Chapter 15. Innovations to Expand Access and Improve Quality of Health Services

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ABSTRACT

Although past editions of the Disease Control Priorities Project recommended which interventions should be delivered, there was no discussion of which service delivery platforms could be utilized. We provide a landscape analysis of the current status of service delivery platforms in LMICs for reproductive maternal, neonatal and child health (excepting community-based platforms, covered elsewhere), including indicators for structure, process and outcomes. We then examine innovations in the literature that evaluate expanding access to and quality of services. We find that task-shifting, community groups, and conditional cash transfers hold promise for increasing access, while no clear recommendations exist regarding improving quality.

KEY WORDS: Task-shifting, Quality improvement, performance based financing, supervision, conditional cash transfer
Introduction

Past editions of the Disease Control Priorities Project (DCPP) contained extensive discussions of which health care services should be delivered to reduce the global burden of disease for a wide variety of diseases. These editions also provided justification, including calculating cost-effectiveness ratios, for prioritizing the particular interventions (Jamison and others 1993, 2006). There was, however, little discussion of which service delivery platforms could be utilized to deliver the prioritized health care services.

To facilitate such discussion, we describe the existing health care service delivery mechanisms for reproductive, maternal, neonatal, and child health (RMNCH) that are not community-based; the availability of community-based RMNCH service delivery is discussed in chapter 13 of this volume. We also discuss different ways of organizing service delivery, including innovative approaches and their impacts on the quality of services delivered.

We begin with a landscape analysis of RMNCH indicators, organized by the conceptual framework utilized throughout this volume and described in detail in chapter one: structure, including human resources; process; and outcomes. We next discuss different ways of organizing service delivery for RMNCH, including task-shifting, as well as examples unrelated to personnel. We examine coverage gaps and efforts to boost coverage, and we describe innovations to improve quality. Although evidence exists regarding the benefits of increasing coverage with innovative methods, little evidence is available on the effects of this increased coverage on quality. This paucity is due partly to a lack of an agreed-upon methodological framework, as well as the poor quality of studies that do attempt to evaluate the innovative interventions.

Landscape Analysis of RMNCH Indicators

To ensure the most consistent and comparable results, we present data from the World Bank Indicators database, retrieving the most recent data for each country and averaging across available countries for each indicator to calculate regional averages for low- and middle-income countries (LMICs) in six regions: East Asia and Pacific; Europe and Central Asia; Latin America and the Caribbean; Middle East and North Africa; South Asia; and Sub-Saharan Africa.

First, we discuss indicators that represent the structure of the service delivery platforms, measured by the number of nurses and midwives per 1,000 people; the number of physicians per 1,000 people, and the number of hospital beds per 1,000 people.

Second, we present indicators measuring the process of health care service delivery. For children, these are the percentage of children under age five years taken to health providers for treatment of acute respiratory infection (ARI); the percentage under age five years with a fever receiving antimalarial drugs; and the percentage under age five years receiving a packet of oral rehydration solution (ORS) for treatment of diarrhea. For women, these are the percentage of births attended by skilled health staff, and the percentage of pregnant women receiving antenatal care.

Finally, we examine indicators for outcome measures. For children, these are the percentage ages 12-23 months who are immunized against DPT; the percentage ages 12-23 months who are immunized against measles; the percentage of newborns protected against tetanus; the percentage under age five years who use insecticide-treated bed nets; and the percentage ages 6-59 months who receive vitamin A supplementation. For women, this is the percentage of married or in-union women ages 15-49 years who have an unmet need for contraception.
Structure of Service Delivery Platforms

The first panel of table 15.1 displays the number of structural resources associated with each region.

Number of Nurses and Midwives
Europe and Central Asia has 5.36 nurses and midwives per 1,000 people, almost twice as many as the next grouping of regions: Latin America and the Caribbean (2.76 per 1,000); East Asia and Pacific (2.52 per 1,000); and the Middle East and North Africa (2.40 per 1,000). After these four regions, the number of nurses and midwives drops dramatically to about one per 1,000 people in Sub-Saharan Africa; South Asia has only about 0.5 nurses and midwives per 1,000 people, less than 10 percent of the value of the highest value observed in Europe and Central Asia.

Number of Physicians
Europe and Central Asia also has the highest number of physicians per 1,000 people—2.78 physicians per 1,000 people. This is almost twice as high the values for the next group of countries; Latin America and the Caribbean and the Middle East and North Africa each have 1.5 physicians per 1,000 people. East Asia and Pacific drops significantly below, with only 0.9 physicians per 1,000 people. This value drops again by half in South Asia, which has only 0.4 physicians per 1,000 people. Sub-Saharan Africa has only 0.16 physicians per 1,000 people; this is almost 5 percent of the highest value observed of 2.78 in Europe and Central Asia, an even greater differential than that between the highest and lowest regions for nurses and midwives per 1,000 people.

Number of Hospital Beds
The number of hospital beds per 1,000 people varies from a high value of 5.34 in Europe and Central Asia to a low value of 1.41 in Sub-Saharan Africa. Europe and Central Asia has more than double the number of hospital beds per 1,000 people in the next region, 2.56 per 1,000 people. Latin America and the Caribbean and the Middle East and North Africa have similar values, at approximately 1.9 hospital beds per 1,000 people. South Asia and Sub-Saharan Africa have the fewest number of hospital beds per 1,000 people, at 1.50 and 1.41, respectively. This value is approximately 25 percent of Europe and Central Asia, representing a relatively lower level of inequality in the distribution of resources.
Table 15.1 Structure, Process, and Outcomes Indicators for RMNCH, by Region

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Region</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>East Asia and Pacific</td>
</tr>
<tr>
<td>Structure (including human resources)</td>
<td></td>
</tr>
<tr>
<td>Nurses and midwives (per 1,000 people)</td>
<td>5.36</td>
</tr>
<tr>
<td>Physicians (per 1,000 people)</td>
<td>2.78</td>
</tr>
<tr>
<td>Hospital beds (per 1,000 people)</td>
<td>5.34</td>
</tr>
<tr>
<td>Process</td>
<td></td>
</tr>
<tr>
<td>ARI treatment (% of children under age five years taken to health providers)</td>
<td>70.3</td>
</tr>
<tr>
<td>Births attended by skilled health staff (% of total)</td>
<td>98.0</td>
</tr>
<tr>
<td>Diarrhea treatment (% of children under age five years who received ORS packet)</td>
<td>38.7</td>
</tr>
<tr>
<td>Pregnant women receiving prenatal care (%)</td>
<td>95.3</td>
</tr>
<tr>
<td>Outcomes</td>
<td></td>
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<tr>
<td>Immunization, DPT (% of children ages 12-23 months)</td>
<td>91.7</td>
</tr>
<tr>
<td>Immunization, measles (% of children ages 12-23 months)</td>
<td>93.2</td>
</tr>
<tr>
<td>Newborns protected against tetanus (%)</td>
<td>83.9</td>
</tr>
<tr>
<td>Unmet need for contraception (% of married women ages 15-49)</td>
<td>15.2</td>
</tr>
<tr>
<td>Vitamin A supplementation coverage rate (% of children ages 6-59 months)</td>
<td>95.0</td>
</tr>
</tbody>
</table>

Source: Author's calculations based on World Bank Indicators database

Note: Europe and Central Asia
Process of Health Care Service Delivery

Indicators Related to Children

The indicators measuring the health care system process, which contribute to the final set of indicators—health outcomes—are displayed in the second panel of table 15.1. For the two process indicators related to children, the values across regions are much more similar than the values for the structural indicators. The values for the first indicator, the percentage of children with ARI taken to health providers, range from a high value of 70 percent in Europe and Central Asia; to East Asia and Pacific and the Middle East and North Africa regions, with values of 69 and 68 percent, respectively; to a low of 50 percent in Sub-Saharan Africa. Latin America and the Caribbean and the Middle East and North Africa fall in-between, at 64.5 and 56.7 percent, respectively. The lowest value itself is fully 70 percent of the highest value, which is significantly better than the differential that exists regarding structural indicators.

The same is true for the second process indicator related to children, the percentage of children under age five years who receive ORS for diarrhea. East Asia and Pacific displays the highest percentage at 50.7 percent, followed by South Asia at 47.4 percent, Latin America and the Caribbean at 44.5 percent, Middle East and North Africa at 38.8 percent, Europe and Central Asia at 38.7 percent, and Sub-Saharan Africa at 34.2 percent. The difference between the highest and lowest observations is about the same, with the lower statistic approximately 67 percent the level of the higher statistic.

Indicators Related to Women

The percentage of births attended by skilled health staff reaches 98 percent in Europe and Central Asia. The next three regions follow closely: Latin America and the Caribbean at 86.7 percent, the Middle East and North Africa at 84.8 percent, and East Asia and Pacific at 81.2 percent. The value for the next region, Sub-Saharan Africa, drops to 57.8 percent. The lowest level is in South Asia; skilled health personnel only attend 40.3 percent of births; this rate is only 40 percent of the highest value in Europe and Central Asia.

The percentage of women who receive some antenatal care shows a slightly more compressed distribution of values across regions. The highest value is observed again in Europe and Central Asia, followed even more closely by the Latin America and the Caribbean (94.4 percent), East Asia and Pacific (91.6 percent), and the Middle East and North Africa (87.5 percent); Sub-Saharan Africa is only slightly lower at 81.9 percent. South Asia lags, with only 59.4 percent of women there receiving some prenatal care; however, this lowest value is still about 60 percent of the highest value observed in Europe and Central Asia.

Health Outcomes

The indicators representing health outcomes as a result of the performance of the RMNCH health care service delivery system are displayed in the third panel of table 15.1.
Immunizations
The recent push to increase coverage in immunizations is reflected in the relatively high rates shown, with only one region dropping below 80 percent immunization for the first three indicators. The first four regions show rates of around 90 percent for immunizing children against DPT and measles; South Asia and Sub-Saharan Africa report child immunization rates around 80 percent. The lowest percentages for these two immunization rates are about 85 percent of the value of the highest percentages, indicating a fairly even distribution of immunizations across all LMICs. The percentage of newborns protected against tetanus is slightly lower overall; the highest value was 86 percent in the Middle East and North Africa, but here the lowest percentage is only 79.6 percent in South Asia, fully 93 percent of the highest value.

Vitamin A Supplementation
The percentage of children receiving vitamin A supplementation varies widely from 95 percent in Europe and Central Asia to 31 percent in Latin America and the Caribbean.

Unmet Need for Contraception
The unmet need for contraception varies from 25.1 percent in Sub-Saharan Africa to 13.8 percent in the Middle East and North Africa. Both Latin America and the Caribbean and the Europe and Central Asia have values similar to those of the Middle East and North Africa, 15.2 and 16.1 percent, respectively. South Asia and East Asia and Pacific have similar levels of unmet need at 20.5 and 21.4 percent, respectively.

Organizing Service Delivery
Task-Shifting Related to Personnel
Given significant financial requirements health systems in LMICs, where both personnel costs account for a large proportion of budgets and shortages of health personnel exist, one innovative approach to delivering more services is through reassigning part or all of certain tasks to lower cadres of workers. Because the quality of services may be affected through task-shifting, the World Health Organization undertook an extensive review of the literature in order to ascertain which interventions could safely and effectively be delivered by different cadres, and in a sustainable fashion (WHO 2012).

Based on the evidence, the classification of whether task-shifting can be used to deliver specific interventions is as follows:

- Recommend
- Recommend with targeted monitoring and evaluation
- Recommend only in the context of rigorous research
- Recommend against the practice.

After an extensive review of the literature that is documented in the 2012 recommendations, the Guidance Panel made 119 recommendations for tasks that could be potentially shifted: 36 for lay health workers, 23 for auxiliary nurses, 17 for auxiliary nurse midwives, 13 for nurses, 13 for
midwives, eight for associate clinicians, eight for advanced level associate clinicians, and one for non-specialist doctors.

In addition, the Guidance Panel refers to several factors that might create difficulties when task-shifting is implemented:

- **Management of programs**: If sufficient and trained management personnel are not available to supervise the lower cadre of workers, quality and efficiency may suffer. However, local implementation of programs might improve with local knowledge.
- **Financial issues**: Financial management capacity may not be available at more decentralized levels, which would impede the success of task-shifting. In addition, if higher cadres are compensated on a fee-for-service basis, shifting tasks may affect their income and hence encounter resistance.
- **Supply issues**: Shifting to more decentralized service delivery may result in stock-outs if logistical systems are overwhelmed.
- **Effects of task-shifting on personnel**: Task-shifting will affect providers from whom and to whom tasks are shifted, along with their interactions. Ensuring their inclusion in the design process could help to smooth the transitions.
- **Health workforce impacts**: The demand for both pre-service and in-service training is likely to increase. In addition, lower cadres will likely need higher levels of supervision and support, which should be included in any analysis of financial implications of task-shifting.

**Task-Shifting Related to Other Approaches**

Several innovative approaches unrelated to personnel have been reported.

- Two recent studies evaluated the safety and efficacy of using sublingual misoprostol for incomplete abortions instead of surgical techniques, basically shifting the task from expensive personnel to a medication, although some personnel were involved in the implementation of the interventions (Ngoc and others 2013; Shochet and others 2012).
- An example of innovative task-shifting was recorded in Ethiopia in measuring maternal mortality. A community-based approach in a rural area was tested at three health posts and one health center. Instead of tasking physicians with attributing cause of death, this approach trained priests, traditional birth attendants, and community-based reproductive health agents in reporting all births and deaths to the community health post (Prata and others 2012).
- A review article of the use of ultrasound to diagnose obstetrical conditions in LMICs found that it was highly effective, resulting in different clinical management in more than 30 percent of cases. The authors recommend expanding its use for tropical and noncommunicable diseases (Groen and others 2011).

**Expanding Coverage and Improving Quality of Care**

 Achieving health improvements for women and children requires high coverage with essential interventions. It also requires that those interventions are effective in combating disease and promoting health. The success of the RMNCH agenda hinges on both coverage and quality. In this section, we review tested approaches to improving the coverage of priority RMNCH health
care services, as well as efforts to improve their effectiveness. Although for child health in particular, many essential interventions are in the home and community, we focus here on clinical settings—dispensaries, health centers, or hospitals.

**Expanding Coverage**

The Millennium Development Goals (MDGs) proposed ambitious maternal and child health targets: 2/3 reduction in mortality under age five years mortality and ¾ reduction in maternal mortality between 1990 and 2015. These goals were based on expert estimates that if existing health interventions could be distributed to all women and children in need in LMICs, it would be possible to reduce mortality dramatically without the need for further technical breakthroughs. This remarkable assertion shone the light on gaps in coverage of RMNCH services.

Bhutta and colleagues reviewed progress on provision of 26 key maternal and child health intervention in 68 countries that accounted for more than 90 percent of maternal and child health deaths globally in 2010 (Bhutta and others 2010). As figure 15.1 shows, they found substantial underprovision in a range of health services. Coverage tended to be highest for interventions that can be delivered vertically through specialized programs or campaigns and can be scheduled in advance. In contrast, coverage of curative interventions, and those that were more complex or required treatment on demand, was lower. An excellent example of this divergence is the high coverage of antenatal care versus the low coverage of deliveries by skilled birth attendants. The coverage gaps for curative and complex interventions result from weak health systems where health workers are few and often demotivated; facilities are deteriorating; and supplies, equipment, and medicines are lacking. Perhaps most important, accountability for results is weak: only one in three of the countries reviewed had policies on maternal death notification, and fewer than one in two had robust vital registration systems (Bhutta and others 2010).

Equity analyses show major variations in coverage levels within low-income, high-burden countries, with the rich utilizing maternal and child health services more than the poor. The differences are largest for health system interventions, such as skilled birth attendance and four antenatal care visits, where the ratio of coverage between the richest and poorest wealth quintile ranges from 3:1 to 5:1 (Barros and others 2012).

Efforts to increase coverage of RMNCH services have largely centered on users. These demand-side interventions are intended to raise awareness of the need for health care and reduce direct and opportunity costs of care seeking.

**Community Mobilization**

The formation of women’s groups to promote effective parenting, feeding, and recognition of signs of illness has been tested in several settings. Fottrell and colleagues found that introduction of women’s groups that participated in a learning and action cycle to improve the health of mothers and children in a cluster-randomized trial in Bangladesh was associated with a 38 percent reduction in neonatal mortality and was cost-effective (Fottrell and others 2013). A study in Malawi reported reductions in both maternal mortality and infant mortality in areas with women’s groups, compared to groups with peer counselors (Lewycka and others 2013). A meta-analysis including these and other rigorous studies suggested that women’s participatory learning and action groups could potentially reduce maternal mortality by 37 percent and newborn mortality by 23 percent (Prost and others 2013).
User Fee Removal
User fees, or payments for services at the point of care, have been extensively studied for their role in suppressing health care seeking. In the wake of the MDGs, many low-and middle-income countries in Sub-Saharan Africa removed user fees for maternal and newborn care in the mid-2000’s to enhance antenatal care and skilled delivery coverage. Typically, user fee removals have resulted in increased utilization of the targeted service, sometimes by a large margin (Lagarde and Palmer 2008; Ponsar and others 2011). The effect is particularly pronounced for curative services with the poor showing largest increases in utilization (Nabyonga and others 2005). However, effects on quality of care and long-term health outcomes have not been systematically examined. Adequate preparation for user fee removal is required if facilities are not to be overwhelmed with new patients (Meessen and others 2011). At the national level, greater reliance on government health financing (versus out-of-pocket and private insurance) is associated with higher coverage of skilled delivery attendants and cesarean section (Kruk and others 2007).

It is increasingly evident that user fee removal, while promoting utilization, does not protect women and families from financial hardship (Kruk and others 2008; Xu and others 2006). This is the case particularly for complex services, such as emergency obstetric care, and for poor families. This hardship is driven by costs of travel, purchase of supplies and medicines out of stock in government clinics, informal payments, and continued use of private providers where available (Nabyonga and others 2011). In short, removal of user fees is an important but partial solution to expanding coverage and providing financial protection.

Conditional Cash Transfers
Conditional cash transfers are negative user fees in the sense that they pay households for using services rather than charging for services. Whereas low- and middle-income countries have experimented with removing fees, many countries in Latin America have introduced financial incentives for using care with the aim of improving home health practices and health care utilization, as well as a wide range of other desired social behaviors, such as education and employment. A 2007 Cochrane review found that conditional transfers were associated with higher utilization and may be an effective approach to promoting preventive interventions, such as immunization (Lagarde, Haines, and Palmer 2007).

Recent experiences with conditional cash transfers have been positive. Brazil’s Bolsa Familia Programme (BFP), which provided households with cash transfers of US$18 to US$175 per month conditional on fulfilling the requirements on health and education were associated with reduced mortality under age five years. Effects increased with BFP coverage and were greatest for mortality due to malnutrition (Rasella and others 2013). The Mexican program Oportunidades that paid women for antenatal care (ANC) visits increased ANC attendance but also increased delivery by physicians or nurses by 40 to 90 percent in rural Mexico (Sosa-Rubi and others 2011). The same program raised cesarean section rates among underserved poor women in rural areas by 7.5 percent (Barber 2010).

A current debate is whether unconditional transfers (UCTs)—cash transfers to the poor unlinked to specific desired behaviors—can accomplish similar outcomes while reducing administrative and logistical hurdles. A study in Zimbabwe showed that CCTs and UCTs achieved similar improvements in school attendance, and that CCTs but not UCTs increased the
proportion of children with birth certificates (Robertson and others 2013). An earlier study by Baird found that UCTs and CCTs reduced HIV and herpes simplex virus 2 infections in adolescent girls (Baird and others 2012). More research is needed to achieve efficient and effective policies.

**Vouchers**

Vouchers are another type of demand-side incentive. Vouchers are distributed or sold at a discount to target populations who can exchange them for health services by contracted providers/facilities. Vouchers often include private sector services, thereby enlarging the set of health service options for women and children. Because provider participation in voucher schemes is generally conditional on accreditation, voucher programs offer an opportunity to improve quality of care in enrolled facilities. Vouchers have been extensively used to promote the uptake of family planning, facility delivery, and child preventive care. Although rigorous evaluations are few, vouchers have been linked to increases in utilization of facility delivery and family planning services (Bellows and others 2013; Bellows, Bellows, and Warren 2011). Vouchers appear to be less effective in areas with high levels of poverty, where contracted facilities are fewer and roads are poor (Kanya and others 2013). Transport vouchers are a promising intervention in these areas (Ekirapa-Kiracho and others 2011).

However, a recent quasi-random evaluation of a very large voucher-type scheme, India’s Chiranjeevi Yojana, found no differences in facility delivery rates or newborn complications, compared to non-program areas. This study is notable for contradicting earlier findings of large improvements in facility deliveries and reductions in maternal and child deaths, which the authors of the recent evaluation attribute to poor study design in earlier research. The CY program, which covered 800,000 deliveries between 2005 and 2012, pays contracted private sector hospitals a fixed fee (US$37) per vaginal or cesarean delivery per poor woman. The authors note that poor quality in contracted hospitals and high transport costs may have constrained demand for services (Mohanan and others 2013).

**Performance-Based Financing**

Performance-based financing (PBF), or paying for performance, is a supply-side financing method that rewards providers or health care organizations for achieving coverage or quality targets. These rewards typically are in the form of bonus payments in addition to regular salaries. A frequently cited study from Rwanda showed a 23 percent increase in facility delivery and larger increases in preventive care visits by young children in facilities enrolled in pay-for-performance schemes, as compared to randomly selected controls (Basinga and others 2011). These increases did not favor the rich or the poor, so additional measures would be required to close the equity gap in utilization (Priedeman Skiles and others 2012).

However, a Cochrane review suggests that the quality of evidence is too poor to draw general conclusions about the effectiveness of PBF, noting that several studies arrived at contradictory results (Witter and others 2012). Fretheim and colleagues argue that PBF is a donor fad and unproven; others counter that whatever its direct effects, PBF may trigger constructive reforms in public health systems to make care at public facilities more efficient and responsive (Fretheim and others 2012; Meessen, Soucat, and Sekabaraga 2011).
Improving Quality

Poor quality of care is a double obstacle to improved survival for mothers and children; it deters utilization and reduces the effectiveness of care in achieving good health outcomes. To improve health, health care has to effective and safe. Interventions that are efficacious in clinical trials or in highly skilled settings in HICs have frequently been shown to be less effective when implemented in resource-constrained health systems in LMICs (Das and Gertler 2007; Das and others 2012; Leonard and Masatu 2007).

Quality of care for complex services is particularly problematic. One study assessed the use of evidence-based interventions in maternal health care and the frequency of poor maternal outcomes (near miss or maternal death) in large hospitals in 29 low- and middle-income countries (Souza and others 2013). The investigators found that mortality ratios were 2-3 times higher than expected on the basis of illness severity in high and very high maternal mortality ratio countries, which were the poorest countries in the sample; most were in Sub-Saharan Africa. These excess deaths occurred despite the high use of key interventions, such as magnesium sulfate for treating pre-eclampsia/eclampsia. Delays in the detection or treatment of complications, poor quality critical supportive care (such as airway and fluid management), and weak infection control explained the poor outcomes (Souza and others 2013).

In addition to affecting health outcomes, quality of care can influence coverage. Good quality promotes trust in the health system and encourages utilization; poor quality can dissuade people from using health care.

One indicator of population preferences for care is bypassing—going to a farther facility when a nearby health facility is available. Bypassing is considered a strong sign of revealed preference, since attending distant facilities takes longer and is more costly. Leonard and colleagues showed that Tanzanian patients travel further if they can access providers with greater medical knowledge and facilities that are better stocked (Leonard 2002). In examining the utilization of facilities for delivery, our team found that four in 10 women bypassed local facilities to deliver in hospitals in western Tanzania, despite wide availability of nearby dispensaries that could provide the service (Kruk, Mbaruku, and others 2009). Bypassing was highest among first-time mothers, who were likely motivated by perceived higher risk of first delivery, and was higher among women who perceived the local clinic to provide low quality care.

In a separate paper, we found strong preference for quality of care attributes in shaping women’s decisions on where to seek care (Kruk, Paczkowski, and others 2009). We concluded that these data are consistent with high home delivery rates, given that few facilities can provide the quality that women expect. A range of qualitative studies supports the notion that women avoid low quality facilities and may forgo care altogether if better options are not accessible (Abelson, Miller, and Giacomini 2009; Gilson 2003; Russell 2005).

Quality improvement in RMNCH is a vast enterprise that cannot be adequately summarized in a few pages. Some of the more promising recent approaches in LMICs to rapidly boost quality follow.
Measurement and Accreditation

Accreditation of health facilities, common in HICs, is increasingly used as a quality of care intervention in LMICs. Accreditation is a formal process of assessing whether a health facility meets agreed-upon quality standards; it is typically conducted by an independent body. Accreditation is more common in MICS than LICs. Quimbo and colleagues found that clinical performance in pediatric care was better in providers who worked in accredited hospitals in the Philippines (Quimbo and others 2008). An even more influential factor was receipt of insurance payments, which were disbursed at least in part on the basis of compliance with clinical practice guidelines—and so could be seen as a payment for performance.

In Sub-Saharan Africa, accreditation is still rare, and evidence of its effects is rarer still. The Zambian Ministry of Health implemented a comprehensive accreditation program for its hospitals with support from the United States Agency for International Development (USAID). The program succeeded in raising compliance with standards, but the complex logistics and high costs (US$10,000 per hospital) of the accreditation process resulted in its cancellation (Bukonda and others 2002). Liberia, which is rebuilding its health system after 14 years of civil war, has introduced more streamlined tablet-based data collection for accreditation in all 437 facilities in the country as a requirement for receiving funding. Facilities were then rated using a star system. Although the baseline data were successfully collected, the follow-up assessment to demonstrate quality improvements has not been completed. However, the initial data showing large deficiencies in laboratory functions spurred national purchase of laboratory equipment (Cleveland and others 2011).

Performance-Based Financing

One of the potential reasons for poor quality care may be a mismatch between provider knowledge and the effort providers make when treating the patient. This might be the case if providers are demotivated or underpaid. Performance-based financing (PBF) has been applied to improving the quality as well as the quantity of services.

A randomized trial in the Philippines tested the effect of a 5 percent salary bonus paid to physicians upon improvement on clinical vignettes—tests of clinical competence (Peabody and others 2013). They found improvements in self-reported health and wasting in children under age five who attended intervention facilities. The authors note that the measurement and feedback to providers about their performance on the clinical vignettes was an essential element of the intervention.

Rusa and colleagues found that PBF payments representing 40 percent to 80 percent of nurses’ salaries that were paid in part on improved quality metrics were temporally associated with improved quality of maternal and child health services in health centers in Rwanda. The metrics included completed partograms, growth curves, follow up for missed visits, and mother and child alive on discharge. Overall, the centers involved in PBF reached quality metrics between 80 percent and 95 percent of total possible scores within 18 months. However, the study design makes it impossible to disentangle the effects of PBF from overall salary increases, monthly supervision visits introduced as part of PBF, and other health system reforms at the same time in the country (Rusa and others 2009).

A lively discussion has ensued on the basis of these and other experiences about the role of PBF in global health. Some argue that whatever its short-term effects, instituting PBF can catalyze essential health system reforms (Meessen, Soucat, and Sekabaraga 2011). Others
believe that it is at best a partial solution and may create important distractions from more fundamental health system reform, such as expanding the health workforce and raising the salary floor (Ireland, Paul, and Dujardin 2011). Most agree that the jury is still out about the extent to which paying for performance—apart from raising salaries and increasing oversight—is transformative in improving quality (Basinga, Mayaka, and Condo 2011). The lack of evidence has not stopped adoption: 22 countries in Sub-Saharan Africa have introduced PBF in the past several years (Spector and others 2012; Soeters and Vroeg 2011).

### Training and Supportive Supervision

Supportive supervision is managerial support for front-line health workers, typically through periodic visits from first-level hospitals to peripheral facilities. It is intended to support quality of care and improve provider motivation and retention through nonpunitive review of practices and mentoring. It is popular in many countries where health services are decentralized and where structures to perform supportive supervision exist, at least in theory (Rowe and others 2005).

Bosch-Capblanch and colleagues conducted a Cochrane review of the evidence on supportive supervision in general primary care, not solely maternal and child health. They assessed nine studies and found generally small benefits for provider practice and knowledge. They noted that the quality of the assessments was weak (Bosch-Capblanch, Liaqat, and Garner 2011).

A few country studies since 2011 show more positive results. Hoque and colleagues found that monthly supportive supervision, combined with IMCI training, allowed health workers with 18 months of training to provide similar care to providers with four years of training in Tanzania (Hoque and others 2013). McAuliffe and colleagues reported that formal systems of supportive supervision were associated with high levels of job satisfaction and low intention to leave among clinical officers in Malawi, Mozambique, and Tanzania (McAuliffe and others 2013).

### Use of Checklists

Surgical safety checklists have been promoted as a means to reducing human errors in health care, by ensuring a systematic approach to each patient and procedure. Similar checklists have been introduced for intrapartum care. A pilot study of a 29-point checklist consisting of items such as hand hygiene, administration of uterotonic, and management of complications was piloted at a large hospital in Karnataka, India. The researchers found that the proportion of indicated practices increased from 10 of 29 to an average of 25. This approach has to be tested to ensure the result can be obtained with a proper counterfactual and, if so, can be sustained.

### Conclusions

Good maternal and child health care is critical to improving survival and quality of life. Both expanding access and improving quality are crucial elements of good care. Despite growing awareness of serious quality deficits, research on interventions to improve quality has not produced clear guidance on what works. This is due in part to the lack of coherent conceptual frameworks that would guide the testing of promising quality interventions in different settings. Where interventions are tried, the evaluation is often of poor quality. The situation is better for
interventions aimed at increasing coverage of services where good evidence exists for demand-side interventions to motivate service uptake. Particularly effective intervention to expand access include task-shifting, community groups, and conditional cash transfers. However, as the epidemiology of maternal and child death shifts to more complex causes, insufficient quality of care will be an increasing barrier to reducing mortality and morbidity and to achieving global health goals.

Note

<<unnumbered>>World Bank Income Classifications as of July 2014 are as follows, based on estimates of gross national income (GNI) per capita for 2013:

• Low-income countries (LICs) = US$1,045 or less
• Middle-income countries (MICs) are subdivided:
  a) lower-middle-income = US$1,046 to US$4,125
  b) upper-middle-income (UMICs) = US$4,126 to US$12,745
• High-income countries (HICs) = US$12,746 or more.
References


