Priorities for research into human resources for health in low- and middle-income countries

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Objective To identify the human resources for health (HRH) policy concerns and research priorities of key stakeholders in low- and middle-income countries; to assess the extent to which existing HRH research addresses these concerns and priorities; and to develop a prioritized list of core research questions requiring immediate attention to facilitate policy development and implementation.
Methods The study involved interviews with key informants, including health policy-makers, researchers and community and civil society representatives, in 24 low- and middle-income countries in four regions, a literature search for relevant reviews of research completed to date, and the assessment of interview and literature search findings at a consultative multinational workshop, during which research questions were prioritized.
Findings Twenty-one research questions emerged from the key informant interviews, many of which had received little or no attention in the reviewed literature. The questions ranked as most important at the consultative workshop were: (i) To what extent do incentives work in attracting and retaining qualified health workers in underserviced areas? (ii) What is the impact of dual practice and multiple employment? and (iii) How can incentives be used to optimize efficiency and the quality of health care?
Conclusion There was a clear consensus about the type of HRH policy problems faced by different countries and the nature of evidence needed to tackle them. Coordinated action to support and implement research into the highest priority questions identified here could have a major impact on health worker policies and, ultimately, on the health of the poor.

Une traduction en français de ce résumé figure à la fin de l'article. *Al final del artículo se facilita una traducción al español.* **الترجمة العربية لهذه الخلاصة في نهاية النص الكامل لهذه المقالة.**

Introduction

Since human resources account for approximately 70% of recurrent expenditure in most health systems, inadequate human resource training, regulation, distribution and management can have enormous implications.[1] Many low- and middle-income countries (LMICs), particularly in sub-Saharan Africa, suffer from both a shortage of health-care providers and poor distribution of providers within the country. These problems are exacerbated by deficiencies in skill mixes and poor physical and managerial infrastructure.[2] Moreover, the failure of health system reforms has been linked to the failure to strengthen policy, planning and management of human resources for health (HRH) early in the process.[3]

In a recent overview of systematic reviews, significant gaps were found in knowledge about the way training, regulatory, financial and organizational mechanisms affect the supply, distribution and performance of health-care workers. Furthermore, the data available tend to come from high-income settings and may not apply to LMICs.[4]

Despite the urgent need to address these knowledge gaps and the international nature of HRH problems, there is still no consensus on research priorities. The World Health Organization's (WHO's) Task Force on Health Systems Research included HRH "at the district level and below" and "requirements at higher management levels" as two of the 12 research categories important for attaining the Millennium Development Goals (MDGs).[5] However, the expert group made no attempt to establish priorities among the 12 categories or the many issues within each category. The Joint Learning Initiative on HRH,[2] a consortium of more than 100 health leaders who worked together to identify strategies for strengthening HRH, concluded that "the weak knowledge base of the health workforce hampers planning, policy development, and program operations" (p. 4) and called for donors to "significantly enhance their financing of research..." (p. 139). In addition, a diverse group of participants at the first Global Forum on Human Resources for Health in 2008 called for better research on the health-care workforce.[6]

This paper presents the results of an initiative that aimed to identify the HRH policy concerns and research priorities of key stakeholders in LMICs, to assess the extent to which existing HRH research addresses these concerns and priorities, and to establish immediate priorities for the research essential for policy development and implementation.

Methods

There were three steps in determining research priorities (Fig. 1). First, interviews were conducted with health policy-makers, researchers and community and civil society representatives in 24 LMICs in four regions: East Africa, Latin America and the Caribbean, the Middle East and North Africa, and South-East Asia. They resulted in a series of regional reports. Second, a systematic literature review was carried out to identify completed research, which was then mapped against the needs articulated by stakeholders. Third, the findings of the first two steps were discussed at a consultative multinational workshop during which research issues were ranked and the top-ranked issues were subject to brainstorming.

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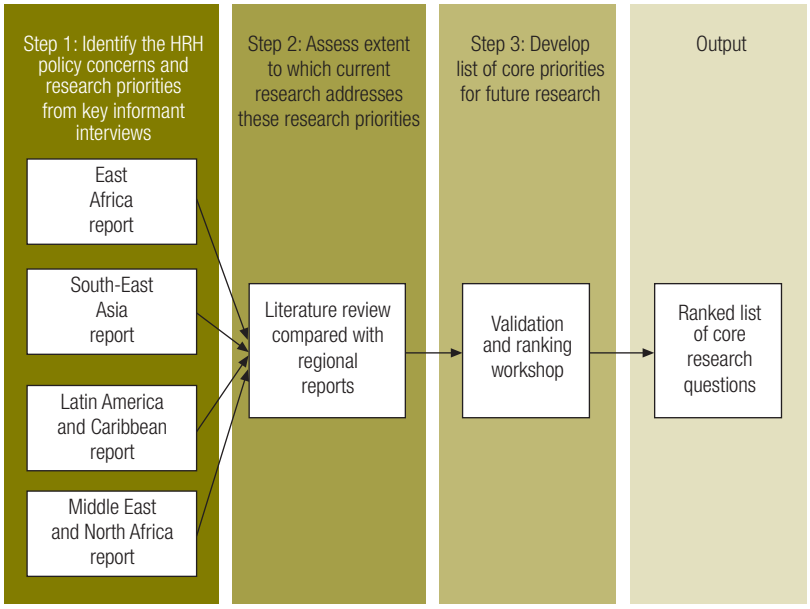
Fig. 1. **The three steps in determining priorities for research on human resources for health (HRH) in low- and middle-income countries**



Data from the regional reports and the systematic literature review were categorized using a predetermined conceptual framework[4] that included the main outcomes of human resource policies (i.e. appropriate supply or quantity of health workers, appropriate distribution of health workers, efficient use of health workers and good performance) and broad policy levers (i.e. training, regulatory mechanisms, financial mechanisms, organizational mechanisms, and macro-mechanisms or mechanisms outside the health-care sector).

Informant interviews

The WHO-based Alliance for Health Policy and Systems Research (HPSR) competitively awarded grants to four organizations in four regions, representing 24 countries, to conduct key informant interviews of policy-makers, researchers and community and civil society representatives. Table 1 lists the countries involved, the types of informant interviewed and the interview topics in each region. In all regions, informants were purposively selected by the four organizations. Between May 2007 and March 2008, informants were asked about their thoughts on policy concerns and research priorities in three areas: health financing, the non-state health sector and HRH.[1] Open-ended questions were asked and interviewers used semistructured interview guides.

The data were analysed in several phases by two authors (i.e. MKR and MC). First, regional reports were read and HRH policy concerns and research priorities were extracted and categorized. This process was relatively deductive insofar as the categories used were based largely on the predetermined conceptual framework. Second, policy concerns and research priorities common to at least three regional reports were identified. Third, specific policy concerns and research priorities, as expressed by individual informants, were extracted from country-level reports, which were available for the East Africa and Middle East and North Africa regions only. This last step was carried out to gain some sense of the consistency and breadth of the policy concerns and research priorities identified.

Table 1. **Countries where key informant interviews about policy and research on human resources for health were carried out, types of informants interviewed and interview topics, by geographical region, 2007–2008**

Region	East Africa	Latin America and the Caribbean	Middle East and North Africa	South-East Asia
Countries included	Uganda, United Republic of Tanzania	Argentina, Chile, Costa Rica, Dominican Republic, El Salvador, Nicaragua, Panama, Peru, the Plurinational State of Bolivia, Suriname	Algeria, Egypt, Jordan, Lebanon, Morocco, Syrian Arab Republic, Tunisia, West Bank and Gaza Strip, Yemen	Indonesia, Malaysia, Thailand
Types of informants interviewed	Elite interviews with ministry of health officials and heads of departments and programmes; in-depth interviews (35 in Uganda and 17 in the United Republic of Tanzania) with heads of special programmes, desk officers, heads of sections, heads of private facilities and NGOs, and heads of research institutes	Seven policy-makers and two researchers from each country	Representatives of public sector organizations, groups of health professionals, academia, civil society groups, private sector organizations, NGOs, faith-based organizations and consumer organizations	Officials (range: 13–25 per country) from identified national institutions, units and organizations and regional or international organizations
Interview topics	Health policy concerns; health research priorities	Current policies; desired policies; current research; desired research	Policy concerns; policy priorities; research questions	Important current health topics; proposed health policy topics; current information needs; emerging research priorities

NGO, nongovernmental organization.

Box 1. **Details of the literature search terms used in Medline to identify current research on human resources for health (HRH)**[a]

Medline search through PubMed

Total number of hits: 1141

Dates: publication date from 1979 to 2008

Methodology:

REVIEW[Publication Type] OR "META ANALYSIS"[Publication Type] OR "META-ANALYSIS"[Publication Type] OR "SYSTEMATIC REVIEW"[Title/Abstract]

AND

Non-state sector:

((("HEALTH PERSONNEL"[TW] OR "HEALTH CARE PERSONNEL"[TW] OR "HEALTHCARE PERSONNEL"[TW] OR "MEDICAL PERSONNEL"[TW] OR "HEALTH PROFESSIONAL*"[TW] OR "HEALTH CARE PROFESSIONAL*"[TW] OR "HEALTHCARE PROFESSIONAL*"[TW] OR "MEDICAL PROFESSIONAL*"[TW] OR "HEALTH CARE WORKER*"[TW] OR "HEALTHCARE WORKER*"[TW] OR "MEDICAL WORKER*"[TW] OR "HEALTH WORKFORCE"[TW] OR "HEALTH CARE WORKFORCE"[TW] OR "HEALTHCARE WORKFORCE"[TW] OR "MEDICAL WORKFORCE"[TW]) AND (DEMAND[TW] OR NEED*[TW] OR SUPPLY[TW] OR SHORTAGE[TW] OR CAPACITY[TW] OR EMPLOYMENT[TW] OR DISTRIBUT*[TW] OR MALDISTRIBUT*[TW] OR RECRUIT*[TW] OR ALLOCAT*[TW] OR MOBILITY[TW] OR INTERNATIONAL EDUCATIONAL EXCHANGE[MeSH Major Topic] OR HEALTH CARE RATIONING[MeSH Major Topic] OR RESOURCE ALLOCATION[MeSH Major Topic] OR "HEALTH SERVICES NEEDS AND DEMAND"[MeSH Major Topic] PERSONNEL MANAGEMENT[MeSH Major Topic:EXP] OR HEALTH PERSONNEL[MeSH Major Topic:EXP] OR "BRAIN DRAIN"[Text Word] OR "BORDER CROSSING"[Text Word] OR EMIGRATION[Text Word] OR IMMIGRATION[Text Word] OR MIGRATION[Text Word] OR (FOREIGN AND (PERSONNEL OR GRADUTE*))[TW] OR HEALTH MANPOWER[Text Word] OR HUMAN RESOURCE*[TW] OR "EMIGRATION AND IMMIGRATION"[MeSH Major Topic] OR FOREIGN MEDICAL GRADUATES[MeSH Major Topic] OR FOREIGN PROFESSIONAL PERSONNEL[MeSH Major Topic] OR HEALTH MANPOWER[MeSH Terms] OR MANPOWER[MeSH Subheading]))

AND

Population:

INTERNATIONAL[TW] AND (COOPERATION[TW] OR "CO-OPERATION"[TW] OR "CO OPERATION"[TW]) OR AFRICA[TW] OR CARIBBEAN[TW] OR "CENTRAL AMERICA"[TW] OR "LATIN AMERICA"[TW] OR "SOUTH AMERICA"[TW] OR ASIA[TW] OR "EAST* EUROPE"[TW] OR ((DEVELOPING[TW] OR "LESS DEVELOPED"[TW] OR "UNDER DEVELOPED"[TW]) AND WORLD[TW] OR LMIC[TW] OR ((DEVELOPING[TW] OR "LESS DEVELOPED"[TW] OR "THIRD WORLD"[TW] OR "UNDER DEVELOPED"[TW] OR POOR[TW] OR "LOW* INCOME"[TW] OR "MIDDLE INCOME"[TW] OR "LOW AND MIDDLE INCOME"[TW]) AND (COUNTRIES[TW] OR COUNTRY[TW] OR "NATION*"[TW])) OR WORLD HEALTH [MeSH Major Topic] OR INTERNATIONAL COOPERATION[MeSH Major Topic] OR EUROPE, EASTERN[MH:EXP] OR ASIA[MH:EXP] OR SOUTH AMERICA[MH:EXP] OR LATIN AMERICA[MH:EXP] OR CENTRAL AMERICA[MH:EXP] OR CARIBBEAN REGION[MH:EXP] OR AFRICA[MeSH Terms:EXP] OR DEVELOPING COUNTRIES[MeSH Terms]

[a] Findings in the other two thematic areas, health financing and the non-state sector, are being prepared for publication elsewhere. Please contact the authors of this paper for further information.

Literature review

A literature review was carried out to identify current HRH research and to assess the extent to which it addresses the priorities expressed by informants. Our review was limited to existing literature reviews on HRH topics. We searched Medline through the Ovid interface and EMBASE Ovid (Ovid Technologies Inc., New York, United States of America) for entries dated from 1979 to March 2008. The search terms used in Medline are shown, as an example, in Box 1. We also searched the Cochrane Library, which includes the Cochrane Database of Systematic Reviews and the Database of Reviews of Effectiveness. Grey literature was identified with Google using the search terms "review" or "synthesis" with "human resources for health" or "health workforce". The first 100 results were reviewed for each search combination. In addition, the journal *Human resources for health* was searched by hand from the first issue in 2003. Also searched were the Equinet web site and other web sites that came to light, and a World Bank bibliography of HRH studies.

Each review identified in the search had to satisfy two inclusion criteria: (i) it had to indicate that a literature search had been carried out, and (ii) it had to have an HRH topic as a primary focus. Multinational reviews and reviews from individual LMICs were included, but those of literature from a single, high-income country were excluded. All Medline, EMBASE and Cochrane citations were screened by two independent reviewers (SH, AS). Disagreements were resolved by consensus following retrieval of the full texts. Of the 3601 citations identified from the published literature, 40 reviews were included by consensus on initial evaluation. Thereafter, 20 additional reviews were included following discussion, plus 12 from the grey literature, resulting in a total of 72 reviews.

Consultative workshop

A workshop was organized to rank research priorities in April 2008 in Berkeley, California, USA, in conjunction with the Berkeley Global Health Workforce Conference, which focused on HRH research and targeted researchers, policy-makers and representatives of international organizations working in HRH. Following an open invitation to conference participants, two additional LMIC participants were sponsored by the research team to ensure regional diversity and a good skill mix. Ten of the 15 participants were researchers, one was a health policy-maker and the remaining four classified themselves as "other". Seven of the 15 were based at institutions in LMICs. Before the workshop, participants were given an unranked list of emerging priority research questions and an overview of the literature reviews. At the workshop, participants: (i) discussed the list of research questions, (ii) decided on the nature and relative weighting of criteria for ranking research questions, and (iii) ranked the research questions using three criteria (described below). Each research question was scored on the three criteria using a three-point Likert scale, in which 1 = no and 3 = yes, by each of the 15 participants individually using a self-administered questionnaire. Index scores were then calculated for each individual participant and summed across individuals. The authors of this paper did not participate in the ranking.

Results

Policy concerns

The following broad policy concerns emerged in interviews from across the regions.

Stewardship

Informants expressed concern about a lack of stewardship from the highest levels, in government ministries, to HRH management at individual facilities.

In some countries (e.g. Chile, Costa Rica, Egypt, El Salvador and Jordan), informants commented on the lack of a national HRH plan. In the West Bank and Gaza Strip, as in many countries, it was felt that "the implementation of training programmes and the production of HRH is not linked to strategic planning in order to balance supply with needs and demand". At the facility level, some informants were concerned about the shortage of managers (e.g. in Algeria), while others were concerned about management quality. In Suriname, there was a call for "accountable management of health institutions and organizations – managers who can create a positive and stimulating working environment for health workers".

Health worker numbers

In all regions and most countries, informants thought that the number of health-care workers should be increased. In Costa Rica, for example, informants said that more "specialists, health technicians and nursing assistants" were needed. In many countries across all four regions, there was concern about the out-migration of human resources, particularly doctors and nurses. In Jordan, there was a call for a "national plan to manage and contain the migration (i.e. brain drain) of health professionals".

Distribution of health workers

In almost all countries, there were disparities in the distribution of health workers between regions, between rural and urban areas, and between public and private sectors. One informant in Algeria commented that although only 8% of the population lives in Algiers, 24% of specialist physicians are located there. In Argentina, the "poor regional distribution" of educational centres needed to be addressed. In many countries (e.g. Algeria and Egypt), the public sector had more difficulty recruiting or retaining human resources than the private sector. In Uganda, one informant reported that workers leave the public sector for the private for-profit sector because of low salaries, heavy workloads and the absence of other incentives. It was reported in several countries that dual practice (i.e. public sector employees practising in the private sector) has had a negative impact on the quality and cost-effectiveness of services provided by the public sector. In the United Republic of Tanzania, where dual practice was identified as an important policy challenge, some informants called for clear policy and regulatory instruments to limit the number of "stolen hours".

Efficient use

Informants expressed concerns about inappropriate ratios of health-care workers, both relative to one another and relative to the burden of illness. For example, in Argentina it was felt that there were too many specialists relative to general practitioners and too many general practitioners relative to nurses. In Algeria, there was a call to modify training curricula to take better account of the epidemiological transition and to adapt programmes targeted at "new" pathologies. In Costa Rica, it was felt that there should be increases in certain specialty HRH areas to address the needs of an ageing population. Also in Costa Rica, it was suggested that some university training programmes could be closed if they "were not aligned with the country's needs". In Jordan and in Peru, it was suggested that training curricula should be changed to reflect health sector needs better.

Performance

Often informants simply expressed concerns about the performance of health workers, without mentioning any related intervention. For example, in El Salvador one informant called for an increase in the quality and "warmth" of health-care workers.

In many countries, informants expressed the need to improve monetary and non-monetary incentives for health workers. In Costa Rica, informants stated that wages should be increased in the public sector to match those in the private sector, so as to reduce the flow of trained staff to the private sector. Non-monetary incentives included: in Egypt, career development opportunities; in the Dominican Republic, job "stability" and a reduction in the continuous transfer of staff from one location to another; and, in Nicaragua, the availability of appropriate equipment and instruments.

Informants also had concerns about the quality of health worker training, mechanisms for accrediting training institutions, and the licensing and re-licensing of health-care workers. In Algeria, they said that several problems at training institutions needed to be addressed, including "overload and the low quality of teaching". In several countries (e.g. Peru), they suggested the need for accreditation or regulation of HRH education. In many locations (i.e. Costa Rica, the Dominican Republic, Egypt, Panama, the Plurinational State of Bolivia, the Syrian Arab Republic, Tunisia, and the West Bank and Gaza Strip), informants commented on the need to develop continuing medical education programmes. In Egypt, they were concerned about the absence of re-licensing programmes, while in Jordan they suggested that re-licensing should be linked to a system of continuing medical education.

Research priorities

Table 2 lists details of the research questions that emerged from key informant interviews, the quality of existing research on these questions, and any literature reviews identified that dealt with them.

Ranking the questions

Participants in the consultative workshop reviewed and refined the list of research questions before ranking them. The objective was to increase the clarity rather than change the focus of the questions. For example, question 15 on worker substitution was refined to read: "What are the conditions, regulations, and financial and other inputs required to most efficiently and optimally implement task-shifting?" Workshop participants opted to add one additional question that could be inferred from the original list but was not explicitly stated: "What are the barriers to and facilitators of the implementation of HRH plans?"

Based on a literature review of previous priority-setting exercises, Alliance HPSR staff proposed three criteria for ranking the final 22 questions:

- Can the research question be answered?
- Are the results of the research likely to improve health?
- Is there a lack of research on this topic?

Workshop participants agreed to these criteria and decided that they should be weighted equally in deriving combined scores.

Table 3 ranks the 22 research questions according to the average scores awarded by workshop participants. The question that ranked first overall – "To what extent do financial and non-financial incentives work in attracting and retaining qualified health workers in underserviced areas?" – also received the

highest scores for both answerability and potential health impact. We also assessed the sensitivity of the overall ranking to a change in the weighting of the three ranking criteria: we assessed the effect of doubling the weighting of the potential health impact (i.e. the second criterion) relative to the others. The top five questions remained exactly the same, though the question – "What is the impact of dual practice?" – dropped to fourth place. Workshop participants agreed that the final ranking reflected the groups beliefs.

In subsequent discussions, workshop participants felt that the quantity and distribution of health workers was the most critical issue and that research on improving the internal migration and distribution of existing health workers was more important than research into increasing health worker supply or international migration. Participants also thought that it was important to evaluate experience already gained at national and subnational levels with experimentation on dual practice and incentives for retaining health workers in underserved areas. Next, participants felt that improving the performance of existing health workers by reducing dual practice and examining financial incentives could have a significant impact in the short term.

Discussion

A list of 21 research questions emerged from key informant interviews across 24 LMICs, with the most highly ranked concerning how to improve the distribution and efficient use of health workers. While each broad research topic was common to several countries or regions, there was considerable variation in specific subtopics. The overview of systematic reviews provided little insight into the relative importance of research questions as many had received little or no attention and authors generally suggested that additional research was still required.

There were several limitations to this exercise. The methods were not standardized across regions. For example, it was difficult to compare findings obtained using a more quantitative and deductive approach in Latin America and the Caribbean with those obtained using a more qualitative and inductive approach in the Middle East and North Africa. In addition, since regions, countries and informants were purposively selected, the results may not be representative and generalizable. The literature review covered

Table 2. **Research questions on human resources for health (HRH) emerging from regional reports on key informant interviews and quality of existing research and literature reviews on specific questions, 2007–2008**

Research questions on HRH emerging from regional reports	Quality/quantity of existing research	Literature reviews identified (references)
Training		
1. Which cost-effective mechanisms can increase the number of HRH training programmes?	None	None
2. How effective are accreditation interventions in improving performance?	Poor	7
3. What are the optimal size and composition of outreach meetings and workshops for changing health worker behaviour?	Good but only in HICs	8,9
Regulatory mechanisms		
4. How effective is re-licensing in improving doctor performance?	Poor	7,10
5. What is the impact of dual practice (i.e. a health-care worker practising in both public and private sectors)? Are regulations on dual practice required and, if so, how should they be designed and implemented?	None	None
6. What are the relative strengths and weaknesses of different models for regulating the private sector in LMICs?	None	None
7. How can professional bodies be made more effective in regulating practice?	Poor	7
Financial mechanisms		
8. What is the relative significance of identified barriers to the effective design and implementation of pay-for-performance initiatives?	Good but only in HICs	11–17
9. How sensitive are skilled health workers to financial incentives for working in underserved areas?	Poor	18
Organizational mechanisms		
10. How can non-wage incentives be used to optimize the efficiency and quality of health care?	None	None
11. Which kinds of performance management systems can be implemented to optimize staff performance?	Poor	19
12. What can be done to improve the day-to-day management and supervision of HRH?	Good but little in LMICs	20,21
13. How can one assess whether health-care staff are satisfied with their work? Which cost-effective measures increase the level of job-satisfaction?	None	None
14. How can human resources in the private sector be harnessed for achieving health systems goals?	None	None
15. What is the minimum level of inputs required to safely allow substitution?	Good but little in LMICs	22–25
16. Which cost-effective mechanisms can be used to collect consumer feedback on the performance of health workers?	None	None
Planning, policy development and intersectoral collaboration		
17. How does one establish a national HRH plan? How does one assess supply and demand in HRH?	Good but little in LMICs	26–28
18. Which types of data are required for HRH planning and how can a system for collecting them be established?	Good but little in LMICs	26–28
19. How great is the problem caused by the out-migration of health workers? What can be done to address this problem?	Poor	26,29–32
20. What is the optimal mix of financial, regulatory and non-financial policies for improving the distribution of health workers?	Poor	33
21. What can be done to improve the role of women as health-care providers?	Poor	34

LMIC, low- and middle-income country; HIC, high-income country.

Table 3. **Ranking of research questions on human resources for health (HRH) according to the average scores awarded by participants in a consultative workshop, 2008**

Rank	Research questions on HRH	No. of workshop participants awarding scores	Average score	Range of scores
1	To what extent do financial and non-financial incentives work in attracting and retaining qualified health workers in underserviced areas? (Previous question 9, reworded)	15	7.80	3–9
2	What is the impact of dual practice (i.e. a health-care worker practising in both public and private sectors) and multiple employment? Are regulations on dual practice required and, if so, how should they be designed and implemented? (Previous question 5, reworded)	14	7.58	6–9
3	How can financial and non-financial incentives be used to optimize efficiency and the quality of health care? (Previous question 10, reworded)	15	7.53	5–9
4	What is the optimal mix of financial, regulatory and non-financial policies for improving the distribution and retention of health workers? (Previous question 20, reworded)	15	7.40	5–9
5	What are the extent and effects of the out-migration of health workers and what can be done to mitigate problems with out-migration? (Previous question 19, reworded)	15	7.33	5–9
6	What are the conditions, regulations, and financial and other inputs required to most efficiently and optimally implement task shifting? (Previous question 15, reworded)	14	7.29	5–9
7–8	What is the cost-effectiveness of different mechanisms for scaling up pre-service HRH training programmes? (Previous question 1, reworded)	15	7.13	3–9
7–8	How can human resources in the private sector be involved in achieving health systems goals? (Previous question 14, reworded)	15	7.13	4–9
9	What are the relative strengths and weaknesses of different models for regulating the private sector in LMICs? (Previous question 6, reworded)	15	7.07	5–9
10–12	What is the effectiveness of different accreditation interventions for training programmes (pre- and post-employment) in improving health worker performance? (Previous question 2, reworded)	15	7.00	5–9
10–12	What is the effectiveness and implementability of pay-for-performance initiatives? (Previous question 8, reworded)	15	7.00	4–9
10–12	Which types of data are required for HRH planning, and how can systems for collecting them be strengthened or established? How does one assess supply and demand in HRH? (Previous question 18, reworded)	15	7.00	4–9
13–14	What are the determinants of the effectiveness of professional bodies (e.g. associations and councils) in regulating practice? (Previous question 7, reworded)	15	6.93	5–9
13–14	How can national HRH planning be optimized and coordinated? (Previous question 17, reworded)	15	6.93	5–9
15	What is the relative effectiveness of different kinds of performance management systems for optimizing staff performance? (Previous question 11, reworded)	15	6.87	4–9
16	What are the barriers to and facilitators of the implementation of HRH plans? (New question)	14	6.86	4–9
17	How effective is re-licensing in improving health worker performance? (Previous question 4, reworded)	13	6.77	5–8
18	How can one assess whether health-care staff are satisfied with their work? Which cost-effective measures increase the level of job-satisfaction? (Previous question 13, reworded)	15	6.67	4–9
19	What can be done to improve the status of women as health-care providers, managers and decision-makers? (Previous question 21, reworded)	14	6.57	3–9
20	What are the relative effectiveness and cost-effectiveness of mechanisms for collecting consumer feedback on the performance of health workers? (Previous question 16, reworded)	14	6.29	4–9
21	Which strategies are effective in improving the day-to-day management and supervision of HRH? (Previous question 12, reworded)	15	6.27	3–9
22	With respect to in-service training, what are the optimal size and composition of outreach meetings and workshops for improving health worker behaviour? (Previous question 3, reworded)	15	6.20	3–8

LIMIC, low- and middle-income countries.

only English-language publications, though the exercise is being repeated for Portuguese- and Spanish-language literature. The study did not assess the extent to which research currently being carried out in LMICs might address the research questions because surveying the HRH researchers or funders involved was felt to be beyond its scope. The data collected were categorized using a predetermined conceptual framework and categories not included in the framework may have been neglected. Finally, the researchers who ranked the research questions may have scored issues of personal interest more highly, though this is unlikely, as there was no budget under discussion.

In future priority-setting exercises, how best to translate policy priorities into research questions should be more closely examined. Key informants consulted in this study had much more difficulty discussing research questions than policy concerns, and study team leaders were largely responsible for translating one into the other. This may have introduced a bias because country and regional team leaders may, for example, have neglected policy concerns they felt to be less interesting or researchable. Our study partly compensated for this possible bias by mapping policy concerns (categorized by outcomes of HRH policies) and research questions (categorized by policy interventions or levers) onto a common conceptual framework. This process required those carrying out the final data analysis to reconsider whether each outcome or intervention category had been mentioned during the interviews.

Nevertheless, this is the first study that has carefully documented the engagement of a diverse group of stakeholders, including researchers, policy-makers, civil society representatives and community members, in four geographical regions and 24 LMICs in identifying global research priorities. Because of the geographical diversity of the data, the findings are likely to be transferable to many LMICs. Further, by focusing on HRH issues, the study has produced more specific conclusions than previous, broad, priority-setting exercises.

The relatively small number of literature reviews identified (Table 2) suggests that priority research questions could first be investigated through systematic, desk-based literature reviews. Thereafter, original research will probably involve a range of approaches. Large-scale quantitative work may be required to determine the effects of some HRH interventions, qualitative work may be needed to investigate implementation processes, and multinational case studies may involve both approaches. Currently, there is an active debate on establishing quality in health systems research.[35]

Since many HRH policy issues are complex, policy-makers need data from several different research perspectives and research funders will have to coordinate efforts to ensure progress. Recently, the Alliance HPSR, in collaboration with the WHO Human Resources for Health Department and the Global Health Workforce Alliance, started to investigate the top-ranked research question, on the effectiveness of financial and non-financial incentives. Further, the *Bulletin of the World Health Organization* published a theme issue in May 2010 on increasing access to health workers in underserved areas.[36] In the United Kingdom of Great Britain and Northern Ireland, the Department for International Development has issued a request for research proposals on task-shifting and strategies for scaling-up pre-service training.

This study has demonstrated that there is considerable consensus about the type of HRH policy problems faced by different countries and the nature of evidence needed. However, little research has been carried out in LMICs.[4] Research on strategies for improving the distribution, retention, motivation and performance of health workers, as well as on controlling dual practice, is urgently needed. The results could ultimately have a major impact on the health of the poor. ■

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الملخص

أولويات البحوث في الموارد البشرية الصحية في البلدان المنخفضة الدخل والمتوسطة الدخل

الهدف التعرُّف على المـوارد البشرية الصحية، والشواغل في السياسات والأولويات في البحوث لدى كبار المعنيين في البلدان المنخفضة الدخل وفي البلدان المتوسطة الدخل، وتقييم تلبية البحوث الموجودة حالياً حول الموارد البشرية الصحية لهذه الشواغل والأولويات، وإعداد قائمة بالأولويات في القضايا البحثية الأساسية التي تتطلب إيلاءها أهمية فورية لتسهيل إعداد السياسات وتنفيذها.

الطريقة شملت الطريقة إجراءات المقابلات مع المعنيين الرئيسيين بالدراسة وهم أصحاب القرار السياسي حول الصحة، والباحثون الصحيون وممثلو المجتمع المدني في 24 بلداً من البلدان المنخفضة الدخل والبلدان المتوسطة الدخل في أربعة أقاليم. حيث أجرى الباحثون بحثاً في النشريات الطبية للتعرُّف على المراجعات ذات الصلة بالبحوث بهدف استكمالها في الوقت الحاضر، مع تقييم النتائج التي أسفرت عنها المقابلات والبحث في النشريات في حلقة عملية تشاورية متعددة البلدان، خلالها وضعت أولويات القضايا البحثية.

الموجودات اتضح للباحثين وجود 21 قضية بحثية من المقابلات مع كبار المعنيين ولم يحظ الكثير من هذه القضايا بالاهتمام في النشريات التي خضعت للمراجعة. وصنف الباحثون هذه القضايا في الفئات الأكثر أهمية ضمن الحلقة العملية التشاورية؛ وهي: (1) إلى أي مدى تنجح التحفيزات في اجتذاب العاملين الصحيين المؤهلين واستبقائهم في المناطق المحرومة من الخدمات. (2) ما أثر الممارسات المزدوجة أو المتعددة للتوظيف؟، (3) وكيف

يمكن للحوافز أن تستخدم في الحصول على أفضل كفاءة وأفضل رعاية صحية ممكنة.

الاستنتاج لقد كان هناك اتفاق واضح في الآراء حول نمط المشكلات في الموارد البشرية الصحية التي تواجه البلدان المختلفة، وحول البينات اللازمة للتصدي لهذه المشكلات. وقد يكون للإجراءات المنسقة التي تهدف لدعم وتنفيذ البحوث في القضايا ذات الأولويات الأرفع والتي تعرف عليها الباحثون في هذه الدراسة أثر كبير على السياسات الخاصة بالعاملين الصحيين، وبالتالي على صحة الفقراء.

Résumé

Priorités de la recherche sur les ressources humaines pour la santé dans les pays à revenu faible ou intermédiaire

Objectif Identifier les sujets de préoccupation pour les politiques de gestion des ressources humaines pour la santé (RHS) et les priorités de la recherche pour les acteurs clés des pays à revenu faible ou intermédiaire ; évaluer dans quelle mesure la recherche actuelle sur les ressources humaines pour la santé répond à ces préoccupations et à ces priorités ; et élaborer une liste de thèmes de recherche essentiels, requérant une attention immédiate pour faciliter le développement et la mise en œuvre de politiques, avec les priorités associées.

Méthodes L'étude a compris des entretiens avec des informateurs clés (notamment des décideurs politiques et des chercheurs dans le domaine de la santé et des représentants des communautés et de la société civile), qui ont été réalisés dans 24 pays à revenu faible ou intermédiaire appartenant à quatre régions, une recherche bibliographique des revues de la littérature pertinentes effectuées à ce jour et l'évaluation des résultats des entretiens et de la recherche bibliographique dans le cadre d'un atelier consultatif plurinational, au cours duquel les thèmes de recherche ont été classés par priorité.

Résultats Vingt-et-un thèmes de recherche ont émergé des entretiens avec les informateurs clés, dont beaucoup n'avaient guère ou pas attiré l'attention d'après la littérature examinée. Les thèmes classés comme les plus importants lors de l'atelier consultatif étaient : (i) dans quelle mesure les dispositions incitatives réussissent-elles à attirer et à retenir la main d'œuvre médicale qualifiée dans les zones mal desservies ? (ii) quel est l'impact des pratiques doubles et des emplois multiples ? et (iii) Comment peut-on utiliser des mesures incitatives pour optimiser l'efficacité et la qualité des soins de santé ?

Conclusion Il n'y avait pas de consensus clair sur le type de problème rencontré par les différents pays dans leur politique RHS et sur la nature des éléments nécessaires pour y faire faire face. Une action coordonnée pour appuyer et mettre en œuvre la recherche sur les thèmes identifiés comme les plus fortement prioritaires pourrait avoir un impact majeur sur les politiques en faveur des ressources humaines pour la santé et, en fin de compte, sur la santé des plus démunis.

Resumen

Prioridades de las investigaciones sobre recursos humanos para la salud en países de ingresos bajos y medios

Objetivo Determinar los problemas decisionales y las prioridades de investigación en materia de recursos humanos para la salud de los principales interesados en los países de ingresos bajos y medios; evaluar en qué medida las investigaciones sobre recursos humanos para la salud abordan esas preocupaciones y prioridades; y elaborar una lista de líneas prioritarias de investigación que requieran atención inmediata para facilitar la formulación y aplicación de políticas.

Métodos El estudio abarcó entrevistas con informantes clave, en particular con formuladores de políticas sanitarias, investigadores y representantes de la comunidad y de la sociedad civil, de 24 países de ingresos bajos y medios de cuatro regiones, una búsqueda bibliográfica de revisiones de interés de investigaciones realizadas hasta la fecha, y la evaluación de entrevistas y resultados de búsquedas bibliográficas en un taller consultivo multinacional, en el que se estableció el orden de prioridad de diversas cuestiones de investigación.

Resultados De las entrevistas a informantes clave surgieron 21 cuestiones de investigación, muchas de las cuales habían recibido poca o ninguna atención en las publicaciones revisadas. Las preguntas consideradas de mayor importancia en el taller consultivo fueron: (i) ¿En qué medida funcionan los incentivos empleados para atraer y retener a los trabajadores sanitarios cualificados en las zonas subatendidas? (ii) ¿Qué repercusiones tienen la doble práctica y el pluriempleo? (iii) ¿Cómo pueden utilizarse los incentivos para optimizar la eficiencia y la calidad de la atención sanitaria?

Conclusión Hubo un consenso claro acerca del tipo de problemas que afrontan los diferentes países en relación con las políticas de recursos humanos para la salud, así como sobre la naturaleza de la evidencia necesaria para abordarlos. Una acción coordinada tendente a apoyar e implementar las investigaciones sobre las cuestiones más prioritarias aquí identificadas podría tener gran incidencia en las políticas sobre el personal sanitario y, en definitiva, en la salud de los pobres.

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