-skilled managers; and
    - designing and implementing high quality and effective continuing professional development programmes and systems of accreditation.
3. Matching demand and supply to health needs, which will require evaluation of the impact of:
    - macroeconomic and public sector reform policies on human resources for health (structural adjustment, fiscal stabilization, civil service reform, decentralization, health sector financing reform) and how best to address any negative consequences of these policies; and
    - donor-driven policies, practices, and initiatives such as Comprehensive Development Framework (CDF), Poverty Reduction Strategy Papers (PRSP), Medium Term Expenditure Framework (MTEF), Sector-Wide Approach (SWAp), etc.
4. Evaluating the impact of globalization, especially the General Agreement on Trade in Services (see also template on global influences), on health labour markets and developing effective strategies for reducing adverse consequences. The focus should be on:
    - the recruitment of foreign health workers;
    - the migration of highly-skilled workers from poorer to richer regions; and
    - the migration of highly-skilled workers from the public sector to the private sector.

References

1. Hongoro C, McPake B. How to bridge the gap in human resources for health. *Lancet* 2004; 364: 1451–56.
2. Anand S, Barnighausen T. Human resources and health outcomes: cross-country econometric study. *Lancet* 2004; 364: 1603–09.
3. Homedes N, Ugalde A. Human resources: the Cinderella of health sector reform in Latin America. *Human Resources for Health* 2005; 3: 1.
4. Hagopian A, Thompson MJ, Fordyce M, Johnson KE, Hart LG. The migration of physicians from sub-Saharan Africa to the United States of America: measures of the African brain drain. *Human Resources for Health* 2004; 2: 17.
5. Martineau T, Decker K, Bundred P. "Brain drain" of health professionals: from rhetoric to responsible action. *Health Policy* 2004; 70: 1–10.
6. Narasimhan V, Brown H, Pablos-Mendez A, Adams O, Dussault G, Elzinga G, Nordstrom A, Habte D, Jacobs M, Solimano G, Sewankambo N, Wibulpolprasert S, Evans T, Chen L. Responding to the global human resources crisis. *Lancet* 2004; 363: 1469–72.
7. Mumtaz Z, Salway S, Waseem M, Umer N. Gender-based barriers to primary health care provision in Pakistan: the experience of female providers. *Health Policy and Planning* 2003; 18: 261–69.

Community involvement

What is the problem and why is it important?

The importance of community participation in the organization and delivery of health services has been emphasized for a long time now as a goal in itself, as well as a means of encouraging participatory democracy, public accountability, and transparency. The WHO's declaration of Alma Ata (1978) states that "the people have the right and duty to participate individually and collectively in the planning and implementation of their health care".[1]

The People's Charter for Health (2000),[2] a significant, consensus document of civil society on health-care challenges also emphasized this by noting: "the participation of people and people's organizations is essential to the formulation, implementation, and evaluation of all health and social policies and programmes".

It is widely believed that community participation at all levels of health services has a number of desirable effects and that community involvement can achieve the following:

- In planning health-care services, particularly primary health care, it can lead to more accessible, equitable, and acceptable health services and improve health and quality of life.
- In developing clinical practice guidelines or health programme guidelines, it can help to ensure that these are relevant to the social, economic, cultural, and political context of the lives of the people being reached and appropriately reflect their values, needs, and aspirations.
- In health research, it can promote improved quality and relevance, as well as a deeper understanding of the interface between health systems and the community.
- In preparing and implementing health promotion and health education programmes, it can enhance quality and relevance, and consequently improve health outcomes.

Nevertheless, there is a tendency in the literature to equate "community" with "consumers" and "patients", which is possibly the result of an overemphasis on a biomedical paradigm and a techno-managerial focus of health services. This may lead to "community participation" becoming equated with the concept of "social marketing". Community participation, however, should be seen as broader in scope than individual involvement in health-care decisions or promotion of specific interventions. It encompasses activities that aim to improve population health by addressing the socioeconomic determinants of health, promoting "healthy" lifestyles and a healthy environment, and tackling disease specific problems.

Even though the participation of people in community actions to influence local conditions and services has the potential to greatly enhance a health system's capacity to reach the MDGs, it is currently under-researched. A recent example of a cluster randomized trial of a participatory intervention with women's groups in Nepal demonstrates that rigorous research is possible in low-income settings and that such interventions can have substantial impacts on health outcomes. The study found significant reductions in both neonatal and maternal mortality in the intervention group compared with the control group.[3]

What is known and what is not known?

These beliefs or assumptions concerning community participation are based on a large number of primary health-care projects and initiatives at local (micro-level civil society initiatives), national, and international levels over the last few decades. Few studies, however, have rigorously evaluated the effects of alternative ways of achieving community participation in collective decision making about health care and the delivery of health services. A Cochrane review of interventions to improve consumer involvement in collective decision making about health care has not found any evaluations from low-income countries.

The paucity of studies is partly because of conceptual and operational problems related to such research and the difficulties of subjecting community processes to evidence-gathering initiatives that need strong grounding in qualitative and quantitative methodologies.[4] There are at least three broad sets of questions that are not adequately understood vis-à-vis community participation.

The first set encompasses a better understanding of what constitutes community participation and how it is to be achieved; what are its relative effects on accountability, decision making, health-care outcomes and resource utilization; and what are the costs.

The second set of questions covers how equity differentials within a community—be they by class, caste, gender, ethnicity, geography, or levels of social exclusion—affect community participation, as well as how disadvantaged groups and individuals can be empowered to take part in community processes.

The third set of questions addresses whether community participation processes can effectively overcome socioeconomic determinants of ill-health and demand side barriers to improving health, including issues such as stigma, gender, public trust in health services, governance, and corruption.

What research is needed and how would it help?

The most important priority is systematic reviews of studies that examine the effectiveness of different ways to promote community involvement. Also required are descriptive or qualitative studies that document different approaches to achieving community involvement in countries with different levels of economic development, health system capacities, and political systems. This would help

our understanding of the complexities and challenges of enhancing community involvement.

Another area of research would be to document and assess barriers to community involvement, particularly the social factors that affect people's access to health care and to community processes. There is a need to develop and evaluate creative approaches and initiatives that have tried to circumvent the barriers.

Studies looking at the impact of community involvement on demand for and access to effective interventions to address the MDGs will also have to be undertaken.

All these studies must avoid reducing communities to passive beneficiaries or consumers of health services; true community involvement implies active participation in decision making that starts at the planning stage and continues on to organizing, managing, monitoring, and evaluation.

The use of participatory research methodologies should be encouraged to help poor communities shape health systems to meet their own needs. [5,6]

References

1. WHO. Primary health care: report of the International Conference on Primary Health Care, Alma-Ata, USSR, September 6-12, 1978. Geneva: World Health Organization, 1978.
2. People's Charter for Health. Savar: People's Health Assembly, 2000. (www.phmovement.org)
3. Manandhar DS, Osrin D, Shrestha BP, Mesko N, Morrsion J, et al. Effect of a participatory intervention with women's groups on birth outcomes in Nepal: cluster-randomized controlled trial. *Lancet* 2004; 364: 970–79.
4. McCoy D, Sanders D, Baum F, Narayan T, Legge D. Pushing the international health research agenda towards equity and effectiveness. *Lancet* 2004; 364: 1630–31.
5. Winter R, Munn-Giddings C. Action research as an approach to enquiry and development. In: A handbook for action research in health and social care. London: Routledge, 2001; 9–26.
6. Martin K, de Koning K (eds). Participatory research in health: issues and experiences. London: Zed Books, 1996; 1–18.

Equitable, effective, and efficient health care

What is the problem and why is it important?

Much of the burden of disease in low-income countries is preventable with existing, low-cost health interventions.[1] While partly due to persisting poverty, unacceptably high rates of morbidity and mortality in the developing world can also be attributed to the inadequacy of health systems.[2] In most countries, achieving the health-related MDGs will require a dramatic expansion in the delivery and effective coverage of essential health interventions.[3] This in turn will require strategic investments to strengthen health systems in a sustainable and equitable way.

Inefficiencies in the allocation of resources for health and in the delivery of health services lead to poor quality health care, which is a deterrent to health service use and a cause of poor outcomes for those who have no alternative but to use inadequate services. Such inefficiencies must be addressed systemically (see template on priority setting). If they are not, they could be magnified by global health initiatives, which tend to concentrate largely on supplies and commodities and invest little in the development of sustainable and equitable delivery systems at the local level.

Global health initiatives also tend to ignore the diversity of national health systems in resource-poor settings. In addition to all categories of providers and facilities, health systems can include communities, households, families, and individuals who can affect whether and how health care is accessed and used. Health services need innovative approaches and dedicated resources for primary health care to reach beyond the health-service delivery provided by hospitals and health centres.

Inequitable social conditions powerfully influence health status and access to health care.[4] It is often easier to reach the least poor. As a result, improving the effectiveness and efficiency of health systems to deliver essential health interventions eventually creates tensions in terms of equity. Societies must be ready to pay an “equity-premium” to ensure that the poorest have equal access and benefit, even though the cost-effectiveness of approaches to reaching them may be lower than for other groups. As it is often the case that women are disproportionately represented in the lowest economic quintile of a population, special attention must be paid to improving their access to quality health-care services.

What is known and what is not known?

The obstacles to increasing coverage of effective health care are fairly well known and exist at all levels.[5] But there is little evidence about which bottlenecks are the most problematic, how these constraints can be overcome, or how contextual factors influence the most appropriate mix or integration of strategies. For example, it is not known which approaches might work best in the most

highly resource-constrained settings; what might be the appropriate roles of the private-for-profit, not-for-profit, and NGO sectors; what are the merits of different approaches including direct public service delivery, contracting, and franchising (eg, a national NGO gives the right to provide services on its behalf to a local organization that has agreed to adhere to certain standards). There is even less evidence about how to ensure the poor are preferentially reached.

There is growing awareness of the impact of inequitable access to effective health care on health and wealth. For example, it has been established that poor quality primary health-care services can push the poor further into poverty.[6] But there is little evidence about the impact and relative cost-effectiveness of attempts to improve access for disadvantaged populations and quality of care in resource-poor health systems. Tools that work at the central level do not necessarily work at the district and local levels (see template on approaches to the organization of health services). Little is known about the performance of interventions to improve the uptake of effective interventions that have been evaluated in high-income countries, including audit and feedback, supportive supervision, and educational outreach.[7]

There have been many studies about health-seeking behaviour for formal and traditional health services, but there is little information on the beliefs about home-treatment practices. A number of studies have documented the high cost in time and money of caring for sick people, but there is little systematic evidence of how different kinds of support services (hospitals, nursing homes, community support) affect the burden on and poverty of households.

What research is needed and how would it help?

Research is needed to evaluate the impact of global health initiatives on national health systems and determine how these initiatives can integrate, strengthen, and take advantage of local synergies to develop sustainable delivery systems at the local level.

Regional or national health policy observatories that foster joint working between researchers and policy makers have the potential to develop and maintain up-to-date profiles of the key features of national health systems as they relate to equitable, efficient, and effective health care.[8,9] Observatories could identify or conduct systematic reviews of the effects of alternative strategies on access to and quality of health services. They could help identify the most important deficiencies in quality of care in specific settings, together with investigating the barriers to narrowing those gaps and the development of strategies to improve the uptake of effective interventions. Their contribution requires evaluation in low-income country settings.

For greater efficiency in health-service delivery, more research and innovation is needed in developing integrated approaches to health care, especially when a number of services are bundled at the point of contact as they are with interventions such as Integrated Management of Childhood Illness initiative. This

should be accompanied by rigorous evaluations of the effectiveness and costs of promising interventions and processes. Such evaluations will lead to a better understanding of when and why interventions are or are not effective and to the development of feasible methods for monitoring quality of care in low-income countries.

More research is needed on how to address the health-care needs of the poorest within low- and middle-income countries, especially the needs of those living in urban slums or remote rural areas.

A better understanding of local drug markets, knowledge and practices in home care, and the functioning of private sector is also needed (see also the template on drug and diagnostic policies). This includes understanding how the drugs supplied through global health initiatives are used in home care and evaluating approaches to regulating the private pharmacy sector.[10]

The growing volume of literature on interventions to improve case management by the mother/caretaker and the private provider, be it a clinic or a village drug shop, needs strengthening by further multi-site research to evaluate the impact in different settings. Also needed are intervention studies of home-care education programmes focusing on specific health problems (such as the treatment of childhood fevers), the prevention and treatment of diarrhoea, family support for patients receiving antiretrovirals, and alternative approaches to support households with a family member suffering from a chronic disease.

More research is needed in low-income settings of approaches to improving the quality of care that have been evaluated in developed-country settings. Narrowing the quality gap may require a combination of interventions.

References

1. Jones G, Steketee RW, Black RE, Bhutta ZA. Morris SS. Bellagio Child Survival Study Group. How many child deaths can we prevent this year? *Lancet* 2003; 362: 65–71.
2. De Savigny D, Kasale H, Mbuya C, Reid G. Fixing health systems. Ottawa: Ministry of Health, Tanzania and International Development Research Centre, Canada, 2004.
3. Victora CG, Hanson K, Bryce J, Vaughan JP. Achieving universal coverage with health interventions. *Lancet 2004;* 364: 1541–48.
4. WHO. Commission on Social Determinants of Health, 2004. http://www.who.int/social_determinants/en/
5. Hanson K, Ranson K, Oliveira-Cruz V, Mills A. Expanding access to health interventions: a framework for understanding the constraints to scaling-up. Special issue of the *Journal of International Development* 2003; 15: 1–14.

6. Meessen B, Zhenzhong Z, Van Damme W, Devadasan N, Criel B, Bloom G. Iatrogenic poverty. *Tropical Medicine and International Health* 2003; 7: 581–84.
7. Haines A, Kuruvilla S, Borchert M. Bridging the implementation gap between knowledge and action for health. *Bulletin of the World Health Organization* 2004; 82: 724–31.
8. European Commission. North-south partnership for health systems research—20 years of experience of European Commission support. Report to the European Commission, Summary Version. Brussels: EC Community Research, 2004.
9. Lavis J, Becerra-Posada F, Haines A, Osei E. Using research to inform public policy making. *Lancet* 2004; 364: 1615–21.
10. Stenson B, Syhakhang L, Lundborg CS, Eriksson B, Tomson G. Private pharmacy practice and regulation—a randomized trial in Lao P.D.R. *International Journal of Technology Assessment in Health Care* 2001; 17: 579–89.

Approaches to the organization of health services

What is the problem and why is it important?

For the last 15 years, reforming the organization of health services has been viewed as a key solution to the inefficient and inequitable delivery of health care in developing countries. Such reforms, influenced by the approach often known as New Public Management, include separating the functions of purchasers and providers; creating internal or quasi markets within the public sector; creating executive agencies to manage the health sector; decentralizing health-service management to local health administrations or to local government; increasing the autonomy of hospitals; and making greater use of the private sector.[1] But such reforms have had mixed results, especially when they were not adapted to local circumstances.[2] As there have been relatively few success stories, the value of these reforms has come into question. The problem is there are few universally agreed ways forward.

One of the most controversial areas in the organization of health services, particularly in low-income countries, has been whether health improvements are best achieved by disease or programme specific "vertical" approaches or through "horizontal", comprehensive care approaches.[3] In practice, few diseases or patient groups are dealt with solely through dedicated programmes that are unconnected to the wider health system. In many cases care is organized through a complex mixture of services. In some cases programmes may be managed through a vertical, disease specific approach but delivered in an integrated fashion. A greater emphasis on vertical programmes is sometimes promoted when health systems are weak. This may be because of well-founded fears about their capacity to deliver, and the short-term time horizons of funders who are unwilling to spend the time needed to seek gains through more comprehensive approaches or work within existing systems. It is unclear, however, when a vertical approach or a horizontal approach is more appropriate. It is also unclear when the emphasis might be shifted from a vertical to a comprehensive approach or how best to integrate such programmes into health systems.

What is known and what is not known?

A fair amount is known about the advantages and disadvantages of different reforms in various settings such as giving increased autonomy to hospitals[4] and private sector participation.[5] But the literature is scattered and partial in its coverage of issues. Moreover, reviews have generally been undertaken with an eye to making policy points, often from an ideological standpoint, with little attention to the methodological rigour of the evidence.

There is growing awareness of the need to ensure that disease-specific initiatives support rather than erode health systems. But there is little knowledge about how this can be done effectively, particularly when resources typically are available

for specific interventions or programmes and not for supporting health systems directly. For example, little is known about the potential competition between different programmes for limited numbers of trained staff when two or more interventions are scaled up simultaneously and how services are best organized to optimize their use.

A recent review has drawn attention to the importance of conceptually separating the vertical and horizontal administrative organization of a programme from whether it is selective or comprehensive in its coverage of diseases of conditions.[6] For example, the Integrated Management of Childhood Illnesses initiative (IMCI) takes a horizontal, comprehensive approach to providing health-care services for children. But the review noted the programme was only successful when it was accompanied by strong vertical management at the national and district level.

What research is needed and how will it help?

Many different types of research are needed including in-depth case studies and large-scale quantitative studies.

Topics include:

- strengths and weaknesses of different organizational designs for the purchasing and provision of services;
- the most appropriate mix of vertical and horizontal organizational structures for different diseases and conditions in different situations—with attention to differentiating between programme management and delivery strategies;
- equity and efficiency implications of contracting health services to NGOs on a large scale;
- equity and efficiency implications of provider competition between various vertical programmes;
- relationship between patterns of decentralization and health outcomes;
- strengths and weaknesses of different ways of involving the private sector in health provision;
- impact of vertical programmes on the health system;
- best ways of “going to scale” in different health programmes; and
- approaches to strengthening the focus of health systems on health outcomes.

Initial conceptual and methodological research is also required to categorize the key features of health systems so that an analysis of different experiences can take into account the local context that affects reform experiences.[7] If the evidence base on organizational patterns and reforms is strengthened, it will be

possible to give advice to policy makers that is based on firmer empirical evidence.

References

1. Mills A. Reforming health sectors: fashions, passions and common sense. In: Mills A (ed) Reforming Health Sectors. London: Kegan Paul International, 2000.
2. Roberts M et al. Getting health reform right. Oxford: Oxford University Press, 2004.
3. Oliveria-Cruz V, Kurowski C, Mills A. Delivery of health interventions: searching for synergies within the vertical versus horizontal debate. Special issue of the *Journal of International Development* 2003; 15: 67–86.
4. Preker AS, Harding A (eds). Innovations in health service delivery. The corporatization of public hospitals. Washington DC: The World Bank, 2003.
5. Harding A, Preker AS (eds). Private participation in health services. Washington DC: The World Bank, 2003.
6. Victora CG, Hanson K, Bryce J, Vaughan JP. Achieving universal coverage with health interventions. Lancet 2004; 364: 1541–48.
7. McPake B, Mills A. What can we learn from international comparisons of health systems and health system reform? *Bulletin of the World Health Organization* 2000: 78: 811–20.

Drug and diagnostic policies

What is the problem and why is it important?

Low-income countries face many challenges in providing access to essential drugs. Among the greatest challenges are counterfeit drugs, problems with the supply, distribution and financing of essential medicines, leakages from the public sector to the private sector, and the weak regulation of prescribing.[1,2] Pharmaceuticals make an important contribution to people's health but they are frequently used inappropriately. The inappropriate use of drugs contributes to the poverty trap and to the rise in bacterial resistance to inexpensive generic antibiotics.[3] Improving the use of drugs can improve health outcomes as well as result in large savings without adverse health consequences. To have an impact, efforts to improve the use of drugs must include private drug outlets, which often function as de facto health centres.[4] This is where the majority of drug distribution takes place in many low-income countries.

People in low-income countries often pay for drugs out of their own pocket and costs may amount to 60-90% of their total household expenditure on health.[5] Ability to pay is also a concern for governments—increasing expenditures on drugs puts pressure on policy makers to control drug costs and ensure that funds are well spent. Cost-containment strategies also can have unintended adverse effects on health and paradoxical effects on costs, for example, by increasing the burden on the health system of diseases that could potentially be treated.

An incorrect diagnosis is one reason why drugs are often used inappropriately. Appropriate diagnostic facilities for the diagnosis and management of health problems are critical. Such facilities range from simple tests to diagnose infectious diseases to those used for the screening and management of non-communicable diseases and for managing emergencies.

The potential costs associated with diagnostics in public and private health systems in developing countries is substantial, approaching 10-15% of all health-care costs in some countries.[6] However, the evidence base supporting the utilization and assessment of diagnostics is poor. Although the criteria for developing, introducing, and using diagnostic tools and products should be the same as that applied to pharmaceuticals and other interventions and products, this is seldom the case.

The importance of bio-diagnostics in developing countries and the role of a potential “essential diagnostics” programme have been recognized but have yet to be rigorously evaluated.[7]

What is known and what is not known?

There is little reliable evidence about the effects of the most commonly used pharmaceutical policies—formularies, administrative restrictions, price controls, advertising and marketing restrictions, and the regulation of drug benefit

programmes have rarely been rigorously evaluated. Preliminary results of a Cochrane review of the effects of pharmaceutical policies indicate that there may be as many as 100 evaluations across a broad range of policies. Although they are relevant to low-income countries,[8] most of the evaluations have focused on costs and have not evaluated the health effects of drug policies.

While evidence, standards, and criteria for appropriate diagnostics exist for referral hospitals, few studies have evaluated the potential of these interventions in other health system settings, and there have been even fewer systematic reviews addressing these problems. A detailed search of the Cochrane library indicates that few diagnostic technologies and tools have been evaluated at scale using basic criteria such as clinical outcomes and cost-effectiveness.[8] An example is the Widal serological test, the most widely used diagnostic test for typhoid fever, one of the most common bacterial infections in low-income countries. The test, which is over a century old, has never been evaluated at scale in a health system setting. In contrast, several new and expensive diagnostic tests have been developed and are being introduced into health systems without an adequate evaluation on a scale comparable to other interventions such as therapeutic regimens or vaccines.[9]

What research is needed and how would it help?

Systematic reviews of the effects of pharmaceutical policies on appropriate drug use are needed for policy makers to make informed decisions about drug policies. Rigorous evaluations of the effects of drug policies, including health effects and the effects on the utilization of other health services are needed.

Drug policies can include both incentives and disincentives for patients, physicians, pharmacists, distributors, and manufacturers. There is a need for process evaluations and modelling to improve the understanding of these different incentives, and when and why drug policies have both intended and unintended effects. There is also a need to develop, evaluate, and implement feasible methods for collecting and analysing prescribing data in low-income countries.

Some specific priority research questions include:

- As part of the ‘3 by 5 programme’ many countries are attempting to streamline the distribution of antiretrovirals for the treatment of HIV/AIDS. To what extent can other essential medicines be included in this process?
- How can the distribution and sale of pharmaceuticals in the private sector best be regulated and what measures need to be taken to prevent leakages from the public sector?
- What is the impact of drug company marketing activities on the demand for pharmaceuticals?
- How can counterfeit drugs be reliably detected and their distribution prevented?

Research is needed to assess the potential value of diagnostics in developing countries. This can be done by addressing three key issues:

- the evidence base supporting the efficacy of the diagnostic procedure or test in terms of decision making and eventual health outcomes at an individual level;
- the impact of the introduction of the diagnostic test or procedure at scale on outcomes at the health system level; and
- the cost-effectiveness of the diagnostic test in relation to different types of settings and uses.

With the advent of genomics and molecular diagnostics there is enormous pressure to introduce these diagnostic modalities at all levels of care in some developing countries, frequently on the basis of data from referral hospital settings. Developing countries themselves are investing in these technologies but with limited plans for their systematic evaluation. Moreover, few studies have evaluated the potential role of the systematic introduction of laboratory and surveillance systems in health system settings.

Several other approaches can be taken to evaluating diagnostics. One option is a "beneficence index", which is derived by rating seven different factors (need, efficacy, additional quality adjusted life years gained, ease of integration, etc).[10] The goal is to evaluate diagnostics as rigorously as other health interventions and eventually use well-designed research protocols at a scale that is commensurate with their utility in health system settings. The findings of such research would lead to improved quality of care with consequent improvements in the uptake of cost-effective treatments.

References

1. Wertheimer AI, Chaney NM, Santella T. Counterfeit pharmaceuticals: current status and future projections. *Journal of the American Pharmaceutical Association* 2003; 43: 710–17.
2. Pecoul B, Chirac P, Trouiller P, Pinel J. Access to essential drugs in poor countries: a lost battle? *Journal of the American Medical Association* 1999; 281; 361–67.
3. WHO. Global strategy for containment of antimicrobial resistance. Geneva: World Health Organization, 2001.
4. Chalker J, Ratanawijitrasin S, Chuc NTK, Petzold M, Tomson G. Effectiveness of a multi-component intervention on dispensing practices at private pharmacies in Vietnam and Thailand—a randomized controlled trial. *Social Science and Medicine* 2005; 60: 131–41.

5. Increasing access to essential medicines in the developing world: UK Government policy and plans, Department for International Development, Page 11. www.dfid.gov.uk/Pubs/files/accessmedicines.pdf
6. World Bank. World development report 1993: investing in health. Oxford: Oxford University Press, 1993.
7. Garner P, Kiani A, Supachutikul A. Diagnostics in developing countries. *British Medical Journal* 1997; 315: 760–61.
8. McQueen MJ. Evidence-based medicine: its application to laboratory medicine. *Therapeutic Drug Monitoring* 2000; 22: 1–9.
9. Bhutta ZA, Mansoorali N. Rapid serological diagnosis of paediatric typhoid fever in an endemic area: a prospective comparative evaluation of two dot-enzyme immunoassays and the Widal test. *American Journal of Tropical Medicine and Hygiene* 1999; 61: 654–57.
10. Visalakshi S, Mohan S. Evaluation of biotechnology-based healthcare products for prioritization in Indian context. *International Journal of Technology Assessment in Health Care* 2002; 18: 718–27.

Governance and accountability

What is the problem and why is it important?

Good governance appears to be key to the effectiveness of general development assistance.[1] This has been borne out by a recent study focusing on the health-related MDGs.[2] Research has suggested that weak governance and poor accountability are surprisingly widespread in the health sector.

Ensuring strong systems of governance and appropriate accountability mechanisms within the health sector underpins all aspects of health-system performance. Where governance and accountability structures fail, multiple problems within the health system will emerge. For example, health providers who are not held accountable for their performance are likely to be unresponsive to community and patient preferences; this may in turn reduce the demand for care. A lack of accountability within procurement systems may waste money, lead to a depletion of essential drug stocks (see also the template on drug and diagnostic policies), and to the leakage of potentially dangerous pharmaceuticals into the black market. Where governance and accountability structures are very weak, corruption may become pervasive. Corruption wastes money, distorts incentives, and is likely to reduce efficiency within the sector. For example, if contracts for services are awarded on the basis of personal contacts and bribes, then this is likely to adversely affect the quality of services provided by the contractor.

It is often this perception of failed or insufficient accountability that furnishes the impetus for health-sector reform. Strengthened accountability and improved governance are important objectives of programmes of decentralization, establishment of hospital boards, community-based health insurance schemes, and consumer rights bills. Such reforms, however, are frequently based upon a remarkably limited understanding of how governance and accountability structures actually operate in the health sector and how they may best be improved.

What is known and what is not known?

The state of knowledge about governance and accountability within the health sector is only weakly developed. A World Bank study, conducted in more than 50 developing and transitional countries, found that in many nations poor people had little trust in the governance mechanisms within the health sector. In addition, they believed that their voices counted for little yet they faced widespread demands for informal payments when seeking care.[3] Several studies focusing on the impact and effectiveness of decentralization have highlighted the importance of clear and well-understood accountability structures.[4] There has also been some interest in hospital governance, particularly relating to autonomous hospitals. Despite the development of a conceptual framework for mapping accountability structures,[5] there has been no comprehensive attempt to

understand the way in which different health-sector entities are governed or held accountable, or which types of strategies may best be employed to improve accountability.

There have been a few studies on corruption in the health sector, notably a series of studies of different aspects of corruption in Latin American hospitals.[6] In India, multiple studies have documented the problem of high-level corruption in regulatory agencies and what this means for effective regulation. In general, however, high-level corruption is much harder to investigate than lower level forms, such as informal payments. There is also a growing body of knowledge about the magnitude and practice of informal payments, why they occur, and their implications for the accessibility, affordability, and efficiency of care.[7]

The Benchmarks of Fairness, proposed by Daniels et al, include "democratic accountability and empowerment" for evaluating health-sector reform proposals.[8] These benchmarks provide a framework for integrating equity, efficiency, and accountability—and thereby social justice or fairness—into health services. Such accountability includes transparency in global budgeting, fair appeals processes, adequate privacy protection, and measures to enforce compliance with rules and laws.

What research is needed and how would it help?

Given the limited body of knowledge in this area, preliminary research and more applied, policy-oriented studies are needed. Exploratory studies are required on the nature and use of explicit, public procedures for evaluating health services; the prevalence of transparent allocation decisions; the availability of appeals procedures; and documenting effective means of strengthening civil society in different contexts.

In terms of more applied studies, significant understanding of the nature of informal payments already exists, but more operational research is needed to investigate alternative strategies to eliminate such payments or at least mitigate their worst effects. Multiple aspects of corruption could be investigated, but in view of growing development assistance expenditures on drugs, particularly antiretrovirals, it is imperative to study the nature and quantity of leakages of prescription pharmaceuticals from the public sector, and the interests that allow this to continue.

A focused effort is needed to investigate governance structures for a variety of key health-sector actors (primary care and hospital providers, insurers, regulators, pharmaceutical industry) and different types of accountability (financial, performance, democratic).

More specifically, priority research questions include:

- What governance structures and mechanisms are most effective for models of decentralization?

- What are the most effective governance and accountability mechanisms for public-private partnerships?
- What is the impact of effective governance and accountability measures on the under use, over use, and misuse of health-care services in both public and private sectors?
- How does industry's sponsorship of research, its continuing medical education activities, and its marketing and advertising programmes influence use of health services.
- How can governance and accountability mechanisms be strengthened to reduce corruption, improve patient safety and quality of care, and ensure the quality and safety of drugs, vaccines, and other interventions?

References

1. Dollar D, Svensson J. What explains the success or failure of structural adjustment Programs? Washington, DC: The World Bank, 1998. (Policy Research Working Paper 1938)
2. Wagstaff A, Claeson M. The Millennium Development Goals for health: rising to the challenges. Washington DC: World Bank, 2004.
3. Narayan D, Chambers R, Shah MK, Petesch P. Voices of the poor: crying out for change. Oxford and New York: Oxford University Press, 2000. www.worldbank.org/poverty/voices/reports.htm#crying
4. Bossert TJ, Beauvais JC. Decentralization of health systems in Ghana, Zambia, Uganda and the Philippines: a comparative analysis of decision space. *Health Policy and Planning* 2003; 17: 14–31.
5. Brinkerhoff DW. Accountability and health systems: toward conceptual clarity and policy relevance. *Health Policy and Planning* 2004; 19: 371–79.
6. Di Tella R, Savedoff WD (eds.) Diagnosis: corruption. Fraud in Latin America's public hospitals. Washington, DC: Inter-American Development Bank Press, 2001.
7. Ensor T. Informal payments for health care in transition economies. *Social Science Medicine* 2004; 58: 237–46.
8. Daniels N, et al. Benchmarks of fairness for health care reform: a policy tool for developing countries. *Bulletin of the World Health Organization* 2000; 78: 740–50.

Health information systems

What is the problem and why is it important?

The development of health information systems (HIS) worldwide is poorly coordinated both within and between countries and is relatively disconnected from health research systems. Large infrastructure investments, mostly driven by bureaucratic and administrative purposes, have failed to produce the expected results even in wealthy countries.

“One in seven hospital admissions in the US could be avoided if doctors had enough information on previous episodes”, said Tommy Thompson, the US Secretary of the Department of Health and Human Services, at an OECD meeting in Paris in 2004.

Although the correct functioning of a modern economy is only possible with the use of powerful databases and information systems, very little exists in the health sector that can drive systems towards a systematic application of evidence-informed principles.

Almost everywhere information systems are data heavy but information light. Typically they are riddled with inaccurate data, expensive to operate, time consuming for large numbers of health staff, and fail to produce information that could be used to prioritize health needs and improve health-service delivery.[1,2]

The great potential of HIS to support social welfare and public health is becoming a missed opportunity. This is particularly true in developing countries where international programmes focused on specific health priorities have influenced the implementation of fragmented HIS with different schemes producing information that is frequently scattered and patchy.[3,4]

HIS in resource-poor countries are usually imposed in a top-down authoritarian manner, which results in managers and staff, especially at the district and facility level, feeling powerless. Data are often collected, but information is rarely returned in a usable form to those most needing it. Consequently, citizens suffer from poor feedback from their health-care practitioners and the system is neither transparent nor consistent. Routine health information is collected by a very large number of health workers who have received only rudimentary instruction on the practice and goals of HIS. As a result, there are many errors and resources are wasted because the data are scarcely usable.

Another problem is related to data exchange and privacy protection. While regulations to promote confidentiality in the use of personal information are sensible and should be fostered, the conduct of large-scale epidemiological research—which could contribute substantially to solutions to global problems—is being hampered by growing bureaucratic obstacles.

What is known and what is not known?

It is well known that HIS have the potential to improve health outcomes by measuring health needs, assisting in prioritizing appropriate health services, indicating what input resources are required, monitoring the provision of services, measuring the level of health-service outputs, and assessing what effect these health services have had on health outcomes.[1,5] Importantly, HIS could also be used to assess effectiveness, efficiency, quality of care, and equity. The basic structure of a comprehensive HIS, as well as the measuring methodologies and the information technology requirements, have all been well established.[1,2]

Little research has been done in developing countries on how to implement HIS in ways that are developmental, empowering, low cost, and of high benefit.[2,6] It is also unclear how to link new HIS to those already existing in developed countries in ways that ensure the technology will be consistent, standardized, and applied using a common methodology. A two-tier approach—where a "rich" model dominates industry solutions at the same time as more practical models are developed for health systems—should be avoided. How to align such different philosophies through the identification of a common solution is an important research topic that is poorly supported and generally neglected.

What research is needed and how would it help?

The research required should involve potential users at all levels to ensure the development and implementation of sustainable low-cost national health information systems that are realistic and appropriate to the needs of resource-poor countries. Specific priority research areas are briefly outlined in the following paragraphs.

The identification, construction, and maintenance of district-level health indicators (DHI) based on standardized minimum datasets is required.[2,6] Although sharing a common structure, DHI should be customized to local needs and include solutions that monitor and evaluate health priorities such as HIV/AIDS, malaria, tuberculosis, and child health. DHI should also support improvements in health services organization, pharmaceutical supply, human resources development, and health system financing. Ensuring local relevance as well as global comparability is key to making sure that HIS support the achievement of the MDGs.

The cost-effectiveness of HIS needs to be enhanced and improved. To reach this goal, it is essential that novel procedures are carefully identified and tested in the field through the launch and evaluation of a comprehensive data accuracy enhancement programme. More research is needed to solve problems related to the operations of HIS. An essential aspect of such research is to identify formal methods that can be used to investigate to what extent an existing HIS may be judged effective for population health, and if it is not effective, how to improve it.

One question for research to answer is how to assist managers at all levels of the health system to incorporate routine information, as well as evidence from

research, into their planning and decision making[3,4] (see also template on priority setting and evidence informed decision making). This topic includes developing and evaluating systems to provide an effective synthesis between the scientific evidence base and routine data collection. This would, for example, include strengthening the capacity for capturing and using epidemiological data in health systems by supporting disease surveillance and routinely conducted health surveys.[7]

Another research question is how to use community information systems to facilitate accountability of health-service providers, promote equity, and encourage community participation in decisions around prioritizing and responding to health needs in a locally acceptable manner (see also templates on community participation and priority setting). Such systems would extend the operations of HIS beyond the strict boundaries of health information.

Customized software databases and statistical applications to manage the data within the HIS require development and evaluation.Ideally, these software applications should be open-source, end-user friendly, and flexible.[8,9] Open-source software would entail minimal cost to health departments.

In addition, novel approaches are needed to ensure that both privacy and scientific advancement are safeguarded. Developing countries have enormous intellectual potential and can benefit from cooperative action in this regard.

Members of the Task Force also see the need to develop resources that could be used to advance health systems and epidemiological research. For example, databases containing large amounts of de-identified data, enriched by population and contextual information (demographic, service organization, health indicators, etc) could facilitate both data mining and hypothesis-driven research. There is also a need to ensure that database and statistical applications are structurally linked to an ever-expanding “international concept and data dictionary” that will include all relevant details on international standards that form the foundations of HIS.[10]

References

1. WHO. Design and implementation of health information systems. Geneva: World Health Organization, 2000.
2. Heeks R. Information systems and developing countries: failure, success, and local improvisations. *Information Society* 2001; 18: 101–12.
3. Lippeveld T, Sauerborn R, Sapirie S. Health information systems—making them work. *World Health Forum* 1997; 18: 176–84.
4. WHO. Information support for new public health action at district level. Report of a WHO expert Committee. Geneva: World Health Organization; 1994.

5. Opit LJ. How should information on health care be generated and used? *World Health Forum* 1987; 8: 409–38.
6. Braa J, Hedberg C. The struggle for developing district health information systems in South Africa. *Information Society* 2002; 18: 113–27.
7. Sauerborn R. Non-routine data collection methods: an overview. In: Information support for new public health action at district level. Report of a WHO expert committee. Geneva: World Health Organization; 1994.
8. Lycett M, Kanellis P, Paul RJ. Philosophical directions for information systems development. In: Gupta JN (ed). Proceedings of the Association for Information Systems 1997 Americas Conference. Indianapolis: Association for Information Systems, 1997.
9. Benson T. Medical software's free future. All software developed at public's expense should be licensed as open source. *BMJ* 2001; 322: 863.
10. Roos L, Soodeen R, Bond R, Burchill C. Working more productively: tools for administrative data. *Health Systems Research* 2003; 38: 1339–57.

Priority setting and evidence-informed policy making

What is the problem and why is it important?

Expenditures on health in many countries are being disproportionately spent on health services that have a low overall health impact and that disproportionately benefit the rich. This situation is likely to remain unchanged without an explicit consideration of priority setting and more generally of evidence-informed policy making. Resource allocation is too often dictated by historical patterns and a desire to benefit or at least avoid challenging vested interests. Today there is increasing emphasis on the role of SWAps (sector wide approaches) and PRSPs (poverty reduction strategy papers) in building consensus around health sector priorities. When developing strategies to achieve these priorities, evidence-informed policy making is of particular importance. It can help redress current imbalances in resource use and help ensure that a country's limited resources are targeted at the greatest need.

As with any health policy issue, however, setting priorities and developing strategies to achieve these priorities is about influential individuals and groups, the decision-making processes they are seeking to influence, and their exercise of political power. Evidence is only one ingredient in the mix but a potentially potent one because it can be used to achieve consensus on how to solve particular problems at hand or to bring about a different collective appreciation of a problem or an approach to addressing a problem.[1]

What is known and what is not known?

Much is known about the efficiency of different health interventions. A popular approach to measuring efficiency is through cost-effectiveness analyses. The WHO-CHOICE project provides these data at the regional level for an increasing range of illnesses and associated interventions. The Disease Control Priorities Project and the Commission on Macroeconomics and Health (and previously, the World Development Report 1993) use cost-effectiveness data to help define priority benefit packages for developing countries. However, evidence on the costs and effects of approaches for going to scale are extremely limited, since much of the information on cost-effectiveness stems from one-off research studies and small-scale implementation efforts.[2]

More needs to be known about how best to measure equity in health system settings and how to combine equity and efficiency concerns in priority setting (see also template on equitable, effective and efficient care). As well, such technical approaches to priority setting need to be creatively combined with other approaches (see template on community involvement).

Little is known globally about how best to ensure the implementation of priorities, including through decentralized health systems, or how to encourage the take-up of research findings and research-based interventions in health systems. Perceptions of an innovation, the characteristics of individuals adopting it, and

numerous contextual factors are said to influence the rate of diffusion of an innovation.[3] Effective knowledge translation mechanisms targeted at those who can take action are essential.[4] However, according to a recent review, the literature on the factors that influence policy makers' use of evidence is still quite weak and evaluations of interventions targeted at policy makers are lacking.[5] Without this knowledge, priority setting exercises will remain on paper and policy making more generally will remain uninformed by research.

Using burden of disease/cost-effectiveness as an instrument for district health planning and resource allocation did not function well in Uganda.[6] However, experience in Tanzania suggests that with appropriate tools that indicate how current patterns of resource allocation relate to the burden of disease, district managers can shift resources into interventions that maximize the health benefit for the available resources.[7] In Lao People's Democratic Republic, decision makers were included in the formulation and implementation of health systems research projects in order to encourage links between research and action.[8]

Recent studies and reviews of the relationship between health systems research and policy,[9] including how to spread and sustain innovations in health-service organization and delivery,[10] are helping to provide guidance and define a research agenda that can shed light on implementation questions.

What research is needed and how will it help?

Evaluation of a country's existing (implicit) health sector priorities by investigating the structure and flow of health expenditures is required. The National Health Accounts framework and methodology, at an aggregate and subsector level (HIV, malaria, tuberculosis, EPI, etc), could be utilized. This can show the inefficiencies and inequities of current resource allocations within the health sector. It can also help to assess the appropriateness of current vertical programme initiatives.

At a country level, an analysis of the impact of redistributing resources to health interventions that are shown to be more cost-effective is needed. This can show the potential for improving a country's overall health situation from existing resources. In particular, it can be used to show the best combinations of interventions to reach the health-related MDGs efficiently.

Different approaches to implementing priorities, including those that are based at the district level in decentralized health systems, need to be experimented with and evaluated. This can show both the approaches that work best, and the implementation processes that are likely to have an important influence on the success of implementation (for example, the extent to which important stakeholders are brought on board). Studies of barriers and incentives for change are needed.

Attention must be given to the development and testing of a conceptual framework and the design of a process to explicitly and transparently incorporate important equity concerns into priority setting—including the potential for

catastrophic expenditures, non-health impact of health interventions, and other ethical issues. The process can be tested in several countries using a standardized case study approach. This can highlight existing inequities, while at the same time show what tradeoffs exist between efficiency and equity and other societal concerns.

Another area of study is the processes through which particular innovations in priority setting for health-service delivery and organization are implemented and sustained (or not) in particular contexts and settings, and how these processes can be enhanced.

Research can also shed light on the factors that influence the use of research in policy making and what interventions can be used to modify these factors. With such knowledge, researchers could be better supported in their efforts to develop messages for policy makers and fine-tune their approach to knowledge translation to these policy makers, policy makers could be better supported in their efforts to acquire, assess, adapt and apply research, and both researchers and policy makers could be better supported in their efforts to build partnerships that enhance the policy relevance of research and the extent to which research informs policy and practice.

The design, implementation and evaluation of units to support policy makers in their efforts to use research is another priority area. The European Observatory on Health Systems and Policies (www.euro.who.int/observatory) provides a model for a support function for public policy makers that could be adapted for low- and middle-income countries. The secretariat for such an entity could take responsibility for identifying topics for systematic reviews, developing actionable messages for policy makers from such reviews, and promoting interactions between researchers, policy makers, and other stakeholders.

References

1. Walt G. Health policy: an introduction to process and power. Johannesburg: Witwatersrand University Press, 1994.
2. Victora C, Hanson K, Bryce J, Vaughan P. Achieving universal coverage with health interventions. *Lancet* 2004; 364: 1541–48.
3. Berwick DM. Disseminating innovations in health care. *JAMA* 2003; 289: 1969–1975.
4. Lavis JN, Robertson D, Woodside JM, McLeod CB, Abelson J, and the Knowledge Transfer Study Group. How can research organizations more effectively transfer research knowledge to decision makers? *Milbank Quarterly* 2003; 81: 221–48.
5. Innvaer S, Vist G, Trommald M, Oxman A. Health policy makers perceptions of their use of evidence: a systematic review. *Journal of Health Services Research Policy* 2002; 7: 239–44.

6. Jeppson A, Okounzi SA, Ostergren PO, Hagstrom B. Using burden of disease/cost-effectiveness as an instrument for district health planning: experiences from Uganda. *Health Policy* 2004; 70: 261–70.
7. De Savigny D, Kasale H, Mbuya C, Reid G. Fixing health systems. Ottawa: International Development Research Centre, 2004.
8. Tomson G, Paphassarang C, Jönsson K, Houamboun K, Akkhavong K, Wahlstrom R. Decision makers and the usefulness of research evidence in policy implementation. *Social Science and Medicine* 2005; in press.
9. Alliance for Health Policy and Systems Research. Strengthening health systems: the role and promise of policy and systems research. Geneva: Alliance for Health Policy and Systems Research, 2004.
10. Greenhalgh T, Robert G, Macfarlane F, Bate P, Kyriakidou O. Diffusion of innovations in service organizations: systematic review and recommendations. *The Milbank Quarterly* 2004; 82, 581–629.

Effective approaches to intersectoral engagement in health

What is the problem and why is it important?

Political, cultural, social, and economic determinants of health exert powerful influences on health worldwide. The recent constitution of the WHO Commission on Social Determinants of Health bears testimony to the importance of other influences beyond the health sector on health outcomes.[1] This template is not intended to develop a comprehensive research agenda in this vast field. Instead, it will focus on how the health system can more effectively engage other sectors to become involved in the advancement of health.

This is important because of the many ways in which other sectors affect health—both by influencing the determinants of health and by their impact on health systems. The most obvious example is access to clean water and sanitation, which is important for improved health and the reduction of deaths from diarrhoea. But there are many other examples. Agricultural policies related to ensuring access to essential foods and adequate vector control can significantly reduce the incidence of micronutrient deficiencies and malaria. In southern China and Southeast Asia, the traditional practice of raising chickens and other birds in close proximity to family homes and selling them live in wet markets has been shown to play an important role in the emergence of new influenza strains.

Transport influences health because the quality of roads can hasten or impede access to health facilities; the increase in the incidence of road traffic accidents in many low-income countries puts an additional strain on health facilities; and air pollution caused by vehicular emissions can have adverse health effects on children and adults.[2]

Housing and home energy is another area that can affect health. Indoor air pollution, for example, can increase the risk of acute respiratory infections particularly in children as a result of the fuels used for cooking and heating.

The education system also has a major influence on health, both because education is associated with better health and because the education system provides the required skills to those who will go on to work in the health system.

Clearly, the potential benefits of effective intersectoral cooperation for improving public health and meeting the MDGs are significant. The problem is this potential is not being realized. For example, the provision of improved energy efficient cooking stoves could reduce exposure to indoor air pollution and thus key respiratory infections, but progress has been slow, particularly in Africa. Part of the explanation: in most low- and middle-income countries, the Ministry of Health is weak compared with sectors like finance, trade, and defence; and health figures relatively low among national development priorities in competing for resources. In addition, there are significant barriers that prevent other sectors from taking on board and acting on health considerations.

What is known and what is not known?

The effects of poverty levels and gender inequity on health and vice versa are well known. African women and girls may spend three hours a day fetching water using a third of their caloric intake for this purpose.[3] Studies done in Bangladesh have documented how women-focused poverty alleviation programmes contributed to a measurable improvement in child survival.[4]

Socioeconomic development activities for the poor such as women's empowerment, micro-credit,[5,6] and conditional cash transfers[7] have been shown to prevent ill health and improve access to treatment in some circumstances. Creating opportunities for community health workers to earn additional income such as through micro-credit can contribute to increased motivation.[8]

In recent years there has been a much better understanding of the relative importance of different risk factors for health.[2] Potential strategies to reduce risks may be delivered through a range of sectors. For example, the fortification of food staples with vitamin A in Central America has involved regular visits to sugar mills by inspectors and regular sampling and testing of sugar taken from mills, markets, and homes for vitamin A content.

There has been limited research on the effects of intersectoral actions targeting key behaviours such as hand washing using soap. Little is known about the specific role of the health system in the development and implementation of health promotion campaigns and interventions. Very little is known about how ministries of health and health systems in low- and middle-income countries can best work with other sectors, including non-governmental bodies, industry, and communities (see also template on community involvement).

What research is needed and how will it help?

Many different types of research are needed on how the health system can more effectively involve other sectors in delivering on the MDGs and reaching other health goals. Some specific research questions are:

- How can a Ministry of Health raise its political profile and that of the health sector in order to better integrate health dimensions into social and economic policy?
- How can a Ministry of Health at the national and local level engage other sectors to consider health outcomes—for example, the Ministry of Agriculture to provide access to essential foods and implement effective vector control programmes?
- What is the most effective way to create the capacity for sustainable intersectoral action at international, regional, national, and local levels?
- How can health data and information, such as projections on how the burden of disease will affect the health system, be used to influence policies across a range of sectors?

- How can effective interventions to promote healthy behaviours or reduce risk taking be delivered through other sectors including the mass media and schools? Where randomized trials are impossible or inappropriate (for example, nationwide media campaigns) what are the appropriate methods of evaluation?

A better understanding is needed about the incentives and disincentives for policy makers outside the health sector to engage in health. This knowledge is important to consider when informing them about how their actions can make a significant difference to the health of the people they serve, and how the beneficial impacts can be multiplied with better planning and interactions with the health sector. Empirical work in low- and middle-income countries testing the impact of these and other development activities on health outcomes is needed.

Research is also needed to evaluate the effectiveness of using health workers to promote and communicate intersectoral policies and strategies that affect health. Examples include improving access to clean water and sanitation, social marketing of insecticide-treated bednets, conditional cash transfers to enhance receipt of effective health interventions, and encouraging hand washing with soap through school-based programmes. In addition, the integration of the health system with other sectors and the role of the health sector in scaling-up other non-health sector interventions that may have an impact on health needs further evaluation.

References

1. For more information on this initiative see www.who.int/social_determinants.
2. WHO. World Health Report 2002—reducing risks, promoting healthy life. Geneva: World Health Organization, 2002.
3. UNDP. Human development report 2003. Oxford and New York: Oxford University Press, 2003.
4. Bhuiya A, Chowdhury AMR. Beneficial effects of a women-focused development programme on child survival: evidence from Bangladesh. *Social Science and Medicine* 2002; 55: 1553–60.
5. Gbezo BE, Microcredit in West Africa: how small loans make a big impact on poverty. *World Work* 1999; 31: 13–15.
6. Chowdhury AMR, Mosley P, Anton Simanowit. The social impact of microfinance: Introduction. Special issue of *Journal of International Development* 2004; 16: 290–300.
7. Rivera JA, Sotres-Alvarez D, Habicht JP, Shamah T, Villalpando S. Impact of the Mexican program for education, health, and nutrition (Progresa) on rates of growth and anemia in infants and young children: a randomized effectiveness study. *JAMA* 2004; 291: 2563–70.

8. Chowdhury AMR, Chowdhury S, Islam MN, Islam A, Vaughan JP. Control of tuberculosis by community health workers in Bangladesh. *Lancet* 1997; 350: 169–72.

Effects of global initiatives and policies (including trade, donors, international agencies) on health systems

What is the problem and why is it important?

Global factors are increasingly impinging on national health policies and systems. The General Agreement on Trade in Services (GATS), for example, regulates trade in services, potentially including health services.[1,2] The policies of global institutions such as the World Bank, the International Monetary Fund, World Trade Organization (WTO), WHO, the Global Fund for AIDS, TB and Malaria, affect the development and performance of health systems in many countries. Conditions laid down by large donors, such as the US Government's Millennium Challenge Account and the UK Chancellor of the Exchequer's proposed International Finance Facility, could also affect health. This influence is exerted both as a result of the flows of financial resources and because, in some cases, global institutions have a pivotal role in determining disease priorities and policies for health systems. The absorptive capacity of countries to use donor resources effectively and to coordinate the inputs of multiple donor agencies may be a key limiting factor in developing functioning health systems.

Policies concerning trade can also have an impact on the determinants of health and the burdens on health systems. The health sector can be affected not only by trade in health services per se, but also by trade in services related to health (utilities, education, finance, advertising, etc). International trade in services is growing (60% of global production and employment; 20% of total trade), and health service-related sectors are being considered for trade liberalization under ongoing GATS negotiations. As a result, ministries of health are increasingly being requested by their trade counterparts to provide evidence of the potential impacts of liberalization on health systems and the overall economy. The problem is that there is so little evidence that can be used to shape macroeconomic policies and trade relations.

The tobacco industry, which is expanding its penetration into low- and middle-income countries, warrants special attention. The consumption of tobacco products is responsible for around five million deaths annually, around half of these in developing countries.[3] But the capacity for effective tobacco control is lacking in many countries and civil society has not mobilized around the issue. This means that tobacco companies may be able to undermine attempts, for example, to impose restrictions on smoking in public places and impose taxes.

What is known and what is not known?

In the early 1990s, the Pan American Health Organization (PAHO) and the United Nations Conference on Trade and Development (UNCTAD) began to assess trends in the trade of health services. A five-country study led to guidelines for policy making by the health sector and foreign trade leaders.[4] PAHO followed with two studies on the health implications of the North American

Free Trade Agreement,[5] which found private health insurance growing in Mexico, with some US investment. WHO in collaboration with other institutions is supporting country studies to analyse the health implications of trade liberalization and WTO rules.[1]

GATS has identified four modes of supplying services:

1. Service flows from one country to another. For example, Indian companies transcribe medical records and send the information to US health facilities via direct satellite link.
2. A consumer of a service travels to another country to obtain a service. For example, Bangkok and Singapore are drawing health consumers from the Asian region for specialized services unavailable in low-income countries and "health tourism" packages are attracting people from high-income countries.
3. A service supplier in one country establishes a presence (through ownership or lease of premises) in another country to provide a service. For example, foreign investors and owners are increasingly entering health insurance markets in developing countries. By mid-1999, US health insurers had enrolled over five million members in Latin America. Chilean and Colombian private health insurance plans are rapidly entering foreign markets.[6]
4. Persons from one country supply a service in another country. For example, Bangladesh, India, Pakistan, and the Philippines, among others, "export" large numbers of health professionals (see also template on human resources at the national level). Recruitment campaigns by the Canada, UK, US, and other developed countries have increased in recent years.

There is a varying degree of knowledge at present about each mode in relation to health services; very limited information is available for cross-national comparisons. GATS negotiations highlight the urgent need for better evidence of the potential benefits and costs to health systems of any commitments to opening up health services to increased trade. Given that trade in health services has the potential to widen inequities within and between countries, it is important to quantify any such impacts and to evaluate policies to reduce the adverse impacts.

It is known that tobacco companies try to influence national governments through a range of approaches in order to advance their commercial interests. Increases in smoking particularly amongst women have been attributed to the marketing activities of transnational corporations in the former Soviet Union and a number of countries.[7] Less is known about how to effectively counter their influence in order to reduce tobacco-related harms.

Increased financial flows into health are being channelled through the Global Fund as well as through bilateral initiatives such as the US President's Emergency Fund for AIDS Relief (PEPFAR). But the evaluation of these activities is still quite limited. Interim findings, based on interviews with 137 national-level respondents that track early implementation processes in four African countries, indicated a number of difficulties meeting Global Fund conditions for

performance-based disbursement. For example, ineffective country coordinating mechanisms (CCMs) and limited capacity of fund recipients—government and non-government—led to delays in payment of funds to implementing agencies.[8] Little is known about their impact at the national and local level not just on the diseases to which they are directed but also on the delivery of care for other conditions.

What research is needed and how would it help?

In terms of the influence of donor and international agencies:

- Donor priorities may compete and in some cases conflict with each other, thus the impacts of multiple donors on national health policies and approaches to coordinating donor activities need evaluation including mechanisms such as basket funds and sector wide approaches.
- Research on how large global initiatives like the Global Fund, PEPFAR, and other bilateral approaches to funding interventions for priority diseases affect health systems is needed. The impact of major funders of health systems such as the World Bank on policies and practice also requires evaluation.
- The impact of trade in harmful products such as tobacco requires further research particularly with regard to how marketing of such products can subvert public-health goals and how the activities of such commercial interests can be effectively regulated.

In terms of trade in health services, research is needed to: (a) measure the extent to which trade in health services is taking place by country, region, and internationally; (b) understand the implications of trade liberalization of health services for health systems in terms of access to health services, quality of care, and ultimately health outcomes; and (c) inform negotiations under GATS and health policy making for harnessing the potential benefits of trade in health services and mitigate the costs.

The following are some priority research topics related to trade:

- measures of health system "openness" to trade;
- essential data on trade in health-related services;
- methodologies and data on the impact of liberalizing health service-related sectors on health system performance (methodologies for impact assessment, transmission mechanisms);
- implications of trade agreements (multilateral, regional, and bilateral) on health systems (frameworks for assessment, development of indicators for tracking and monitoring impacts, assessment of impact on poor and vulnerable groups, country studies to inform the negotiation process, best practices, etc);

- legal implications of GATS for health policy development and regulation;
- institutional/governance changes needed at the national, regional, and international level to promote policy coherence between trade and health; and
- management of the GATS negotiation process to ensure health concerns are reflected.

References

1. WHO/WTO joint study. WTO agreements and Public Health. Geneva, 2002. www.who.int/trade/en
2. Belsky L, Lie R, Mattoo A, Emanuel E, Sreenivasan G. The general agreement on trade in services: implications for health policy makers. *Health Affairs* 2004; 23: 137–45.
3. WHO. The world health report 2003—shaping the future. Geneva: World Health Organization, 2003.
4. WHO/UNCTAD. International trade in health services: a development perspective. Geneva, 1998.
5. PAHO/WHO. Trade in health services: global, regional and country perspectives. Washington, 2002.
6. *The Economist*, 8 May 1999.
7. Gilmore A, Pomerleau J, McKee M, Rose R, Haerpfer CW, Rotman D, Tumanov S. Prevalence of smoking in 8 countries of the former Soviet Union: results from the living conditions, lifestyles and health study**.** *American Journal of Public Health* 2004; 94: 2177–87.
8. Brugha R, Donoghue M, Starling M, Ndubani P, Ssengooba F, Fernandes B, Walt G. The Global Fund: managing great expectations. *Lancet* 2004; 364: 95–100.

The Millennium Development Goals will not be attained without new research addressing health system constraints to delivering effective interventions: Report of the Task Force on Health Systems Research. Article. Full-text available.Â This paper provides an overview of how different approaches to improving public sector management relate to the so-called core or essential public health functions such as disease surveillance, health education, monitoring and evaluation, workforce development, enforcement of public health laws and regulations, public health research, and health policy development.