Alma-Ata 2

Supporting the delivery of cost-effective interventions in primary health care systems in low-income and middle-income countries: a systematic review

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Introduction

In 1978, representatives from 134 countries gathered in Alma-Ata in the former USSR and declared that primary health care, “based on practical, socially acceptable methods and technology made universally accessible through people's full participation”, was key to delivering health for all by the year 2000. Recent years have seen a renewed interest in primary health care, particularly in low-income and middle-income countries. Reasons for this renewed interest include profound inequities in health; inadequate progress towards the Millennium Development Goals, especially towards the MDG to reduce child mortality; and the fragmented and weakened state of health systems in many countries.

More generally, there have been calls to redress the balance between the now dominant vertical, disease-focused programmes and the horizontal, systems-focused perspective that underpins most approaches for primary health care. The GAVI Alliance, for example, has committed US$800 million over a 5-year period to help countries overcome health system weaknesses that are major shortfalls in the human resources needed to improve delivery of cost-effective interventions; and the fragmented and weakened state of health systems in many countries.

We searched two electronic databases of systematic reviews: the Cochrane Effective Practice and Organisation of Care (EPOC) register of systematic reviews and the Program in Policy Decision-Making/Canadian Cochrane Network and Centre (PPD/CCNC) database of systematic reviews of the effects of governance, financial, and delivery arrangements. The EPOC register of systematic reviews included 1020 records as of Feb 12, 2008. These were identified through electronic searches of MEDLINE (up to August, 2007) and the Cochrane Database of Systematic Reviews, the Database of Abstracts of Reviews of Effectiveness (DARE), and EMBASE (all up to October, 2006). The PPD/CCNC database was derived from the searches used to create the EPOC register and hand searching of Cochrane Database of Systematic Reviews (Issue 3, 2007). All reviews contained in the PPD/CCNC database have been coded according to taxonomy (panel 1). The EPOC register MEDLINE search was updated in March, 2008, and screened for additional relevant reviews. The full MEDLINE search strategy is shown in the webappendix. Search strategies for the other databases are available on request.

Search strategy

• Financial incentives can be used to influence provider and patient behaviours, but can also have undesirable effects
• User fees reduce the use of both essential and non-essential health services. However, removal of user fees needs to be implemented with care since it can have undesirable consequences. Alternative health financing strategies have not been adequately assessed
• Task shifting from doctors to nurses and from health professionals to lay providers offers opportunities for expanding coverage and addressing human resource shortfalls
• Although multiple vertical programmes can lead to service duplication, fragmentation, and inefficiency, the effects of strategies to integrate primary health care services have not been assessed adequately
• Quality improvement strategies, including those tailored to address identified barriers, can have important, although modest, effects on primary health care quality.

Key messages
impede sustainable increases in immunisation coverage, and the Global Fund to Fight AIDS, Tuberculosis and Malaria is also calling for integrated responses.

Strengthening health systems to improve the delivery of cost-effective interventions is complicated by differing ideas of what constitutes primary health care. This is affected, in part, by financial and human resources and the underlying political and ideological perspective. We assessed reviews of the effects of governance, financial or delivery arrangements, and implementation strategies that have the potential to improve delivery of cost-effective interventions in primary health care in low-income and middle-income countries. The broader approach for primary health care is seen as encompassing equitable distribution, community participation, an emphasis on prevention, the use of appropriate technology, and a multisectoral orientation. A taxonomy of health system arrangements provides additional categorisation, distinguishing between governance arrangements (political, economic, and administrative authority in the management of health systems), financial arrangements (funding and incentive systems, as well as financing), delivery arrangements (human resources for health, as well as service delivery), and interventions (programmes, services, and technologies). Most descriptions of health system elements omit the implementation strategies to support the use of cost-effective interventions.

In this overview we summarise the evidence from systematic reviews on the effects of governance, financial and delivery arrangements, and implementation strategies that have the potential to improve the delivery of cost-effective interventions in primary health care in low-income and middle-income countries. We do not address specific clinical or public health interventions but rather the health system arrangements and implementation strategies that support their delivery in primary health care. We discuss how the available evidence relates to both the aspirations of the Alma-Ata Declaration and taxonomy of health system arrangements.

We summarised each included review using an approach developed by the SUPPORT Collaboration. Using standardised forms, we extracted data on the background of the review, the interventions, participants, settings, and outcomes, the key findings, and considerations of applicability. The quality of the evidence for the main comparisons was assessed using the GRADE approach (webappendix). Each completed summary was peer-reviewed, and formed part of a larger project to summarise and make widely available the findings of reviews relevant to health systems in low-income and middle-income countries.

Finally, we developed a matrix relating questions about governance, financial and delivery arrangements, and implementation strategies (panel 1) to the aspirations of the Alma-Ata Declaration. We used this matrix to summarise the available evidence from the included systematic reviews, important uncertainties, and important questions for which we could not identify a systematic review.

Role of the funding source

The funding sources had no involvement in the writing of this paper. The funding source had no role in study design, data collection, data analysis, data interpretation, or writing of the report. The corresponding author had full access to all the data in the study and had final responsibility for the decision to submit for publication.

[A: this is our standard wording. Is this information correct?]
Results
Over 20 000 references were screened to develop the EPOC and PPD/CCNC databases. By screening the abstracts, 195 of over 1000 reviews were deemed potentially relevant, and 20 systematic reviews were selected on the basis of their relevance and the feasibility of reviewing them within resource and time constraints (figure). These reviews included a total of 733 randomised controlled trials, interrupted time-series studies, and controlled before-and-after assessments, although some studies were included in more than one review.26

Table 1 and webtable 1 show the reviews grouped according to whether the interventions mainly assessed the effects of governance, financial or delivery arrangements for primary health care systems, or the effects of implementation strategies, although some reviews cut across more than one category.21–26 Most reviews (n=13) addressed delivery and financial arrangements. However, some reviews assessed similar interventions, such as educational meetings, for different health issues. We have tried to highlight where this is the case and to note any differences in findings between these reviews.

Around 114 (16%) of the 733 randomised controlled trials [A: OK? How many of the reviews was this?] were undertaken in low-income and middle-income countries only, whereas six reviews [A: how many RCTs?] included studies from high-income countries only [A: ok as rephrased?]. 417 studies (57%) were done in primary care or involved a mix of primary and other health care settings. However, most of these studies were of primary medical care rather than primary health care as envisaged in the Alma-Ata Declaration. Reviews including studies from non-primary care settings focused mainly on quality improvement studies across primary and other health care settings. The reviews [A: which reviews?] also focused on outcomes associated with a range of health care providers (primary care physicians or general medical practitioners, nurses, pharmacists, and lay health workers), patients, or consumers. We interpreted the findings of the reviews taking into consideration the selection criteria they used and the contexts of the included studies (webtables 1 and 2). For most reviews there was uncertainty about the applicability of the findings (and the directness of the evidence) because of the low proportion of studies from low-income and middle-income countries.

Table 1 shows the extent to which the interventions seen in the reviews address the goals and aspirations of the Alma-Ata Declaration. Most address the provision of quality care and ways to improve coverage and access. Several of the interventions attempt directly or indirectly to reduce inequalities in access to care,23,24 but most reviews provided little data for equity [A: but these are lumped together in the inequalities group of the table so this is confusing. Please clarify how these are separate] or cost-effectiveness. We did not identify any systematic reviews of interventions to explicitly improve intersectoral action or community participation in

Panel 1: Taxonomy of governance, financial, and delivery arrangements within health systems for primary health care (adapted from Lavis and colleagues25)

Governance arrangements
What are the effects of changes in or interventions to improve
• Policy authority—eg, who makes policy decisions about what primary health care encompasses (such as whether such decisions are centralised or decentralised)?
• Organisational authority—eg, who owns and manages primary health care clinics (such as whether private for-profit clinics exist)
• Commercial authority—eg, who can sell and dispense antibiotics in primary health care and how they are regulated
• Professional authority—eg, who is licensed to deliver primary health care services; how is their scope of practice determined; and how they are accredited.
• Consumer and stakeholder involvement—who from outside government is invited to participate in primary health care policymaking processes and how are their views taken into consideration

Financial arrangements
What are the effects of changes in or interventions to improve
• Financing—eg, how revenue is raised for core primary health care programmes and services (such as through community-based insurance schemes)
• Funding—eg, how primary health care clinics are paid for the programmes and services they provide (such as through global budgets)
• Remuneration—eg, how primary health care providers are remunerated (such as via capitation)
• Financial incentives—eg, whether primary health care patients are paid to adhere to care plans
• Resource allocation—eg, whether drug formularies are used to decide which medications primary health care patients receive for free

Delivery arrangements
What are the effects of changes in or interventions to improve
• To whom care is provided and the efforts are made to reach them (such as interventions to ensure culturally appropriate primary health care)
• By whom care is provided (such as primary health care providers working autonomously versus as part of multidisciplinary teams)
• Where care is provided—eg, whether primary health care is delivered in the home or community health facilities
• With what information and communication technology is care provided—eg, whether primary health care record systems are conducive to providing continuity of care.
• How the quality and safety of care is monitored—eg, whether primary health care-focused quality-monitoring systems are in place
primary health care in low-income and middle-income countries. Only one review focused on interventions to improve the referral system in primary health care.27 The webpanel lists topics for which reviews were not identified [A: I cannot see this information in the webpanel. Please check].

Governance arrangements

One review addressed governance strategies for working with the private for-profit sector—including franchising, regulation, and accreditation—to improve the use of quality health services by people in low-income settings.28 There was some evidence that regulation could improve the quality of pharmacy services. The review also showed that the accreditation of pharmacy outlets might have weak positive effects on the use of unregistered drugs, compared with non-accredited facilities. Franchising interventions had mixed effects on quality of care, health care behaviours, and client satisfaction. Although few studies included detailed socioeconomic data for participants, the authors of the review concluded that many of these interventions were likely to be effective in poor communities.

We did not find any systematic reviews that addressed other questions about governance arrangements for primary health care, including decentralisation of decision making, the regulation of training, or the control of corruption.

Financial arrangements

Six reviews addressed financial arrangements for health systems, focusing mainly on the financing of health services29–31 and paying for performance,32 and two of these reviews addressed the effects of user fees. The first review addressed the effects of cap and co-payment policies on drug use, health service use, health outcomes, and costs,33 and found that these policies can reduce drug use and expenditures. However, reductions in drug use were found for both life-sustaining drugs and drugs that are important in treating chronic conditions. Although insufficient data for health outcomes were available, large decreases in the use of essential drugs are likely to have negative effects and could lead to increased use of healthcare services and, therefore, of overall spending. Policies in which people pay directly for their drugs are less likely to cause harm if only non-essential drugs are included in these policies or if there are exemptions to ensure that people receive essential health care.

Another systematic review examined the effects on access to health services in low-income and middle-income countries of introducing, removing, or changing user fees.34 The findings of 17 studies, mostly in primary care, indicated that increasing or introducing user fees substantially reduced health service use and that removing user fees increased service use immediately. However, the removal of user fees could result in increased demands for unnecessary services, create demands that cannot be met, and further demoralise public sector providers, who might rely on these fees to supplement meagre salaries or to provide additional funds for local health facilities.

A review of conditional cash transfers made directly to households, particularly to women, in low-income and middle-income countries found that these interventions were effective in increasing the use of preventive services but had mixed effects on objectively measured health outcomes.29 Well-designed schemes tended to have positive effects but some studies showed that incentives could sometimes have adverse consequences, such as when mothers seemed to keep one of their children malnourished so they would not lose entitlement for the conditional cash transfer.40 Overall, the evidence on conditional cash transfers was of low-to-moderate quality and was largely restricted to Latin American countries with fairly well-functioning health and social security systems.

17 studies were found that assessed the effects of explicit financial incentives on quality of health care [A: ok as rephased?].35 Five of six studies found partial or positive effects of incentives directed at individual physicians. Seven of nine studies of incentives directed at provider groups reported partial or positive effects of

![Figure: Flow diagram of review selection](https://www.thelancet.com)
incentives on quality measures. Most of the effect sizes were small. Two studies that assessed financial incentives at the payment system level had mixed results. Unintended effects of paying for performance included adverse selection of patients and other ways of gaming the system [A: do you mean cheating? Please clarify]. None of these studies were done in low-income or middle-income countries, but most were in primary care.

A review of prospective payments for health care or risk protection mechanisms identified only one study from low-income or middle-income countries. This review [A: are you referring to the findings of reference 23?] indicated that community-based health insurance, compared with no insurance, can increase the uptake [A: ok?] of primary and secondary health care for prenatal consultations and vaccination, but could reduce curative consultations per head of population. However, because the quality of the evidence was low, we cannot draw firm conclusions from these findings. Many studies of community-based health insurance are of small schemes and provide little evidence about scaling-up. No assessments of the effect of social health insurance schemes were identified that met the inclusion criteria for the review [A: do you mean your paper?].

One review reported that vouchers, compared with usual practice, can be effective in increasing the uptake of goods and services, such as insecticide-treated bednets, particularly among the poorest populations.24

### Delivery arrangements

Ten reviews addressed approaches to improving delivery arrangements for health systems.28-30,11-17 Task shifting, “a process whereby specific tasks are moved, where appropriate, to health workers with shorter training and fewer qualifications,”14 was the underlying concern for three reviews.29-31 Traditional birth attendants are one approach to extending first-level care for pregnant women.

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**Table 1: How the included reviews address the goals and aspiration of Alma-Ata**

<table>
<thead>
<tr>
<th>Intersectoral action</th>
<th>Equity/reduce inequalities</th>
<th>Participation in health by consumers</th>
<th>Quality care</th>
<th>Effective care</th>
<th>Coverage/access</th>
<th>Appropriate health care, including referral systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance arrangements</td>
<td></td>
<td></td>
<td>Working with for-profit providers12</td>
<td>Contracting out of health services13; working with for-profit providers12</td>
<td>User payments for drugs10; community-based insurance10; contracting out of health services10; conditional cash transfers to households10</td>
<td></td>
</tr>
<tr>
<td>Financial arrangements</td>
<td>Community-based insurance19</td>
<td></td>
<td>User fees10; Pay-performance10; working with for-profit providers10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delivery arrangements</td>
<td>Distribution of health workers9; specialist outreach clinics12; lay health workers10; training of traditional birth attendants16</td>
<td>Lay health workers10; training of traditional birth attendants16</td>
<td>Contracting out of health services10; integrating primary health care services10; reminders and recall for immunization10; working with for-profit providers10</td>
<td>Contracting out of health services10; distribution of health workers10; specialist outreach clinics12; substitution of doctors by nurses15; lay health workers15; training of traditional birth attendants11</td>
<td>Outpatient referrals11</td>
<td></td>
</tr>
<tr>
<td>Implementation</td>
<td>Guideline dissemination16; audit and feedback10; educational meetings for providers10; educational outreach visits to providers10; working with for-profit providers10</td>
<td>Guideline dissemination16; audit and feedback10; educational meetings for providers10; educational outreach visits to providers10; delivery of preventive services in primary health care10</td>
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1This review could be classified under either delivery or financial arrangements, but we have placed it under delivery in this overview.
and neonates. A review of four studies from low-income and middle-income countries, which compared traditional birth attendants who received training with those who did not, found little evidence that training could reduce perinatal and neonatal deaths and stillbirths [A: ok as rephrased? Sentence was unclear].

The effect on maternal mortality was unclear and there was mixed evidence on the effects on maternal morbidity, the advice given about infant feeding, and appropriate referral of complications.

A related systematic review [A: related to what?] examined 48 randomised controlled trials (RCTs) that assessed the effects of community or lay health worker interventions—programmes that use health workers who are trained in the context of the intervention but where the research was done and where it could be applied in low-income and middle-income countries that might substantially alter the potential benefits of the intervention? And can these challenges be addressed in the short-term to medium-term?

- Are there likely to be important differences in the baseline conditions between where the research was done and where it could be applied in low-income and middle-income countries? If so, this would mean that an intervention would have different absolute effects, even if the relative effectiveness was the same.

- Are there important differences in the structural elements of health systems (ie, governance, financial, and delivery arrangements) between where the research was done and where it could be applied in low-income and middle-income countries that might mean an intervention could not work in the same way?

- Are there important differences in on-the-ground realities and constraints (ie, governance, financial, and delivery arrangements) between where the research was done and where it could be applied in low-income and middle-income countries that might substantially alter the potential benefits of the intervention? And can these challenges be addressed in the short-term to medium-term?

- Are there important differences in the training of nurses and doctors, as well as differences in working conditions, patient populations, and the organisation of primary care, could limit the applicability of the findings to such settings. Another systematic overview of the published studies drew similar conclusions [A: why wasn’t this included in this systematic review?].

Two reviews focused on the primary–secondary care interface—a key component of the primary health care system. The first review included 17 studies of the effects of a range of interventions to change outpatient referral rates or appropriateness. The passive dissemination of guidelines and organisational interventions seemed unlikely to improve referral practices, but several other approaches were promising, including the use of in-house second opinion and the involvement of secondary care providers in guideline dissemination. However, the evidence was mostly of low quality [A: ok?] and only one study was undertaken in a low-income or middle-income country. The second review explored the effectiveness of specialist outreach clinics, and reported that such clinics had promising effects on access to care, quality of care, health outcomes, patient satisfaction, and the use of hospital services, although the quality of the evidence was poor. Although none of the assessments were done in low-income or middle-income countries, the review identified several descriptive studies from such settings, indicating that specialist outreach can be implemented where resources are available to provide these services. Taken together, the two reviews suggested several potential strategies for better integrating appropriate care provision across the primary–secondary interface.

One review examined strategies to improve immunisation delivery. Based on 43 studies of the effectiveness of patient care, in increasing the uptake of childhood immunisation, workers show promising benefits, compared with usual tertiary education—in primary health care.

have no formal professional, certificated or degreed interventions—programmes that use health workers assessed the effects of community or lay health worker examined 48 randomised controlled trials (RCTs) that evidenced on the effects on maternal morbidity, the on maternal mortality was unclear and there was mixed evidence, of low-to-moderate quality, that patient outcomes and care processes were similar for nurses and doctors and that patients were more satisfied with care from nurses than from doctors. Nurse practitioners also provided longer consultations, did more investigations, and were more likely to admit patients to hospital than doctors. No significant differences in costs were found, possibly due to nurses’ increased use of resources or their lower productivity. There was also little evidence on whether shifting tasks from doctors to nurses reduced doctors’ workload, although this seems unlikely in many low-income and middle-income settings, where demand for doctors’ time greatly exceeds supply. None of the included studies were done in such countries, and differences in the training of nurses and doctors, as well as differences in working conditions, patient populations, and the organisation of primary care, could limit the applicability of the findings to such settings. Another systematic overview of the published studies drew similar conclusions [A: related to what?] Two reviews included 17 studies of the effects of a range of interventions to change outpatient referral rates or appropriateness. The passive dissemination of guidelines and organisational interventions seemed unlikely to improve referral practices, but several other approaches were promising, including the use of in-house second opinion and the involvement of secondary care providers in guideline dissemination. However, the evidence was mostly of low quality [A: ok?] and only one study was undertaken in a low-income or middle-income country. The second review explored the effectiveness of specialist outreach clinics, and reported that such clinics had promising effects on access to care, quality of care, health outcomes, patient satisfaction, and the use of hospital services, although the quality of the evidence was poor. Although none of the assessments were done in low-income or middle-income countries, the review identified several descriptive studies from such settings, indicating that specialist outreach can be implemented where resources are available to provide these services. Taken together, the two reviews suggested several potential strategies for better integrating appropriate care provision across the primary–secondary interface.

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Table 5, original table 1 changed to a panel, original tables 2 and 4 going online only

For the WHO Integrated Management of Childhood Illness see http://www.who.int/imci-mce

or parent reminder and recall systems, such as letter and telephone calls, the review found moderate quality evidence that such strategies can increase immunisations. These interventions were assessed in high-income countries and could only be applied in other countries if they were able to establish immunisation tracking systems. Another review looking at delivery arrangements found that the use of lay health workers seemed to be a promising strategy for promoting immunisation. The use of text messaging reminders might also have promise, since the use of mobile phones is increasing.

Service integration is often seen as a key element of primary health care. One review examined the effects of strategies to integrate primary health care services in low-income and middle-income countries. The review found limited evidence from four studies of the effects of strategies for integrating primary health care services at the point of delivery, from comparisons between integrated and vertical approaches to delivering services. The WHO Integrated Management of Childhood Illness programme seems to have promising effects on care delivery, but cointerventions, including the provision of drugs, might have confounded these results.

A review that focused on strategies for working with the private for-profit sector assessed the use of social marketing and drug prepackaging. The included studies showed substantial increases in the use of programme commodities and services, although effect sizes varied. Two of the studies combined social marketing with prepackaged drugs. A review of studies looking at contracting out primary and secondary health care services in low-income and middle-income countries found evidence that the use of non-governmental organisations to deliver care can increase access to and use of health services, improve patient outcomes, and reduce household health expenditures. These findings are compatible with those from a review by Patouillard and colleagues, which showed mixed effects on the quality of hospital and primary care services for specific conditions, drawing on a different set of studies. However, for both reviews the low quality of the evidence makes the attribution of these effects to the interventions difficult, since they were confounded, for example, by increased expenditure on health care in the group that was contracted out.

Another review explored the effects of interventions to increase the proportion of health professionals practicing in underserved communities. It found no rigorous evidence to support strategies to improve health professional distribution. Some evidence, albeit of very...
low quality, suggested that professionals from a rural background were more likely to practice in rural areas and that clinical rotations in such settings might affect medical students’ decisions to work in underserved areas. Incentive and support programmes might also increase physician retention rates.

Implementation strategies

Five included reviews assessed exclusively strategies to change professional behaviours or performance to improve the implementation of care. These strategies included guideline dissemination, audit and feedback, educational outreach visits, and educational meetings. Drawing largely on studies from high-income settings, the reviews suggested that these interventions could result in small to moderate improvements in professional performance and health outcomes, compared with no intervention. A substantial number of these studies were done in primary care settings and the findings could be generalisable to such settings in low-income and middle-income countries. Key findings from the five reviews are summarised in panel 3. A sixth review that addressed strategies for working with the private for-profit sector found that several training interventions improved the quality of treatment for various different conditions.

Discussion

Most of the included reviews were of high quality, with only minor deficiencies, although the primary research that was reviewed was often of low-to-moderate quality. This overview has several limitations which result partly from the relative dearth of evidence from low-income and middle-income countries and partly from the need to focus on the most relevant reviews. We assessed only systematic reviews and might therefore have excluded non-systematic reviews with useful information, as well as studies not included in a systematic review. We also excluded disease-specific reviews, although many of the studies in them are included in the reviews summarised here. This is particularly true for reviews of implementation strategies.

Our judgment of each review’s relevance to primary health care in low-income and middle-income countries, and hence whether it was included, was based on consensus among the authors, which was sometimes difficult. We did, however, seek comments on these judgments from people working in various low-income and middle-income countries. Both the relevance of the reviews and the applicability of the findings can vary across settings. Similarly, several systematic reviews not included in this overview might be considered relevant to primary health care in at least some settings. Other systematic reviews are discussed elsewhere.

Our assessments of applicability and equity considerations are based on the data presented in the reviews, the judgment and experience of the overview team, and comments from colleagues about the summaries on which this overview is based. Few of the included reviews provided any data for the differential effects of the interventions for disadvantaged populations (webtable 2), probably because the studies included in these reviews did not report this. Assessments of applicability were particularly difficult for reviews that included few studies from low-income and middle-income settings. Others may have made different assessments based on the same data. Nonetheless, there is a great deal of variation within and across low-income and middle-income countries and judgments must be made about the applicability of the overview findings, or any research, in the specific settings in which decisions are taken. Similarly, context is important in interpreting the evidence. For example, the background and training of lay health workers and the tasks undertaken by them varies substantially across contexts.

Thus, although this overview is valuable for providing a broad summary of relevant information for decision makers, it cannot provide a sufficient basis by itself for making informed decisions about primary health care systems in a specific setting.

We did not identify systematic reviews that included studies in low-income and middle-income countries for two key aspirations of the Alma-Ata Declaration: intersectoral action and participation in health care. Although several reviews of participation have been undertaken, they either included studies from high-income countries only or were not systematic reviews. Two included reviews address this issue indirectly and a
further article discusses how and why community mobilisation is central to effective primary health care.36

We also identified few reviews relevant to the aspiration of appropriate health care, including referral systems, or focusing on health systems governance arrangements. The last issue relates closely to the Alma-Ata aspiration of participation in health care in its focus on the involvement of different actors—including citizens, health care consumers, and health care providers—in decision making for health care delivery, and is receiving increasing attention internationally.35–37 The lack of systematic reviews on these topics does not mean that they are not important or that there is no evidence, but it does suggest there is a need to systematically review what evidence there is to inform decisions and future research.

Data for costs and cost-effectiveness was often not available in the included reviews for the health system arrangements and implementation strategies considered here. For example, although strong evidence is available on the effectiveness of lay health worker programmes for certain health issues in low-income and middle-income countries, most of the studies included in that review did not report data for costs or cost-effectiveness,36 particularly when compared with similar interventions delivered by health professionals. Such data might have to be obtained from other types of studies.60

The relatively small proportion of effectiveness studies undertaken in low-income and middle-income countries could suggest that much research funding has been dissipated on poor quality research that does not meet the quality criteria for entry into systematic reviews or that little research in this area has been funded. Funders, including the GAVI Alliance, the Global Fund to Fight AIDS, Tuberculosis and Malaria, and the World Bank, need to ensure that new programmes are evaluated rigorously so that the knowledge base on the effects of health systems arrangements for primary health care can be strengthened.61 Funders also need to explore mechanisms for better coordination of their research and implementation activities.86

This overview has several important findings: firstly, there is evidence that user fees reduce the use of necessary (as well as non-essential) health services and drugs, thereby further disadvantaging poor populations. However, removal of user fees needs to be accompanied by policies to remunerate health workers adequately, as well as alternative means of financing health care. Other financial mechanisms to improve access to health care need to be assessed, including community-based health insurance and social health insurance schemes. Evidence of the effects of community-based health insurance, particularly on poor populations, remains weak. Although there are a few case reports of promising attempts to scale-up community-based health insurance, such as in Rwanda,62 subsidies will still be needed to achieve coverage for the poorest people.64 In general, the removal of financial barriers to essential medicines and services should be considered. Some form of risk sharing is needed, although how best to do this will differ across contexts. A systematic approach is needed for the design, monitoring, and evaluation of alternative models, and should include a description of how revenue is collected (eg, through general taxes, health insurance, donor funding), the type of organisation that collects revenues (eg, public, private not for profit, private for profit), who and what is covered, how funds are allocated, from whom services are purchased, and how service providers are paid.65

Secondly, there is some evidence of effective strategies for improving quality of care in the private for-profit sector. In view of the importance of this sector in many low-income and middle-income countries, these approaches could be worth pursuing. However, other reviews have shown that care provided in for-profit hospitals or for-profit dialysis clinics generally results in worse outcomes and, in the case of care provided in for-profit hospitals, is generally more expensive.66–68 Although this evidence is largely from hospitals in the USA, the findings were consistent across several decades, and the same underlying mechanisms could apply in low-income and middle-income countries. Furthermore, evidence of the effects of strategies for working with both the not-for-profit and the for-profit private sector remains limited,69–74 and there are important questions regarding the weight to be given to investing in strengthening the private sector versus strengthening the public sector. Whatever choices are made, governments need to develop capacity to ensure effective, efficient, and equitable health care delivery, since this stewardship role cannot be left to the market alone.

Thirdly, there is promising, although limited, evidence on the effects of strategies to increase integration of primary health care services.75–78 Delivering packages of interventions, for example to improve child health, might also contribute to service integration, but evidence here too seems to be limited.79 Although integration could improve service delivery and outcomes, the effect of strategies to achieve integration need to be assessed. Although integration is intended to reduce differences in access and use of health services between geographical and socioeconomic groups, this can only be expected to the extent that it is targeted at disadvantaged populations and is effective. It could have unintended and unwanted outcomes if it results in overloaded or deskilled health workers or reduces ability and capacity to deliver specific technical services compared with vertical programmes.80 Vertical programmes, although contrary to the primary health care vision of Alma-Ata, might therefore have an important role where health systems are weak.75 However, only a small number of these can be sustained and they can drain resources from the wider health system and lead to service duplication, inefficiency, and fragmentation. So-called diagonal approaches—which
attempt to improve disease-specific outcomes through health systems strengthening—have been proposed as a mechanism for addressing health systems weaknesses.\(^\text{12}\) A framework to guide the design and implementation of changes between vertical and integrated services might be useful.

Fourth, the review identified encouraging evidence for the effectiveness, for a wide range of services, of task-shifting from doctors to nurse practitioners and from health professionals to a wide range of lay providers who have had only short periods of formal training. Another review of the effects of community-based interventions, including traditional birth attendants, on perinatal, neonatal and maternal outcomes also had positive findings, suggesting that these interventions may reduce neonatal and perinatal mortality but showing a non-significant reduction in stillbirths. Community-based interventions also had a substantial effect on maternal morbidity, but not on maternal mortality.\(^\text{13}\) These findings regarding task shifting are particularly important given the lack of robust evidence on interventions to improve the distribution and retention of health professionals, and also follow the principle that care should be delivered at the lowest effective level of care. The scaling-up of lay health worker programmes should therefore receive greater attention. Effective and supportive supervision of primary health care is also key to improving service delivery. Although we did not include any reviews on this topic, a recently published review, drawing on limited evidence, suggests that it might be a promising approach.\(^\text{14}\)

Fifth, the review indicates that implementation strategies can have important, albeit modest, effects. For some such interventions, such as audit and feedback, both relative and absolute effects are likely to be larger where baseline compliance to recommended practice is low. Although few studies of quality improvement interventions were undertaken in low-income and middle-income countries, many of the evaluated strategies are feasible in such settings and similar effects could be expected.\(^\text{15}\) However, nearly all of the assessments were one-off studies initiated by researchers and there is a paucity of evaluations of quality improvement systems. For example, the effects of outreach visits on prescribing were one-off studies initiated by researchers and there is a paucity of evaluations of quality improvement systems. Convening national policy dialogues is an example of a strategy that can address a second factor, namely interactions between research and policy makers. Integrated national initiatives, such as the WHO-sponsored Evidence-Informed Policy Networks, also hold promise.\(^\text{75, 77}\)

Progress in achieving universal access to primary health care since Alma-Ata has faltered in many countries. Action needs to be taken urgently to improve primary health-care systems in order to achieve the Millennium Development Goals and the aspirations of the Alma-Ata Declaration. There are numerous promising health systems strategies to improve the delivery and performance of primary health care in low-income and middle income settings. These need to be tailored to local circumstances and health systems, and accompanied by rigorous evaluation until the evidence base is stronger. However, actions need to be accompanied by rigorous evaluations of the strategies that are used. The alternative is to remain as uncertain 30 years from now as we are currently about the effects of governance, financial, delivery, and implementation strategies on primary health care.

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References
3 Sanders DM, Grobler L, Marais B, Mahbuda S, Marindia P, Reuter H, Volmink J. Interventions for increasing the proportion of health professionals practising in underserved communities. Cochrane Library. [A: has this been published yet?]
4 Grobler L, Marais B, Mahbuda S, Marindia P, Reuter H, Volmink J. Interventions for increasing the proportion of health professionals practising in underserved communities. Cochrane Library. [A: has this been published yet?]
15 Laurant M, Palmer N. Cost of shift from qualified medical staff to auxiliary health workers. Cochrane Library. [A: has this been published yet?]